

# Tackling a Data Collection Giant – Statewide Guardrail Inventory

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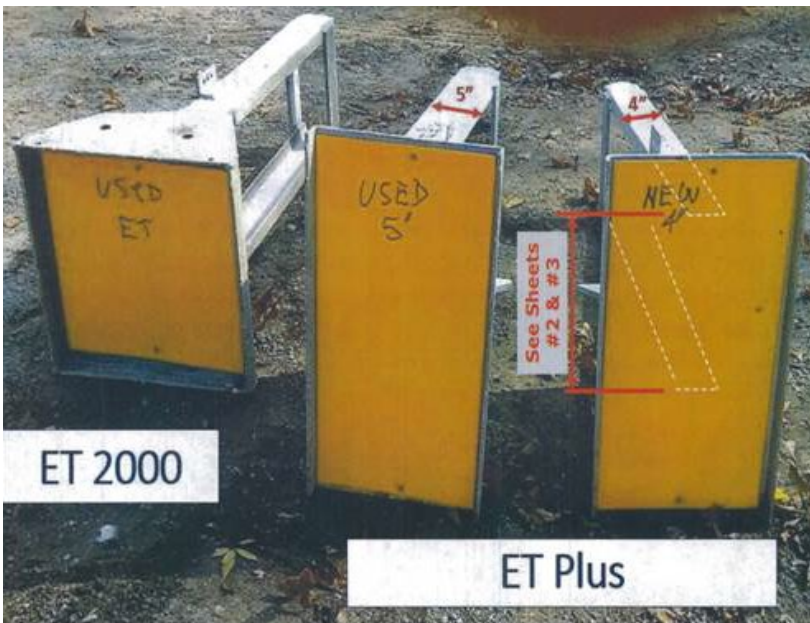


# Background

- State network mileage
- History of guardrail in state
- Performance of end terminals
- GIS/data available









# Mobilizing/Scoping

- Safety
- Schedule
- Weather uncertainty
- Methods of data collection
- Unknowns without any records
- Crew logistics





# Mobilizing/Scoping

Project partners

**Bartlett&West**



**SAM**<sup>TM</sup>



# Mobilizing/Scoping

- **Deliverable #1** : ESRI File Geodatabase with attributes of end terminal type, value of damage assessment, route, log mile, log mile direction and date/time of collection
- **Deliverable #2** : Excel report containing same values plus county and UTM15 coordinates
- GIS Data projected to NAD 83(2011), UTM 15, US Survey Foot
- No duplication of assets





