

## Autonomous Vehicles Are Tomorrow: Here's What Transportation Tech is Doing Today

The American Association of State Highway & Transportation Officials

### ***State DOTs use smart technology to keep infrastructure operating safely.***

Just as patients communicate their symptoms to doctors - smart technology is allowing infrastructure to tell civil engineers when something is wrong. Sensors installed on bridges, in roadways, and on maintenance vehicles, are communicating real-time performance and weather data, allowing engineers to solve problems before they occur.

"Most people look at a road or a bridge and never realize the technology that today's modern transportation agencies are using to help our transportation system function at its best," said Bud Wright, executive director of the American Association of State Highway and Transportation Association. "State DOTs are dramatically improving the way transportation systems, services and information are being delivered, shared and utilized all across the country."

### **Smarter Decisions**

The North Carolina Department of Transportation is using 3-D imaging to dramatically improve the process of conducting annual pavement condition surveys on the state's 16,000 miles of interstate and primary roadways. The surveys, which relied on visual assessments taken from slow moving vehicles on highway shoulders, previously took hundreds of man-hours. Today a contractor, using a specially equipped vehicle takes two sets of images as it passes over a roadway at normal highway speeds. A forward looking camera captures images of the highway while a 3-D camera photographs the pavement. The pavement images are analyzed using a special software program which identifies every pavement defect. The data is used to calculate pavement quality and identify problems such as rutting caused by heavy loads. Engineers can access all of the images and data via computer to help them make more accurate assessments and decisions. NCDOT's Pavement Preservation and the Contract Resurfacing programs rely on this data to determine which roadways will be treated in the coming year.

"Not only is this improving the quality of the data being collected, it's taking our pavement survey teams out of what can sometimes be a risky situation," said Judith Corley-Lay, NCDOT pavement engineer. "This is a huge technological leap forward and I think as more states deploy it, we'll be able to get an even better assessment of what's occurring on our roadways, nationwide."

### **Smart Maps**

State departments of transportation are using a remarkable user-friendly computer

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mapping platform dubbed "UPlan." This leading-edge technology combines and displays real-time information from data banks, both inside and outside transportation agencies in the form of maps. These multilayered displays make it easy to see the many ways proposed transportation projects will interface with the surrounding environment. Transportation projects can be created virtually to determine how they will match up with historical landmarks, population centers and environmentally sensitive spaces such as wetlands.

To date, 14 States (WA, OR, CA, AZ, NM, NV, CO, WY, ID, UT, MT, MN, NC and PA) have developed their own version of the platform through the Technology Implementation Group (TIG), a peer-review program sponsored by the American Association of State Highway and Transportation Officials.

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