



Dwayne G. Owen is a Department of Transportation and State of Illinois certified accident reconstructionist. Mr. Owen's training and twenty years of police experience involved all phases of police work including traffic, safety, hazardous materials, emergency planning, enhanced 911 and police administration.

A retired Deputy Chief of the Freeport Police Department, he has investigated in excess of 6000 motor vehicle accidents. He is co-author of the book, *Vehicle Accident Investigation: A Guide for Risk Managers and Claims Personnel*. Mr. Owen has a commercial driver's license and is a graduate of the SOS Big Rig Driving School.

Mr. Owen also is a nationally certified Motorcycle RiderCourse Instructor, a board certified forensic examiner and a professional evidence photographer.



QUICK RESPONSE TO A CRASH

An immediate, on-site investigation by a qualified investigator of the crash site and the vehicles involved is a critical first step in the reconstruction of a crash. Evidence is fleeting and it is important to record it.

Tire marks, especially those from anti-lock brake system (ABS) brakes, fade quickly. Temporary work zones in construction areas are dismantled. If a trailer is off-loaded prior to proper documentation, valuable load configuration and weight information can be lost.

Additionally, it is important to collect the data in a time frame that is consistent with the crash. If the issue involves visibility, such as foliage or vegetation, we want to be on the scene in a time frame that is consistent with replication of the conditions. We need to see the scene before the municipality cuts the foliage, for example.

At Ruhl Forensic, Inc. we use a total station, an electronic mapping tool that records the location of each data point in three dimensions (3-D), to map the crash site, thereby accurately documenting the crash site. With the total station, we can easily document all tire marks, gouge marks on the pavement, fluid spills, and tire tracks. We can also determine the slope and grade of the roadway and the medians, the width of the shoulder and the cross slope of the roadway, location of traffic control and road signs, and any obstacles to visibility. This data is the basis for any analysis that follows.

Ruhl staff also use the total station to document the damage to vehicles. The crush profile of a vehicle can provide useful information in reconstructing how the vehicle's speed changed during an impact. This is referred to as the Delta V of the collision. The total station is highly effective in doing a very

accurate crush profile of the vehicles that preserves the data for later use. Immediate investigation allows for clarity, as to whether the vehicular damage was caused by the crash or by subsequent removal of the vehicle.

One useful feature of the latest generation of total stations is the ability to collect data in areas and from objects that were previously inaccessible, such as electrical wires, overpasses and bridges. Also remote operation is possible, allowing the technician to gather data from a busy highway without ever stepping into the traffic lane.

The investigation of heavy vehicle crashes brings its own set of issues. Proper investigation of these crashes requires personnel with knowledge far more specialized than that of the average reconstructionist. For example, the air brake system of the tractor-trailer must be thoroughly examined. If the air system was damaged from the crash, our staff can supply air through a system of fittings and regulators so each brake can be aired up and tested for compliance with federal regulations. Few reconstruction firms have this equipment and the knowledgeable staff to accomplish this level of investigation.

The ECM (electronic control module) found on some vehicles can provide important information on speed and brake application in the time frame surrounding the crash. In some models this information is lost once the engine is restarted.

An immediate, independent investigation by trained personnel of potentially serious crashes is important for several other reasons. Without proper documentation by a trained independent investigator, the only documentation available as the case progresses will be the result of the police investigation. The



Ruhl Forensic, Inc.'s staff provide expertise in: mechanical and electrical engineering, collision investigation and vehicle dynamics, biomechanics and human factors, heavy vehicle driving and mechanical systems, federal regulations and compliance, fleet safety, traffic engineering, construction zone safety, OSHA, graphic visualization, and other areas.

Our experts provide a continuum of service from initial on-site investigations through research, testing and reconstruction to courtroom testimony and presentation graphics and visualization.

We offer quick response to your investigation needs 24 hours a day. Contact us by calling 1-800-355-7800, 1-800-235-2808, or 1-800-278-4095.

Please feel free to call us with any questions that you may have and we will direct you to the appropriate individual within our firm.

quality of the police investigation or the competency of the individual police officer performing it can vary from very good to poor. Few officers have been trained in crash reconstruction, let alone heavy vehicle reconstruction.

It is not uncommon, for example, to find that the police officer does not know the difference between a yaw and a skid mark. In one case, the police officer calculated a speed of 110 mph for a vehicle that was actually going the legal speed limit. The officer misapplied the formula and came up with a speed that was obviously wrong. However, without documentation by an independent investigator showing that the tire marks were yaws and not skid marks, it would have been difficult to prove that the officer was incorrect.

Complete investigation of the crash is important to the reconstructionist. It is amazing but true that in some serious crashes the police do not have photos and do not do a reconstruction. In a recent case involving a fatality, the police file consisted of only the standard two-page crash report. If the company involved had relied on the police and had not hired an independent investigator, the company would have had very little data with which to defend themselves.

Finally, an immediate competent investigation allows risk managers, insurance personnel and others involved to make informed decisions quickly. In one situation, Ruhl Forensic was called early on a Saturday morning and was asked to investigate



A quick response by the investigator allowed him to accurately document the final rest positions of the vehicles involved in the crash.

a multiple fatality crash involving a car and a tractor-trailer. As the investigation progressed, it became apparent that the tractor-trailer driver had made an error in judgment and was a major contributing factor in the crash. By giving this information to the risk manager quickly, the company was able to make an informed decision as to its course of action.

As you can see, an immediate response by an independent, qualified investigator is an important first step in the event of a catastrophic loss. Ruhl Forensic provides rapid on-scene response by qualified investigators and reconstructionists 24 hours a day, 7 days a week.

For further information on accident reconstruction contact Dwayne G. Owen at (800) 355-7800 or at ruhl@ruhl.com.

For a quick response to a crash, please call our Champaign, Illinois office at (800) 355-7800, Chicago, IL at (800) 278-4095 or Scottsdale, AZ at (800) 235-2808.

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