# Mobilizing/Scoping

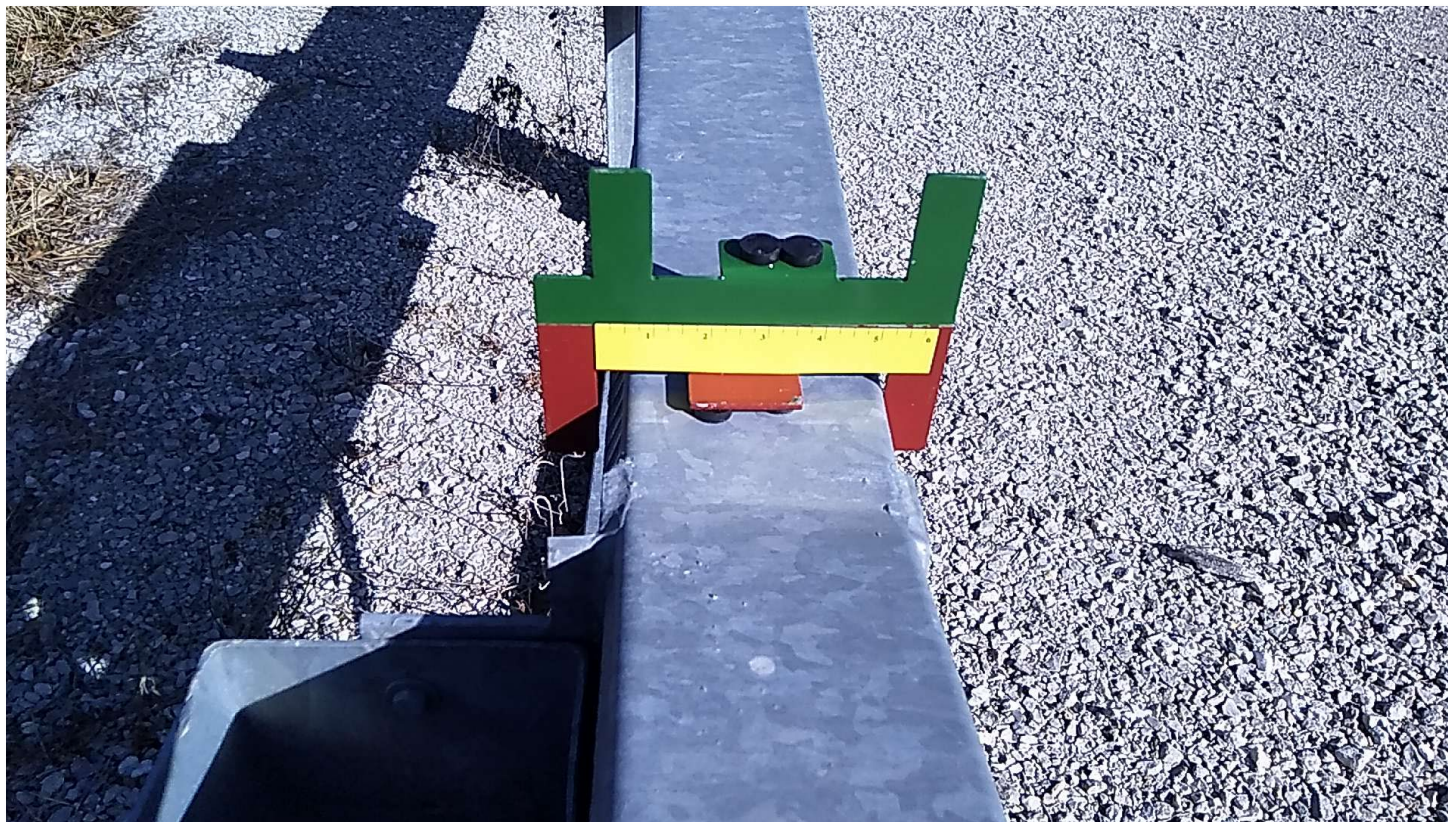
- Methods of data collection
  - Visual
  - Static photograph
  - Mobile photograph
  - GPS location
  - LiDAR mobile data collection
- Safety strategies





