House Transportation and Infrastructure Committee
ITS America Briefing
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Remarks by Peter F. Sweatman
Director, University of Michigan Transportation Research Institute (UMTRI)

I am extremely pleased to have the opportunity to address the Committee.

I speak to you as the leader of an institute with long-standing links to the auto industry in Detroit and a record of contribution to the science of driving. We are currently leading the nation’s largest independent effort to integrate vehicle-based crash-avoidance systems, to help drivers avoid intersection and lane departure crashes in particular. This USDOT program, known as Integrated Vehicle Based Safety Systems (IVBSS), combines cutting-edge knowledge of both vehicle technology and driver behavior. The IVBSS program, $25 million of USDOT monies complemented with $7 million of auto industry cost share, is a prime example of government, industry and university collaboration. Vehicle safety technology has developed to the stage of seriously tackling crash prevention and ITS has become a major component of my institute’s program.

We now have the opportunity to create a truly intelligent transportation system by connecting our drivers, vehicles and infrastructure. The coming revolution enabled by ITS has the potential to address all of the problems which beset our aging highway system: unacceptably high fatality and injury rates, unreliable travel times, suffocating congestion, freight bottlenecks, homeland security and the overall lack of sustainability of our current model of personal mobility. But today I would like to focus on highway safety. I do this because it is an important issue in its own right (at an annual cost of $240 billion), but also because it represents the “high bar” for the capability and performance of our technology.

The breakthrough concept which needs to be deployed with a true sense of national resolve is co-operative highways. This means establishing permanent communication among vehicles of all types (and of course their drivers) and the infrastructure. In urban areas, pedestrians will also need to be included. At intersections, information being broadcast by all entities will be assembled to ensure that detected conflicts are not permitted to evolve into crashes. Each vehicle will no longer need to develop its own situation awareness in total isolation (as is the case currently with IVBSS); rather, vital information will be shared.

As the world leader in these technologies, the United States must adopt a target to reduce annual fatalities from 42,000 to 20,000 by 2025. To achieve this objective while maintaining freedom of movement and quality of life will require the widespread deployment of co-operative highways. While I am focusing on safety today, targets appropriate to the world’s leading economy also need to be adopted for mobility and sustainability. The purposeful deployment of co-operative highways to meet such targets represents a major engineering challenge in full collaboration with the social sciences. The federal role within the forthcoming highway re-authorization should include the development of the information technology backbone for co-operative highways, including architecture and standards. This undertaking is of sufficient system quality and complexity as to require leadership through the National Academies.