

Terrestrial LiDAR



Integration of Laser Scanning into the TDOT Workflow

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What is LÍ-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 (1Day)
- Process, Import to CAD, Build DTM, etc...



Terrestrial LiDAR

HDS Workflow for 1
Mile of Interstate
Survey, No ROW

200' Radius per setup
with 50' of overlap
yielding 300' between
setups.

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...



LiDAR Savings

64% Reduction in cost based on Man-Day estimates.

1 mile Interstate no ROW	Traditional	HDS
Time (Field)	3 Days	1 Days
Time (Office)	2 Day	1 Day
Personnel Required (Field)	3*	3*
Personnel Required (Office)	1	1
Man-Days (Required working time)	11	4
*Does not include maintenance personnel		



LiDAR Savings: Safety



I-75 Slide

Project Description:

Campbell County, TN

Fill slope failure on I-75 S

2 lanes of I-75 completely shut down



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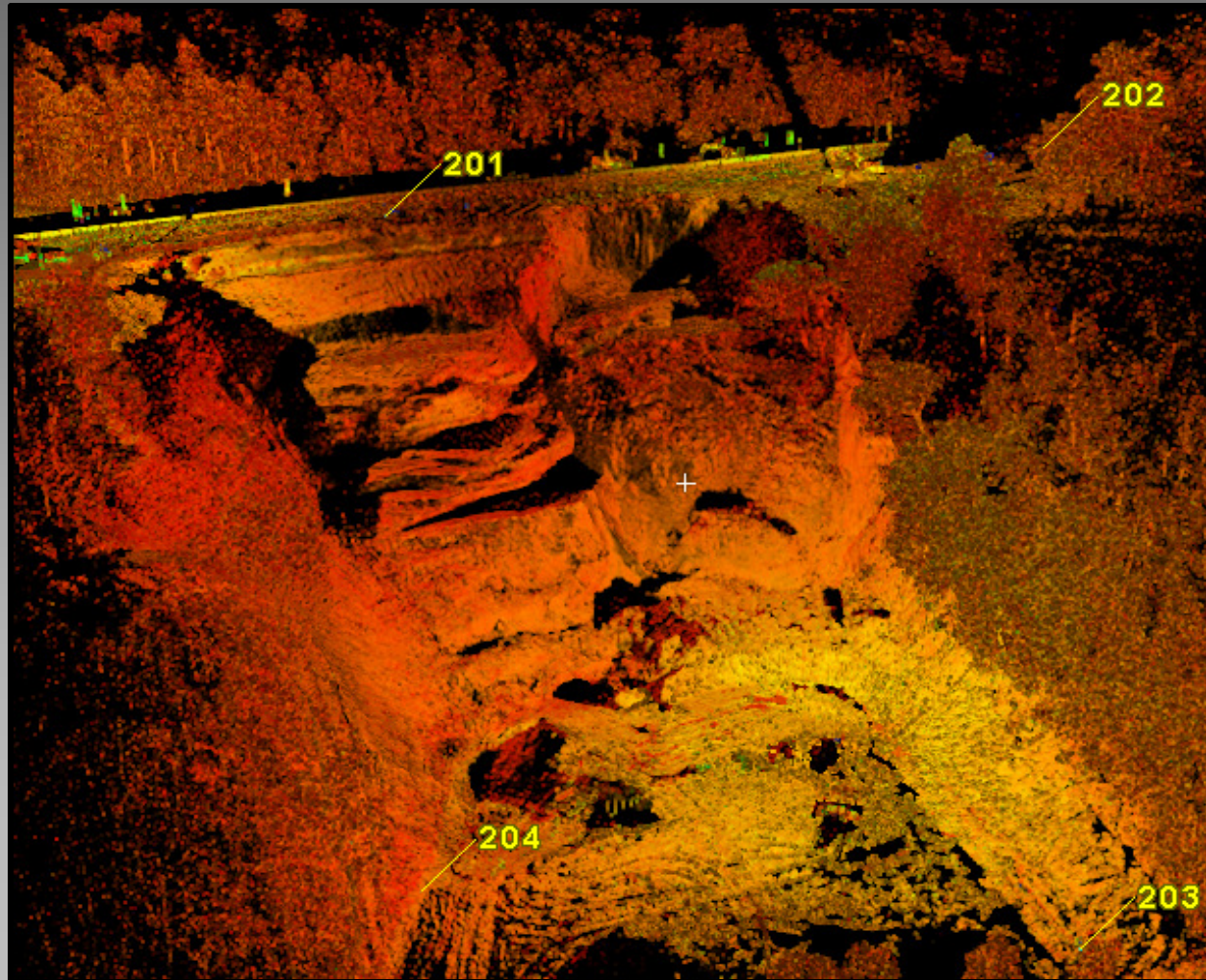
I-75 Slide

