

MICHAEL PLUNKETT/Inquirer Suburban Staff

Jeffrey Grey, 53, an ex-Lumberton traffic sergeant, searches for parts of an automobile at a crash site near a bridge on Westfield Road in Moorestown. Using physics, forensics and legwork, he reconstructs the stories behind accidents.

Traffic-crash experts take mystery out of skid marks

By Adam Fifield
INQUIRER STAFF WRITER

Jeffrey Grey combs through car wrecks with the attention of a crime-scene investigator. Instead of scrutinizing fingerprints and gunpowder residue, he analyzes tire marks, shattered windshields and crumpled bumpers.

A crash reconstructionist based in Lumberton, he is hired by lawyers and insurance companies to make sense of the mayhem of serious collisions. Using everything from basic algebra to lasers, he has pieced together with surprising detail the cause of many mangled and nightmarish tableaux.

"The roadway tells a lot of stories," said Grey, 53. The husky, 6-foot-4 former Lumberton traffic sergeant estimates he has inspected 2,500 crash scenes, more than 800 involving deaths or serious injuries. His reports and testimony for the Burlington County Prosecutor's Office, where he founded the collision analysis and reconstruction unit in 1990 and ran it un-

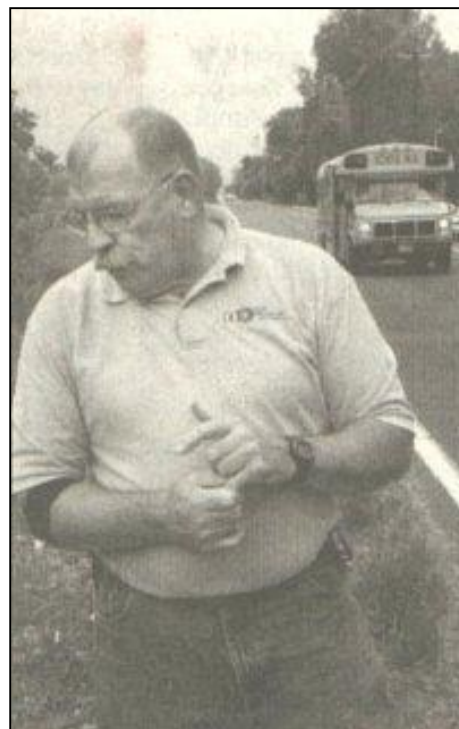
til 2001, helped ensure that many drunk and reckless drivers landed behind bars or paid stiff penalties. Reconstructionists combine physics, forensics and sleuthing to figure out how crashes happened and who, if anyone, was at fault. Many work for law enforcement agencies, and others as private consultants.

There has been plenty of business lately. In New Jersey, there were 771 traffic deaths in 2002 — up from 745 in 2001 and the most in five years, according to preliminary data from the state's Division of Highway Traffic Safety. Pennsylvania traffic fatalities jumped from 1,532 in 2001 to 1,618 in 2002 — the most since 1992.

Brisker traffic could be one reason for the rise in deaths, said Martin Long, coordinator of the Pennsylvania State Police collision analysis and reconstruction unit.

Grey cited "preoccupation," including cell-phone use, as a factor in many crashes. "There are people eating and steering with their knees.

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Grey, one of the state's top crash experts, estimates he has inspected 2,500 crash scenes, more than 800 involving deaths or serious injuries.

Reconstructionists unravel mysteries of vehicle accidents

CRASH from B1

They're putting makeup on. They're not, paying attention to what they're doing."

His business partner, James Mentzer, former crash expert for the Gloucester County Prosecutor's Office, suggested that higher death rates might arise partly from driver angst.

"I think it's not just that there is more traffic, but the frustration that people have to deal with more traffic," Mentzer said, "We have a lot more incidents of road rage."

