

## AN INDUSTRY PERSPECTIVE

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Since 1981, the *National Cooperative Highway Research Program (NCHRP) Report 230* has served as a reference document used widely by people and agencies concerned with improving highway safety. Researchers, designers, specifiers, testing labs and others who evaluate highway safety products -- both nationally and internationally -- have relied upon this reference tool for guidance. Now it is being proposed that *NCHRP Report 350* replace *NCHRP Report 230*. Although this new and broader publication (*Report 350*) addresses previously unresolved issues, other issues remain to be addressed. One of these issues in particular is: Should testing labs be required to become certified and if so, can a product be tested and certified by the entity that developed it?

Whether one is part of industry, a State Department of Transportation (DOT), the Federal Highway Administration (FHWA), an independent testing lab or a research facility, the objective we all share is the same. It is to do our part to make highways safer places to travel today as well as into the 21st Century. No individual in his/her right mind would intentionally certify a product containing flaws. Even if one was tempted, the risks of credibility and liability would quickly come to mind. Remember The Ford Motor Company and its Pinto?

The issue of developing and testing one's own products is not a new topic. The state of New York did it in the 1960's. The FHWA took it one step further when it developed, tested and approved for national use its own system known as the MELT (the Modified Eccentric Loader Breakaway Cable Terminal). This development within the industry is not all bad when we think about it. After all, a new crashworthy product became available and is currently emerging on many roadways.

Unfortunately, the cost of research and development is extremely high and the FHWA has been directing more efforts towards computer simulations than full scale crash tests, resulting in less product development by the FHWA. Unless the developer is able to earn a return on his/her investment, no new and innovative highway safety products will be developed and/or marketed. Testing facilities that support this process are necessary and generally productive in accomplishing the ultimate goal of providing safer highways and saving lives.

If a research facility patents its own invention, it owns that invention and all the rights thereto. At that point, should the product be taken away and tested elsewhere? Is the potential for conflict of interest such that it should be tested at another facility? If the product is designed and then tested by the research facility, it would be more familiar with every aspect of the product or system than anyone else. It would then be in the foremost position to provide guidance for the product's intended use based on specific crash test results it would have the ability to access. The capabilities of the product or system are therefore established before being offered for general service. The developers could give recommendations on the design features as well as limitations. In the past, this area of expertise has not been exercised to its fullest. On occasion, state DOTs or other authorities will request a product strictly based on price or allow alternatives simply for the sake of competition. This price sensitivity exists to the point that sometimes the only criteria being used to make decisions is price. The actual performance and capabilities of the product or system are not even considered. That stand, of course, is not in the best interests of the public. It's an indisputable fact that no one single product exists to protect drivers from every real world hazard. Possibilities are endless, precluding a scope of testing required to assess them all. Therefore, we need, and should welcome, the experts to provide guidance for actual field applications on the wide variety of products they have brought into the marketplace.

In addition, the FHWA's October 9, 1991 memo states, "The decision whether FHWA accepted traffic barriers should be deployed as experimental or operational should be made by the states." This statement provides even more reason for states to approach the inventors and qualified testing firms to obtain guidance on the application of each particular products' or systems' safety features.

The question still remains, should testing labs be required to become certified? If nothing more than testing cones, drums or barricades for a work zone was performed, the simple pass/fail criteria would not warrant a certified testing facility. If no instrumentation was required and a live driver was used, not much exists to be certified. However, if a respectable amount of valuable data with measurable results were able to be

generated, certification would certainly increase the testing agency's credibility as well as the user's confidence. The definitive test to measure the success of any device will remain the in-service evaluation. Still, anything one can do to enhance both the quality and consistency of the testing process will only improve our industry.

As we begin to address the requirements of *Report 350* along with new concerns such as side impacts, testing at curbs, testing at slopes, and testing with wedge shaped front end vehicles, it is becoming increasingly important that consistency be established across the industry throughout the testing sequence.

*Report 350* discusses setting up tests. The product or system is installed per the manufacturer's specifications and a vehicle is chosen. Not much to certify here. Then the test is run. Again, *350* provides guidelines. The recording of data both visually and electronically and the interpretation of the results is where certification would become an issue. We should be able to directly compare time elapse, flail space, occupant impact velocity, Delta V, ridedown decelerations, barrier and vehicle damage and vehicle trajectory, among other data. The high speed film analyzers and the accelerometers could all be calibrated, but would a paper trail along with certification insure reliable and therefore comparable results among all participating labs?

Any of the eight or more labs currently performing tests, whether the tests are full scale crash tests, pendulum, bogie, or computer simulations, would probably meet certification tests. All the development testing could still be done behind closed doors because such activities are nothing more than developmental. It is the compliance testing that needs to be closely monitored and the objective results publicized.

Certification, however, raises more questions than it answers. For example, what entity would certify the test labs? Staff to monitor the process and an agency to enforce the standards would have to be found. The FHWA, the National Highway Traffic Safety Administration (NHTSA), NCHRP, industry, or a newly created representative committee are all possibilities. But who would want to take on that task and at what cost?

Secondly, who would establish the standardized criteria and what level of performance should be considered acceptable? Each test matrix for a given project or design has particular requirements. The normal sequence of awarding contracts for testing is to solicit proposals, rank the proposals and make the award based on the technical qualifications and price. Only those testing labs qualified to perform the tests could submit proposals.

Third, but not necessarily the last question, what real benefits would be realized? If all the data acquisition systems were identical, we could calibrate them. However, this process would not insure repeatable results with what appears to be an identical test. Virtually all systems are sensitive to fabrication, installation and the environmental conditions to which they are subjected. Vehicles will always vary slightly and no two crash dummies are exactly the same or will be placed identically within different vehicles. A combination of any or all of the above mentioned instances could lead to significant variances in the data collected.

If some of these issues could be resolved, certification would be beneficial. But we certainly do not want certification to increase testing costs, which will ultimately increase the cost of the finished product, if quality is not increased by the same proportion. If the only goal of certification is to instruct a facility how to run a test and measure results, it could be accomplished by conducting a seminar in conjunction with a TRB meeting.

In conclusion, the efforts of this industry to make highways safer have been favorable. It was reported that traffic deaths in 1992 hit a 30 year low. This statistic marks the first time since 1962 that yearly fatalities dipped below 40,000. Improved quality roadside safety hardware was an important contributor to the improved industry statistics. No ideas of any value will ever make it to the marketplace unless someone takes charge to support the product through its life cycle. Industry has made the investments and commitments to elevate highway safety to the next level. Congress enacted the Intermodal Surface Transportation Efficiency Act (ISTEA) and the FHWA has restricted the use of certain outdated technologies on our highways. We also appear to be moving from NCHRP 230 to NCHRP 350, greatly contributing to international harmonization, and are in the process of converting to the metric system (although not everyone feels this process is a step forward). All of these actions are intended to be progressive and at times, appear aggressive. In the final analysis, the purpose of test labs is to run the test and report the results. Anything we can do that will improve the overall process without significantly affecting development costs should be done, but first we must conclude that the move is definitely forward and not lateral. If so, the time may be right to standardize and certify testing procedures, whether performed by independent agencies or developers of the product subject to these tests.