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## Evidentiary Challenges Presented by Computer-Generated Accident Reconstructions

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Trial counsel in motor vehicle and trucking cases often rely on computer-generated accident reconstructions to sue or defend the driver and explain to a jury how an accident occurred. To recreate events leading up to a collision, accident reconstruction experts use information collected during their scene investigation to establish the facts necessary for reconstruction. These facts can include road and debris measurements, speed and braking of the vehicles, visual impairments, weather and road conditions, road signs and special features, and sometimes the nature of accident victims' injuries. Information can also come from statements given by the drivers, eye-witnesses, and emergency personnel.

In some cases, accident reconstructions are completed immediately after the initial investigation. For other cases, they may occur much later. The method and manner in which the underlying data is compiled and preserved has a significant bearing on whether an accident reconstruction will be admitted into evidence at trial. Some observations based on experience and case law may be helpful to lawyers and clients faced with an evidentiary challenge.

### Determining Admissibility of Expert Testimony

Accident reconstructions are an expensive proposition. Significant time is spent by investigators, expert engineers, and computer graphics experts to create the visual explanation of how the accident occurred. Although an expert creates and seeks to admit this evidence and the evidence law generally favors admissibility of expert opinions, accident reconstructions are often challenged when they can be shown not to be based on facts that accurately reflect or depict how the accident occurred. For several reasons, the admissibility of an accident reconstruction and an expert's accompanying testimony are not guaranteed when challenged.

Aside from evaluating relevance and balancing probative value against prejudice, the courts will assess an expert's qualifications as well as whether the basis for the testimony is reliable—essentially a full analysis based on Federal Rules of Evidence 702 and 703. Although visual aids are generally admissible, federal and state court judges understand the significant potential for jury confusion associated with the admissibility of computer simulations, animations, videos, and diagrams if the demonstrative aids do not reflect how events occurred at the time of the accident. Therefore, courts carefully examine the evidence to determine whether a reconstruction accurately depicts how the collision occurred. Both plaintiffs and defendants will often emphasize their challenge by attempting to argue that an expert's work product is a recreation or animation rather than a depiction of the facts in graphic form.

When ruling on the admissibility of reconstructions, federal and state court trial judges often will ask whether the nature, quality, and substance of the facts depicted match how the collision events unfolded. The test, developed across several federal circuit and state courts, is whether the reconstructed evidence is "substantially similar" to how a collision occurred. If so, the court will admit the evidence to aid the jury's liability determination. If not, the court will strike the evidence as prejudicial under Federal Rule of Evidence 403 or its state court equivalents on the basis that it is likely to confuse the jury and often will tend to create bias in the jury's analysis of liability. See *Jackson v. Fletcher*, 647 F.2d 1020, 1027 (10th Cir. 1981).

### Accurately Recreating an Accident

The lawyer seeking to admit the evidence needs to make sure the expert used the collision investigation data to accurately recreate the vehicles' speed, pre-impact direction of travel, impact positions, post-collision direction of travel, environmental and weather conditions, and traffic factors that include the presence of other vehicles, sight lines, road signs, shoulders, and entrance/exit ramps. The trial lawyer cannot assume that a reconstruction accurately depicts these collision factors because courts have refused to admit accident recreations that were determined to distort the events leading up to a collision. In the *Jackson* case, the Tenth Circuit ruled the defense expert's reconstruction and testimony inadmissible because the expert calculated a tractor trailer's pre-impact speed and braking distance based on an unloaded trailer when the vehicle involved in the accident was loaded. The court concluded that because the expert's analysis failed to account for the 37,000 pound weight discrepancy between the vehicles, the reconstruction could have misled the jury to conclude that the loaded tractor trailer could have braked to avoid the collision.

Similarly, courts expect accident reconstruction experts to recreate collisions using the same type of vehicles, with similar, if not exact, design attributes. See *Shipp v. Gen. Motors Corp.*, 750 F.2d 418 (5th Cir. 1985). In *Shipp*, the Fifth Circuit also excluded the expert's opinion because his video depicting the rollover of a vehicle portrayed a multiple rollover crash rather than a single rollover, which is the way the crash in that case actually occurred.

### Review and Evaluation of Reconstructions

Factually flawed accident reconstructions will serve as a basis for Rule 702 or 703 pre-trial motions to exclude an expert's opinions. For example, in assessing a video reconstruction and underlying data, a qualified engineer reconstruction expert skilled in the use of the program used to create the recreation should perform an analysis. Aside

from analyzing the hard facts derived from available sources, the review should confirm that the area depicted is the same or at least substantially similar to that found on the accident date. Other key issues often faced in challenging video simulations include weather conditions, nighttime conditions, conspicuity of vehicles, the size of the vehicles and their relation to one another and to road landmarks, sight lines, actual driver activity, identification of debris and damage on the road, speed relative to movement of vehicles during the crash, points and times of impact, and how the relative passage of time is depicted in the reconstruction.

Trial courts should evaluate accident reconstructions by using a uniform or at least a similar standard, but experience tells us that reconstruction evidence review standards vary according to judge and jurisdiction. However, courts are usually consistent in requiring an evidentiary hearing at which the expert must substantiate the reliability of the computer-generated reconstruction, videos, or photographs and show that the recreation is substantially similar to how the collision actually occurred. The collective challenge for lawyer and expert is to carefully document the factual support for the reconstruction investigation as well as the foundation for the computer-generated reconstruction video so that courts will not hesitate to allow this important piece of evidence into an accident case. ❖

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