# Mobilizing/Scoping

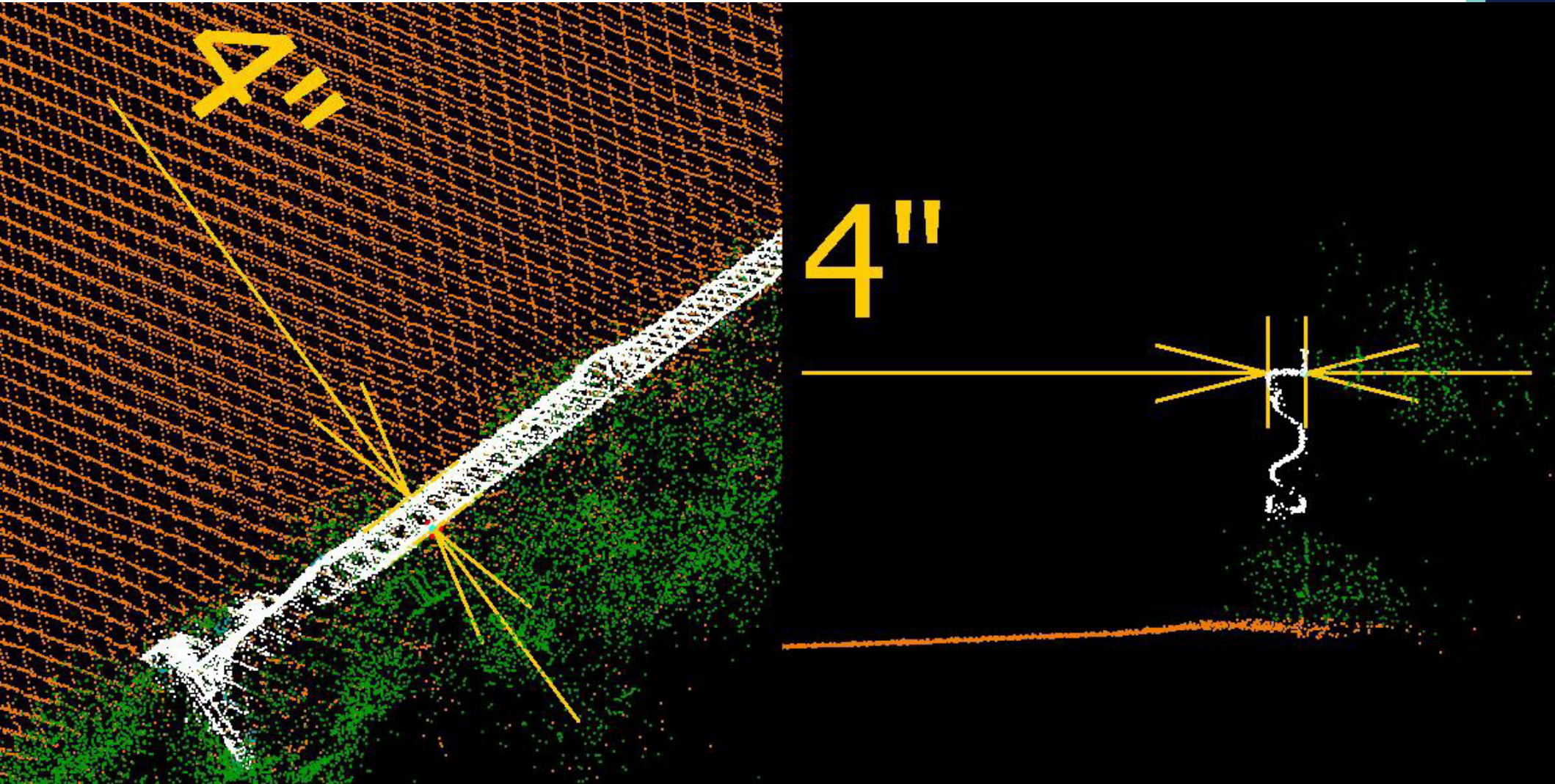
- Field Measurement for positive ID





# Mobilizing/Scoping

- Field Measurement for positive ID



# Dashboard/Progress Monitoring

- Needed a method of communicating progress and crew deployment
- AGOL dashboard created, teams identified
- Lodging plans/adjustments
- Real time data uploads
- QC occurred daily

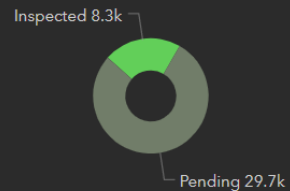




# Dashboard/Progress Monitoring

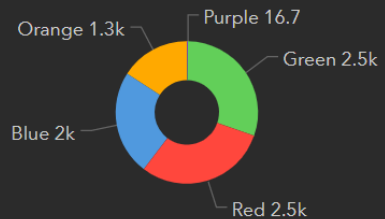
## Dashboard - MoDOT Guardrail Tracking

Select a date [Today](#) [This Week](#) [Last Week](#) [To Date](#)



Total Miles Inspected

Last update: 1 minute ago



Miles Completed by Team

Last update: 25 seconds ago

1 of 9

Miles Inspected in Area 1

**321.2**

9% of 3,635.66 mi (approx.)