Grey and Mentzer considered among the top crash experts in New Jersey founded Impact Reconstruction Consultants L.L.C. in 2001. The firm handles civil cases, providing services such as "next-day crash site inspections," "vehicle crush analysis," and "heavy truck, motorcycle and bicycle crash reconstruction."

Both men are adjunct instructors for the University of North Florida's Institute of Police Technology and Management and are contracted by New Jersey to teach crash-investigation classes for police. To avoid a conflict of interest, their firm does not take criminal cases.

The accidents they have investigated have included the grisly and the bizarre.

In the late 1990's, Mentzer worked on a case in which a woman was thrown from her car while on the Black Horse Pike, bounced off the roof of a house, and landed in woods. The roof became part of the crash scene.

After a fatal accident in Monroe Township in the mid-'90s, a bowling ball was discovered inside the car, which had hit a tree. The force of the collision, Mentzer's unit determined; had launched the bowling ball from the trunk through the backseat and into the driver's head.

"The bowling ball became a cannonball," Mentzer said. After measuring "yaw marks" - made by tires sliding sideways - in a fatal head-on collision in Monroe Township in 2000, Mentzer-plugged the information into mathematical formulas to determine that the car that had caused the crash had been traveling 47 m.p.h. He concluded from other evidence that the driver had not braked and had served into the oncoming lane after striking a mailbox.

Hit-and-runs can be challenging to unravel.

"We solved a case in Moorestown where all we had were two skid marks, a windshield-wiper blade and a body," Grey said.

The job carries an emotional toll, Mentzer said.

"I've seen people decapitated. I've seen people split in two. I've seen people crushed into unrecognizable forms. You never get used to it, but you kind of build a wall."

Grey sometimes strays as far as 1,000 feet from the site of the crash. "I'll walk into the weeds, because you'll find stuff in there," he said. "If the grass is pushed down, you might find a

hubcap, or a body, or a baby seat with no baby in it."

Grey's "crash kit" contains measuring tapes, a camera, a sledgehammer, a tool to break into cars, a level for establishing the grade of a road, an electronic accelerometer that determines the "drag factor" of the surface, and a device that uses lasers to measure skid marks and road dimensions. On Mentzer's laptop are software programs that can generate bird's-eye and three-dimensional views of a collision.

Another tool is an event data recorder, a small electronic device that some cars have inside the dashboard or under the console. Now in as many as 40 million cars, the units can register important information, including speed, - throttle position, whether the seat belt was buckled; and whether the brake had been applied.

"It's a piece of evidence that we may be able to utilize," Mentzer said, "but it's not going to give us all the answers. ... It's not going to tell you who ran the red light"

The number of reconstructionists at law enforcement agencies in New Jersey has grown in the last 10 years, in large part due to federal grants funneled through the state Department of Law and Public Safety.

New Jersey's state police have a fatal-crash team, and most counties have started crash units, usually operating out of the Prosecutor's Office.

Fewer than one fourth of Pennsylvania's counties have reconstructionists, Long estimated, but many municipalities have crash experts as well.

Both states pay for voluntary classes in crash reconstruction for state troopers; New Jersey also pays for municipal officers.

But Grey added that there are still officers with little or no crash-investigation training. "Some departments just don't think this is important," he said.

One of the nation's most famous crash reconstructions involved the case of Karen Silkwood, the nuclear-plant whistle blower. In 1974 in Oklahoma, Silkwood was on her way to meet a New York Times reporter to discuss alleged safety problems at a Kerr-McGee nuclear facility when she died in a car crash. The state police investigation found no foul play.

But A.O. Pipkin, a reconstructionist hired by Silkwood's union, found a fender dent that he said indicated her car had been hit by another car before it careened into a concrete wall.

Nearly 30 years later, he has kept his Silkwood file open.

"Somebody murdered the girl," Pipkin said. "I just haven't found out who."

Grey said he treated every fatal crash as if the victims had been members of his family.

"I try to look at it that way to make sure I cover all the bases."

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