Project Description:

Campbell County, TN

Fill slope failure on I-75 S

2 lanes of I-75 completely shut down



I-75 Slide

I-75 Slide	Traditional	HDS
Time (Field)	5 Days	1.5 Days
Time (Office)	1 Days	.5 Days
Personnel Required (Field)	3	3
Personnel Required (Office)	1	1
Man-Days (Required working time)	16	5.5



I-40 Hydroplaning Survey

Project Description:

Knoxville, TN

2 Miles of Survey to Identify Areas of Hydroplaning from Rutledge Pike to Asheville Hwy

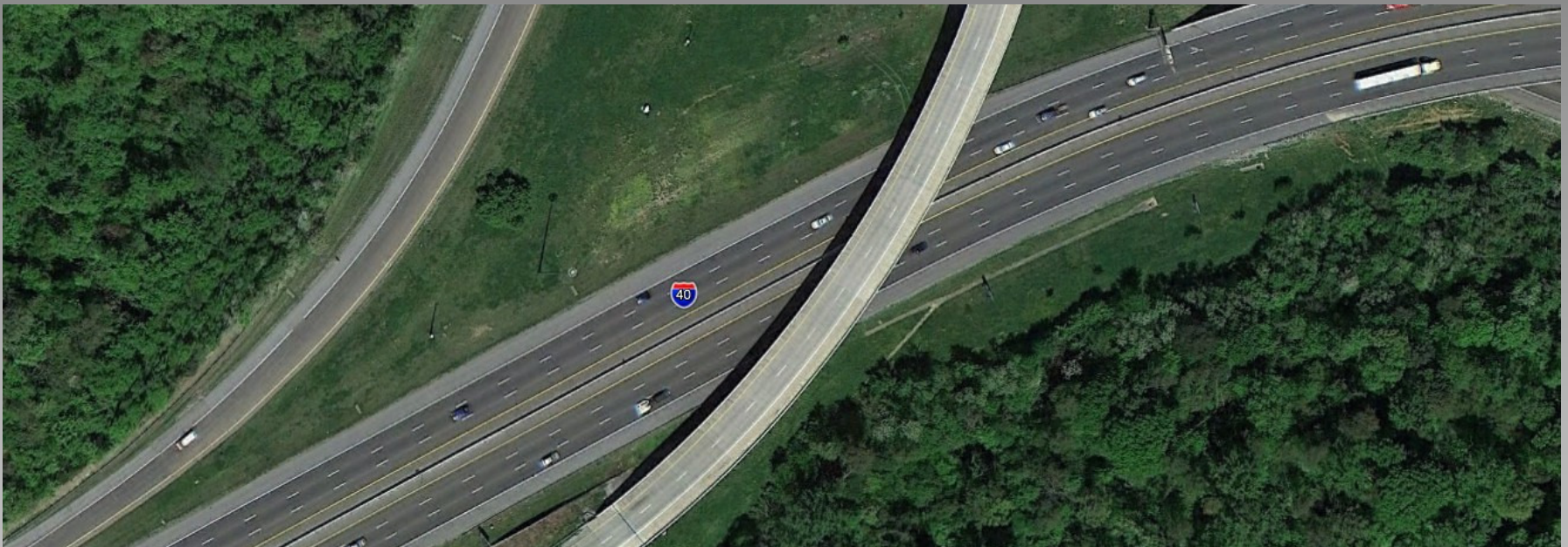


I-40 Hydroplaning Survey

Project Description:

Knoxville, TN

2 Miles of Survey to Identify Areas of Hydroplaning from Rutledge Pike to Asheville Hwy



I-40 Hydroplaning Survey

I-40 Hydroplaning Survey	Traditional	HDS
Time (Field)	11 Days	3 Days
Time (Office)	2 Days	4 Days
Personnel Required (Field)	3	3
Personnel Required (Office)	1	1
Man-Days (Required working time)	35	11



Questions?



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