Data Collection in Vehicular Accident Reconstruction

Introduction

MOST ATTORNEYS WHO SPECIALIZE IN PERSONAL INJURY LITIGATION WILL AT SOME POINT BECOME involved with a vehicular accident case. I have worked with attorneys that handle these types of cases almost exclusively, but for some, especially younger attorneys, their next case may in fact be their first. This article discusses the importance of evidence collection and documentation to assure a proper foundation for facts that will ultimately decide the case.

Data Collection and the Preservation of Evidence

Data collection comprises the initial part of each case, and is critical since all else follows from this collected information. It is important to understand that as the attorney you are in the best position to ensure that data is collected and preserved. Such evidence may consist of tire marks, scrapes and gouges, fluid trails or pools, and damage to roadway objects such as utility poles, curbs, guard rail, etc. The vehicle evidence includes the condition of the brakes, tires and

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steering components as well as the crush damage and accurate identification of the vehicle make model and type. When these data are not properly collected or are missing, a reconstruction may be difficult or impossible. Since much of the transient evidence can disappear rather quickly, the attorney must act rapidly to ensure preservation. However, the decision to collect data is not always obvious since one must compare the cost of data collection and preservation with the anticipated future value of the case.

In a case where liability is high and damages are severe, collection of evidence is both clear and warranted, and the attorney should collect and preserve evidence on an immediate basis. Conversely, liability may be initially unclear and damage or trauma may seem mild or minimal. In cases like these, the decision to collect evidence is more difficult because of the low probability of potential case value. In such instances, an attorney may forego collection of evidence, considering it an unwarranted expense under the conditions. Reliance on data then rests with information in the police report or from various photos that may exist. The downside is that the case may increase in value as injuries linger or worsen and/or liability shifts to the opposing driver. If reconstruction data is missing from the police report and photos, it may be lost forever and seriously compromise the attorney's ability to substantiate important facts and guide the case to a successful conclusion.

Sometimes, a reconstructionist may be able to re-create data inferred from secondary sources such as photos, notes, etc., but the extra expense of doing so can greatly increase the cost of reconstruction. I have personally had several instances where the cost of a reconstruction has doubled due to the extra work necessary to re-create roadway or vehicle evidence that should have been collected as part of the initial investigation.

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Based on my experience over the last 25 years, I have found that it is always advisable to document scene evidence at the outset even if the attorney is unsure of the merits of the case. If there is a question as to whether a full-scale survey is required, I would suggest a staged approach. For example, an initial approach would be to immediately get to the scene and place permanent survey tacks into the pavement to mark critical locations such as skids, gouges and other transitory evidence. The scene would then be photographed from known points so that camera locations can be identified at a later date. It is wise to videotape the scene while providing narration of observed evidence. If at some later date, a full survey is required, the scene and evidence can be accurately reproduced from the permanent markings and photographs.

The attorney must be aware that one cannot always rely on measurements provided in a police report[2]. While it is standard practice to provide a scene diagram in the police report, these are many times nothing more than conceptual sketches unsuitable for quantitative reconstruction. In addition, reports and diagrams are often completed by traffic officers with no training in reconstruction, and little time to spend on evidence documentation. As an example, a police diagram may show the length of a skidmark, but fail to relate its location to a known reference point. Sometimes multiple skids are shown, but the vehicles and tires that made the marks are not documented. Additionally, measurements provided in the diagram may be "paced off" and not measured using an accurate device. Therefore I suggest at the outset that police diagrams and measurements be verified using the staged approach as described above.

Crash Data Recorders

All cars equipped with air bags must have a controller to sense the crash and deploy the bags. In General Motors cars this unit is called the sensing and diagnostic module (SDM) and has been used by GM since the mid to latter 1990s. To better understand how real-world crashes occur and to gain knowledge about forces imposed on occupants during crashes, GM began to equip the SDM units with a recording capability which has the capability to store both

does so by means of a loop recorder that keeps 5 seconds of data in its memory buffer. When the SDM senses a crash (higher deceleration), it freezes the buffer and captures the 5 seconds of pre crash data consisting of vehicle speed, engine rpm, brake engagement, and throttle position. The post crash data consists of the velocity change during impact, which is a measure of crash severity.

In 1999, GM entered into a contract with Vektronix Corporation to manufacture and market a commercially available tool that would allow anyone to download and capture the crash data onto a laptop computer. In 2003, Ford also joined the program to make their crash data available. Many heavy commercial vehicles are also equipped with data recorders, but in most cases investigators must defer to engine manufacturers to download and interpret any recorded information. use these units within the past 2-3 years, and as a group are still learning the proper methodology for downloading and interpreting the data. However in my opinion, this technology is in its infancy and will continue to rapidly grow. There are already cases in which the black box data has been introduced into the litigation process and collected data accepted as evidence. Due to the increasing presence of these devices, I would advise all who take on an auto or truck case to immediately determine if the vehicle is equipped with a recording device. Accident vehicles tend to quickly disappear, so it is important that any vehicle be secured until inspected by a trained reconstructionist.

As a word of caution, I have noticed that some companies are advertising a flat rate to download black box data giving the impression that a reconstruction is no longer necessary. Unfortunately that is not the case. Even if crash data among users is that reconstruction must be performed to confirm the recorded data.

In conclusion, evidence collection and preservation, including information stored in the air bag module, is essential for an accurate quantitative reconstruction. The attorney's role is to ensure that the fundamental evidence is retained and properly documented. The success or failure of the case may depend on the attorney's ability and willingness to do so. ❖

[2] This does not include reports prepared by the FAIR TEAM. They have training in accident reconstruction and survey techniques and use total station laser measuring devices.