Terrestrial LiDAR

Integration of Laser Scanning into the TDOT Workflow

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What is Li-D-A-R?

Light Detection And Ranging

50,000 points per second

Large point cloud of everything visible!

Reflectorless Pulse Laser Measurement

HDS: High Definition Scanning
Terrestrial LiDAR

Traditional Workflow for 1 Mile of Interstate Survey, No ROW

Set Control
- GPS Static Control (1 Crew of 4, 1 Full Day)
- Process Data

Traffic Control
- Coordinate with TDOT Maintenance and THP for Traffic Control and Phasing Plan
- Publish to Media (2-3 working days)

Ground Survey
- 3 man crew surveying roadway line-work (2 days)

Office Work
- 1 person (1 Day)
- Process, Import to CAD, Build DTM, etc...
Terrestrial LiDAR

HDS Workflow for 1 Mile of Interstate Survey, No ROW

Set Control
- Combine GPS Static Acquisition with LiDAR Targeting (No Extra Personnel or time required)
- Process Data

Traffic Control
- Minimum coordination with TDOT Maintenance for shoulder closure signage when applicable.

Lidar Survey
- 3 Person scan team collecting all data
- 10-15 minutes per setup on average (Traverse Method)

Office Work
- 1 person (1Day)
  - Process, Import to CAD, Build DTM, etc...

200’ Radius per setup with 50’ of overlap yielding 300’ between setups.
64% Reduction in cost based on Man-Day estimates.

<table>
<thead>
<tr>
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<th>1 mile Interstate no ROW</th>
<th>Traditional</th>
<th>HDS</th>
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</thead>
<tbody>
<tr>
<td>Time (Field)</td>
<td>3 Days</td>
<td>1 Day</td>
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<tr>
<td>Time (Office)</td>
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<td>1 Day</td>
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<tr>
<td>Personnel Required (Field)</td>
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<td>Personnel Required (Office)</td>
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<tr>
<td>Man-Days (Required working time)</td>
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<td>4</td>
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*Does not include maintenance personnel
LiDAR Savings: Safety

Less Time + Less People = Less Exposure to Traffic = SAFETY!
Project Description:
Campbell County, TN
Fill slope failure on I-75 S
2 lanes of I-75 completely shut down
I-75 Slide

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## I-75 Slide

<table>
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I-40 Hydroplaning Survey

Project Description:
Knoxville, TN
2 Miles of Survey to Identify Areas of Hydroplaning from Rutledge Pike to Asheville Hwy
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2 Miles of Survey to Identify Areas of Hydroplaning from Rutledge Pike to Asheville Hwy
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<td>Time (Field)</td>
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<td>3 Days</td>
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<td>Man-Days (Required working time)</td>
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Questions?

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