You are Not Down Yet!

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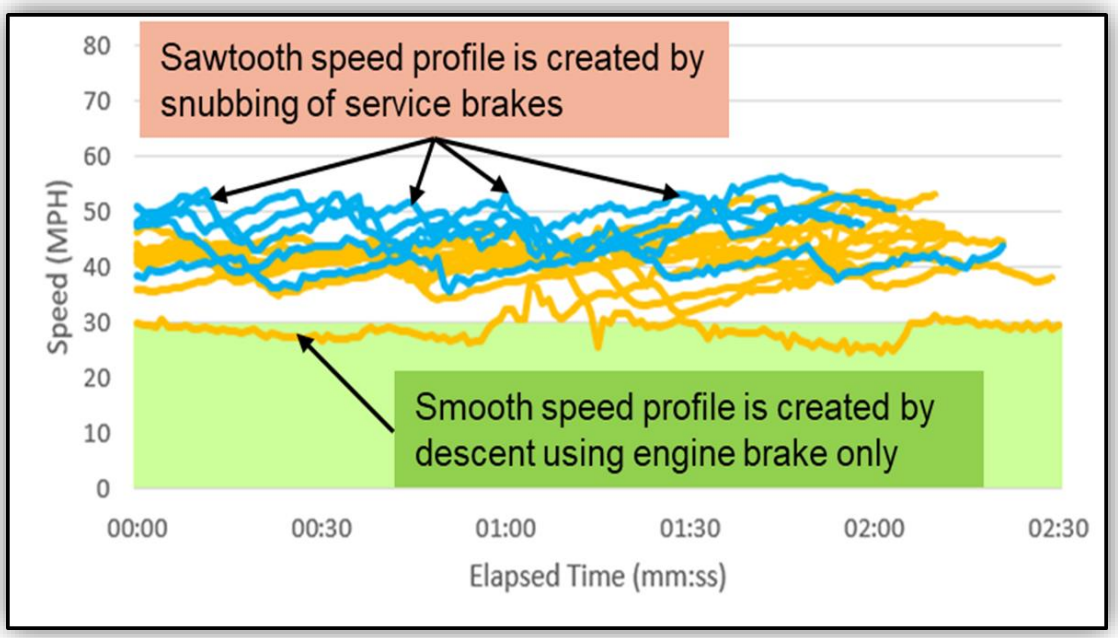
Phoenix, AZ: Five hours after concluding a meeting with a client discussing field trial results for ***Road-Aware,*** a new driving aid for truckers on steep grades and sharp curves, tragedy struck on I70 eastbound into Denver. A driver from Houston who may have been driving I70 for the first time, suffered a brake failure and missed the emergency exit ramp. Hitting speeds of 80 mph, the driver entered the western edge of Denver where there was a long traffic tailback caused by a previous non-fatal crash several miles ahead. With nowhere to go and no way to stop his rig the driver plowed into the stalled traffic. The results included four deaths, six or more injured, twenty-eight vehicles damaged or destroyed and one driver who will likely spend years in prison and experience a lifetime of regret. What a tragic outcome for a truck driver who was simply trying to do his job but forgot some key portions of his CDL training. However, there is little in driver training (CDL Manual or Operator's Manual) or technology presently in the truck, that provides the driver with an actual safe speed based on truck configuration, vehicle dynamics and road geometry. The sign below does not help if the driver doesn't know the safe speed he should be driving.

In fact, many if not most truck drivers are taking descents too fast as was proven in a field trial carried out in Arizona over the past 6 months. Working with a bulk hauler client, ten tractors were equipped

with tablet computers featuring ***Road-Aware,*** a software product that provided alerts and safe speeds to the drivers for descents and curves. The system also recorded truck location, direction and speed every second of the trip. During the trial, data was recovered from 199 trips on 3 long descents. The following graph shows typical speed profiles on one of the most difficult descents. Note that most drivers are using their service brakes for the descent even though CDL training and the operator's manuals for the tractors used in this trial recommend descending on engine braking only.



The recommended safe descent speed for this segment of the descent is 30 mph for a truck with a GVW of 80,000 lbs. and engine braking capacity of 350 hp. As can be seen in the charts above most drivers are doing the descent at 40 to 50 mph.

Obviously descending using service brakes works out most of the time but that is because the driver is not required to stop at the bottom of the descent. As the driver on I70 discovered when he approached a tail back on the freeway from a previous crash, over heated brakes have very little braking authority. Unable to stop or even slow down his rig, the driver crashed into multiple vehicles causing loss of life, injuries, and property destruction.

In defense of truck drivers, they are not given much help in managing the huge release of energy that occurs when an 80,000 lb. vehicle is lowered 1,000 ft. or more. There are some excellent sources of information about the major descents in the western US published on line and in print. John Glennon has a description of the east bound descent into Denver at: www.crashforensics.com

The posted speed for trucks over 30,000 lb. GVW is 35 mph. Recommended speed from the Grade Severity Rating System is 30 mph. The reader is cautioned that the recommended speed is based on average slope and a slower speed may be required for the steepest section. There is another publication covering all descents in the US available for purchase online at: www.mountaindirectory.com

Application to Arizona:

While runaway crashes occur less frequently that rollovers, the potential consequences are staggering. Loss of life, disabling injuries, criminal charges, destruction of equipment and huge liabilities for the trucking company and the shipper make these crashes even though infrequent a clear and present danger to all. Is the I70 scenario unique to Colorado? Can the crash cited above be transposed to Superior on US 60, or to Clifton on AZ 191? The picture below is a runaway crash that happened on I17 northbound after the driver took the exit to Camp Verde. The driver of the semi was unable to stop and hit the Mercedes van killing the driver of the van and its only occupant.

Convincing drivers to slow down on descents may be the most important and beneficial result from the field trial in Arizona. The descent from Top of the World to Superior only takes 6 minutes longer using a speed that allows the descent on engine brake only (assuming a full load and tractor equipped with an engine brake). If drivers will slow down on descents, they not only protect themselves, but they also protect the public, their company and their clients.