

# **Expert Evidence on Liability Accident Investigation & Reconstruction**

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## **Introduction**

This paper deals with the field of investigation & reconstruction of motor vehicle collisions and the associated presentation of expert evidence on liability issues. It is not about the role of expert witnesses, but more toward providing an insight to the very nature of the accident investigation industry and displaying some clear working examples of expert evidence in this field.

When it comes to expert reports, the lawyers first instinct is to question the accuracy and reliability of expert evidence. The main concern however, is the question of how is it to be interpreted by a Court ? Just as two different experts may have conflicting opinions based on a single fact, so too may two separate Courts make different interpretations of the same expert evidence.

It is important therefore, that Lawyers and their Counsel are well acquainted with their expert reports and the material upon which they rely. It is of equal importance, that legal representatives have a reasonable understanding of the nature of “expert” investigations, so that they may firstly obtain and provide such useful information upon which an expert can confidently rely, and secondly, such knowledge assists Counsel to focus on and accentuate the significant areas of the expert’s report.

The field of accident reconstruction is limited only by the knowledge, skill and experience of the investigator. There are so many avenues of inquiry available to an expert in this field, that we could not possibly cover them in this short session.

We will be briefly covering the various levels of accident investigation available to the current market place after which our main focus will be devoted to the higher level of investigation normally referred to as accident reconstruction.

Apart from introducing you to typical and expedient avenues of inquiry for preparation of reconstruction level investigations, we will be looking at and discussing the very structure of such investigations and how they are achieved and presented, as expert evidence on liability issues.

## **Levels of Accident Investigation**

When we consider how the very nature of motor vehicle accidents affect our communities in so many different ways, we soon realise that many different kinds of information is required for a great variety of reasons. In most cases, only a few simple facts are obtained; but for others, more detailed scientific information is necessary to develop useful conclusions about how and why collisions occur.

So we find that the tasks involved in accident investigation vary from simple ones, requiring no special experience or training, to technical ones that require scientific knowledge and skills. So, as is the case with many other professions, accident investigation is conducted and/or practised at a number of levels.

1. Reporting
2. At-Scene Investigation
3. Technical Follow-up
4. Professional Reconstruction
5. Cause Analysis

## **Reporting**

The reporting of a motor vehicle accident consists of very basic data collection intended to identify and classify information such as time, date, location, persons, property involved and planned movements. The information is normally recorded by police (P5), insurance claim forms and employer's records, in an organised format.

## **At-Scene Investigation**

This level of investigation is your typical motor vehicle accident where General Duty police are summoned to the scene to take particulars. It involves extra data collection such as a brief examination of vehicles and road, making crude measurements and sketch plans, recording of additional information in notebooks, taking brief statements, alcohol/drug tests and witness identification. Some of the larger civilian firms also practice this level of investigation with work place accidents.

## **Technical Follow-up**

Where consequences of motor vehicle accidents are of a more serious nature AND there is a likelihood of criminal charges, the NSW Police Service will initiate this next technical level of investigation. In NSW however, the police service are divided into a number of complex specialist sections and regions which result in inconsistent and fragmented procedures at this investigation level. A basic understanding of police procedures will well assist in preparation of motor accident claims.

Crash Investigation Police. Normally, general duty police performing an at-scene investigation will identify the need for a more technical investigation. They will in turn request the attendance of the regional crash investigation unit. Crash investigation police, although specialising in accident investigation, receive no formal education by the police service in this field and largely rely upon work experience or funding of their own education. These units are supplied with basic equipment for securing and highlighting crash scenes, measuring distances and some sections have photographic equipment.

Their duties include:

- detailed examination of vehicles & roads;
- obtaining measurements and rough sketch plan;
- recording additional information in field job sheets;
- obtaining detailed statements and interviews;
- photography (some sections, sometimes)

Crash Investigation Police are also supported by other specialist police sections such as Crime Scene Units (also referred to as Physical Evidence Sections), Police Photogrammetry and Mechanical Examiners.

