

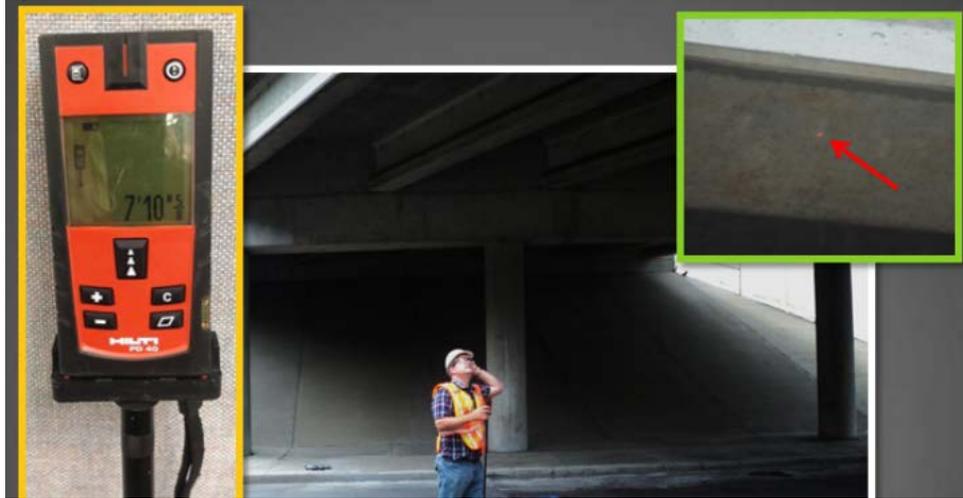
## First-Round Winner

Innovations Challenge  
<http://wwwi/intranet/cr/SolutionsAtWork/Innovations.htm>

April 2014

Prepared by Customer Relations  
Missouri Department of Transportation

## LiDAR Vertical Clearances



### Description

The LiDAR device is mounted to a pickup truck to measure the vertical clearances of bridges that cross three or more lanes of traffic.

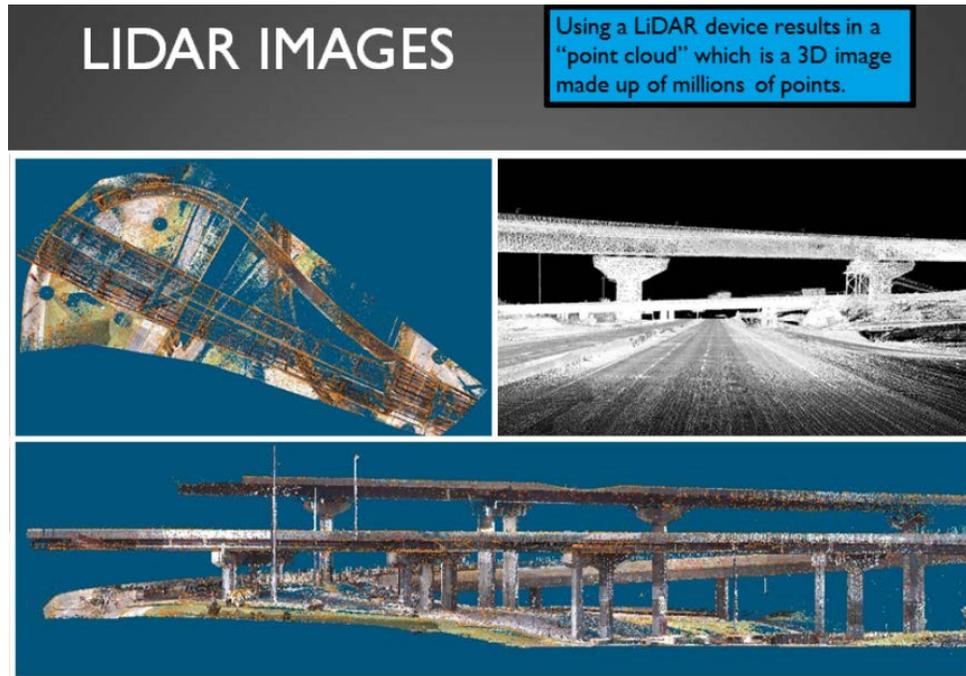
### Benefit

Although methods of measuring vertical clearance of bridges have improved over time, it remains difficult and dangerous to get and maintain an accurate record of the minimum clearances for each bridge. It is difficult because it is often hard to tell where the minimum measurement may be and dangerous because all methods require the measurer to stand in traffic while measuring. Interstate clearances are especially dangerous because of the high traffic volumes and high speeds. Additionally, bridges crossing interstates are often quite long and require many more measurements to find the location of the minimum. To measure one lane on an interstate requires at least two pickup trucks and three TMAs plus one or two people to measure. This amount of personnel and fuel can cost close to \$1,000 per hour with each bridge taking several hours to complete. This innovation used a low-bid contract for a truck-mounted LiDAR device to measure vertical clearances on bridges over three or more lanes of interstate in the St. Louis District. On this contract, 225 bridges were measured in two days with no impact to traffic and no personnel outside of a vehicle for an average of \$115 per bridge. The savings in safety, time and cost are immeasurable. Additionally, more accurate records of vertical clearances increase the mobility of goods through the region and minimize both major and minor collisions and damage to the infrastructure. Discussions have been started to systematically measure interstates in all districts.

**For More Information:**

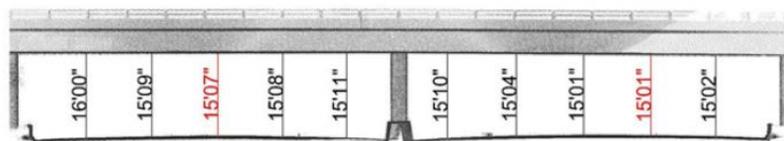
Contact Mark Croarkin at [mark.croarkin@modot.mo.gov](mailto:mark.croarkin@modot.mo.gov) or (573) 619-6935.

Additional photos can be seen at the Innovations Challenge homepage: <http://wwwi/intranet/cr/SolutionsAtWork/Innovations.htm>



**VERTICAL CLEARANCE DIAGRAM**

Fed ID. - 1417  
Structure - A1721  
Feature Inst - CST SAPPINGTON RD S  
Route - I-44  
Looking East on I-44



Looking West on I-44



Looking East on I-44

