



## **SUCCESS PROFILE INTELLIGENT HIGHWAY DATA STANDARDS**

eipci

### **Situation**

In preparing for US-based growth in intelligent vehicles, the Federal Highway Administration (FHWA) is working to establish data standards and criteria for both vehicle-to-vehicle and vehicle-to-infrastructure communications. Successful examples of driverless vehicles are emerging, globally. However, the size and expanse of the United States places unique and extreme requirements on the data that vehicles can or should automatically gather from the roadways, themselves, and especially as driving conditions, roadway surface condition, weather and congestion change. Designing a data standard that can be cost effectively implemented US-wide and that vehicle manufacturers will adopt is a huge challenge.

### **Core Assessment**

Engineering data exists for most every paved roadway in the United States. However, the designs are mostly in antiquated hard copy, making retrieval for contemporary digital use all but impossible. And even if all digital files were available, costs for professional and technical services for dataset validation and assimilation would be prohibitive. Add to that the need to monitor changing conditions over time and the FHWA is promulgating a position that would ultimately require a new and recurring data capture effort for roadways across the US. This would be phased in over years, of course, starting with the most congested and/or hazardous locations. The need for accurate roadway geometries is acute, especially for curves and ramps where variable conditions significantly elevate driver safety considerations.

### **Solution**

Over the past decade, advancements in commercially stable and cost affordable sensors, particularly light detection and ranging (LiDAR) have proved successful in surveying, mapping and condition assessment data collection. Particularly for sensors operated from low altitude aerial and terrain vehicles, precision map data collection is evolving to become the contemporary state of the market. EIPCI collaborated with the FHWA over a period of almost two years and was able to have this technology formally recognized by FHWA as the process of choice for collecting detailed geometries for roadway operations, condition monitoring and maintenance.

### **Results**

Through continuing advocacy for now stable commercial technologies, EIPCI was able to solidify a requirement for new data capture that included roadway geometries for the nationwide highway network. Furthermore, EIPCI was instrumental in introducing both airborne and terrestrial vehicle LiDAR as the solution of choice for this work, based on accuracies that can be achieved at extremely low costs to the taxpayer. While this ultimately benefits the entire LiDAR industry, the recognition of EIPCI's contributions to evolving national data standards promoted the visibility of the company's services and brand identity, directly supporting long lead but well-qualified business development efforts across the federal marketplace.