**Crime Scene Unit police**, (also referred to as physical evidence sections or more recently as Forensic Services), will attend the scene and take more detailed measurements, photograph the scene and/or obtain samples of blood, debris, hair or other matter, for further forensic tests. These police will normally prepare a photographic supplement and scale plan of the collision scene IF the matter is proceeding to court, otherwise the data will be filed. Photographs, rough sketch plans and scale plans can be purchased from the police service upon request, if the matter is not subjudice. Crime Scene Unit police are further supported by the Police Photogrammetry Section.

**Photogrammetry Police** are a small state support resource group located within the main Physical Evidence Section in the Sydney Police Centre. In general terms, this section conducts a precise survey of the collision scene using special stereoscopic cameras. They are normally summoned to an accident scene by the Crime Scene Police Officer, where such officer considers the scene to be of a complex nature. Sometimes this section will attend the actual scene of a collision however, due to their limited numbers, most of their investigations are conducted days or weeks after the event, and they are assisted in this regard by paint markings on the roadway recorded by at-scene investigators. This section normally produces a large survey plan of the collision site/scene which may also be purchased, along with black and white photographic prints exposed from the survey cameras.

**The police Mechanical Examination Branch** (more recently known as the Scientific Engineering Section), provide further support for the Crash Investigation Unit. These police normally conduct post-crash mechanical examinations of the alleged offender's vehicle only. Their purpose is to detect defects with the vehicle which they consider, may or may not have, contributed to the cause of the collision. However, it should be borne in mind that these officers have no formal training in the field of accident investigation and their knowledge of the crash circumstances is normally limited to a brief written description or summary of the event, and without reference to any witness statements, scene photographs, plans or physical evidence. Consequently, in preparation of their "expert" report, these investigators have no significant knowledge of how the collision occurred.

On the civilian side of things, insurance companies, self insuring companies, and large corporations also provide this level of investigation. Corporate investigations are normally fielded around occupational health and safety strategies whilst insurance companies will utilise private investigators to conduct follow-up factual investigations for either CTP or Property Claims Departments.

**Professional accident reconstruction** is, for all intents and purposes, the highest level of accident investigation and involves the effort to determine *HOW* a collision occurred. Typically, accident reconstruction consultants in Australia and overseas are produced mainly from traffic or mechanical engineering backgrounds and to a lesser degree, from police specialist backgrounds.

The results of this level investigation are usually in the form of a report which addresses live issues such as:

- vehicle/pedestrian speeds
- positions of vehicle/pedestrians during collision
- relative vehicle impact angles
- how injuries were received
- who was driving
- driver strategies and tactics

- possible avoidance manoeuvres
- road, vehicle and human factors
- sun/moon positions
- video animation/simulation

In so far as motor accident personal injury claims are concerned, a reconstruction level investigation usually commences by reviewing material supplied by a client, interviewing witnesses (including investigating police), conducting an investigation of the environment (photographing and surveying of the site), vehicle examinations, researching relevant issues, liaising with various authorities for discovery of official records, and finally, preparation of relevant exhibits and reports.

**Fraud.** In recent years, accident reconstruction level investigations have been quite successful in combating the epidemic of staged collisions with respect to fraudulent insurance property claims. These types of investigations however are very focused on vehicle damage analysis and correlation.

**Cause analysis** is defined as the effort to determine *WHY* a collision occurred. This type of investigation attempts to consider the complete combination of circumstances that contributed to the cause of the collision, including such things as the design and construction of roads and vehicles, human behaviour and injury mechanisms.

Wider ranging cause analyses are conducted by various road authorities via statistical studies of mass accident data. These types of studies usually produce various types of road safety programmes, such as identification and treatment of black spots, education programs for young drivers and school children, and the development of road safety strategies.

## **Accident Reconstruction Case Studies**

There are many different ways of reporting expert evidence. During this section, I propose to present a small number of interesting (finalised) case studies to visually demonstrate the very nature of expert evidence on liability, in so far as accident reconstruction is concerned. Please feel free to ask questions as we progress through each case.

### **References**

J. STANNARD BAKER and LYNN B. FRICKE (1986), Vol 1, The Traffic Accident Investigation Manual, Northwestern University.