



WARREN

Forensic Maps And Diagrams

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Scaled maps and diagrams are useful tools for preserving and analyzing complex evidence, particularly the evidence at collision scenes. The relative positions of various artifacts can be very important to the analysis and reconstruction of what happened. A scaled map can be used to determine the paths of vehicles into and out of the collision and many other important parameters for collision reconstruction methodologies.

Some of the important things to document at a collision scene are

1. Terrain features
2. Cultural features
3. Landscape features
4. Road geometry
5. Traffic controls and signs
6. Locations of tire marks
7. Collateral damage
8. Gouge marks
9. Vehicle resting locations
10. Debris patterns

A scaled map can be used to determine the line of sight from different vantage points and for reconciling what witnesses and drivers recall.

For instance, a driver may tell you he didn't see any traffic approaching when he pulled away from a stop sign. Yet, his car was "T-boned" in the middle of the intersection. With measured distances and speeds deduced from reconstruction methodologies, the engineer can place vehicles at various positions on a scaled map and determine if the approaching vehicle was actually visible at the time the driver looked and decided to go.

As the analysis of the collision progresses, the engineer may need additional distance measurements. A scaled diagram is also useful for obtaining those measurements without having to take specific measurements at the scene. For example, the distance a car traveled from a stopped position to the point of collision can be measured with good precision right from the diagram.

Recent advances in the capabilities of modern survey measurement equipment have made the acquisition of the measurements to prepare an accurate scene map much safer. Laser distance measuring capabilities that are now incorporated in total station machines can accurately measure visible points without a reflector, at distances as far away as 200 feet. That means that points on busy roadways can be accurately measured without requiring someone to hold an instrument on a point on the road. The total station can be set up at the side of the road and one person at the total station can measure tire marks.

Scaled maps are useful tools for analyzing many other kinds of mishaps, especially where the geometry of the scene is important. A scaled map can help resolve line of site issues and the relative placement of artifacts can help establish a sequence of events.

Additionally, the laser measurement capabilities of the new total stations can help the fire investigator make measurements that may be too dangerous to get with the standard tape measure.