Following the Curves of Road Design with Aerial Lidar

They say accuracy isn't important for horseshoes and hand grenades – getting close is good enough, writes Brian Stevens. But if you are charged with improving the safety of the nation's transportation system, accurate road curves, grade and width measurements are absolutely critical. All too often, transportation agencies don't have the data to help them address specific safety concerns, maintenance budgets or technology such as autonomous (self-driving) vehicles. So, where do transportation officials go to obtain the necessary data for their projects? The answer is straight up: aerial Lidar.

Aerial Lidar data can be used to determine the prevailing grade and curve of roadways. It can clearly define pavement edges, making it possible to accurately measure the width of any road – from multi-lane interstates to tiny township roads. Determining road widths with Lidar is more accurate than conventional methods because calculations are based on larger, more accurate data sets.

Using Lidar data – whether previously collected or newly acquired – offers many benefits over manually driving miles of roadways to measure road grade, curve and width. Previously collected data can be analyzed quickly for baseline results, and using custom algorithms, newly collected data can be transformed into measurement data with simplicity and speed.

Updated and current Lidar data is a vital tool for state departments of transportation, which recognize the need for collecting accurate data for use in extensive projects that cover hundreds of miles. The data is equally useful for county road departments on smaller local roadways and projects that may only encompass a few miles.

Road construction also becomes more efficient with Lidar, in terms of cost, resources and time. For example, more accurate estimates of paving needs save taxpayer dollars. Lidar data also improves communication and cooperation between agencies by transcending political borders.

Aerial Lidar has become increasingly crucial to the safe and efficient operation of autonomous vehicles. Existing road networks were designed and constructed for human-controlled vehicles, not modern ground- and aerial-based autonomous vehicles. Safety improvements are often controlled by the vehicles themselves and are dependent upon the geospatial accuracy and awareness that Lidar data provides. The locations of curbs, light poles, paint striping and more serve as the visual cues needed by these vehicles to safely traverse roadways.

Accuracy isn't optional for roadways. Aerial Lidar takes the guesswork out of measuring roadways—and puts accurate data at your fingertips. Or below your feet.

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