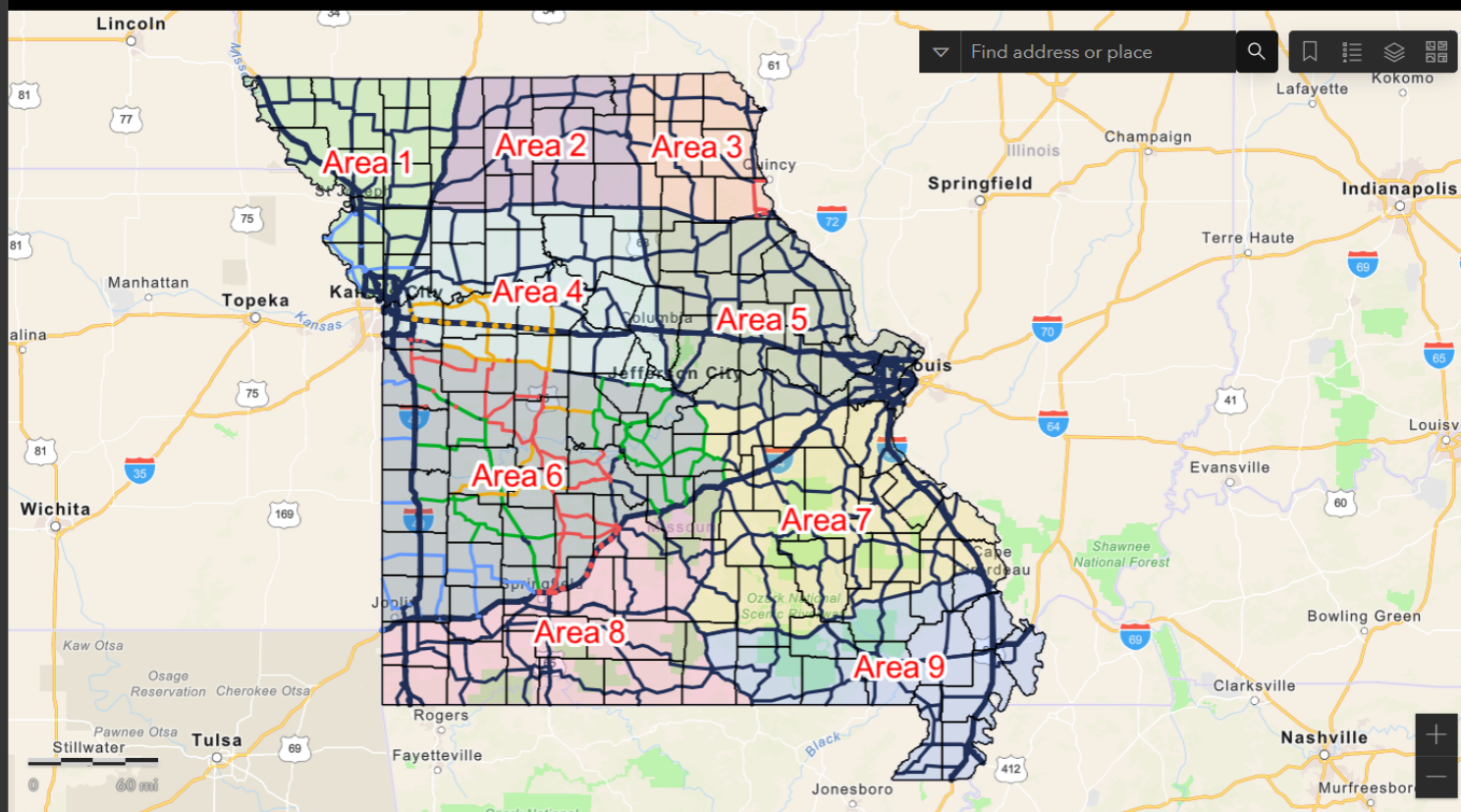
Inspected Miles



**8.28k**  
of 38.02k

Last update: 1 minute ago

### MoDOT Guardrail Collection Tracking



Missouri DNR, Esri, HERE, Garmin, FAO, NOAA, USGS, EPA, NPS | Missouri Department of Agriculture (MDA), Division of Weights, Measures and Consumer Protection, Land Survey Pro... Powered by Esri

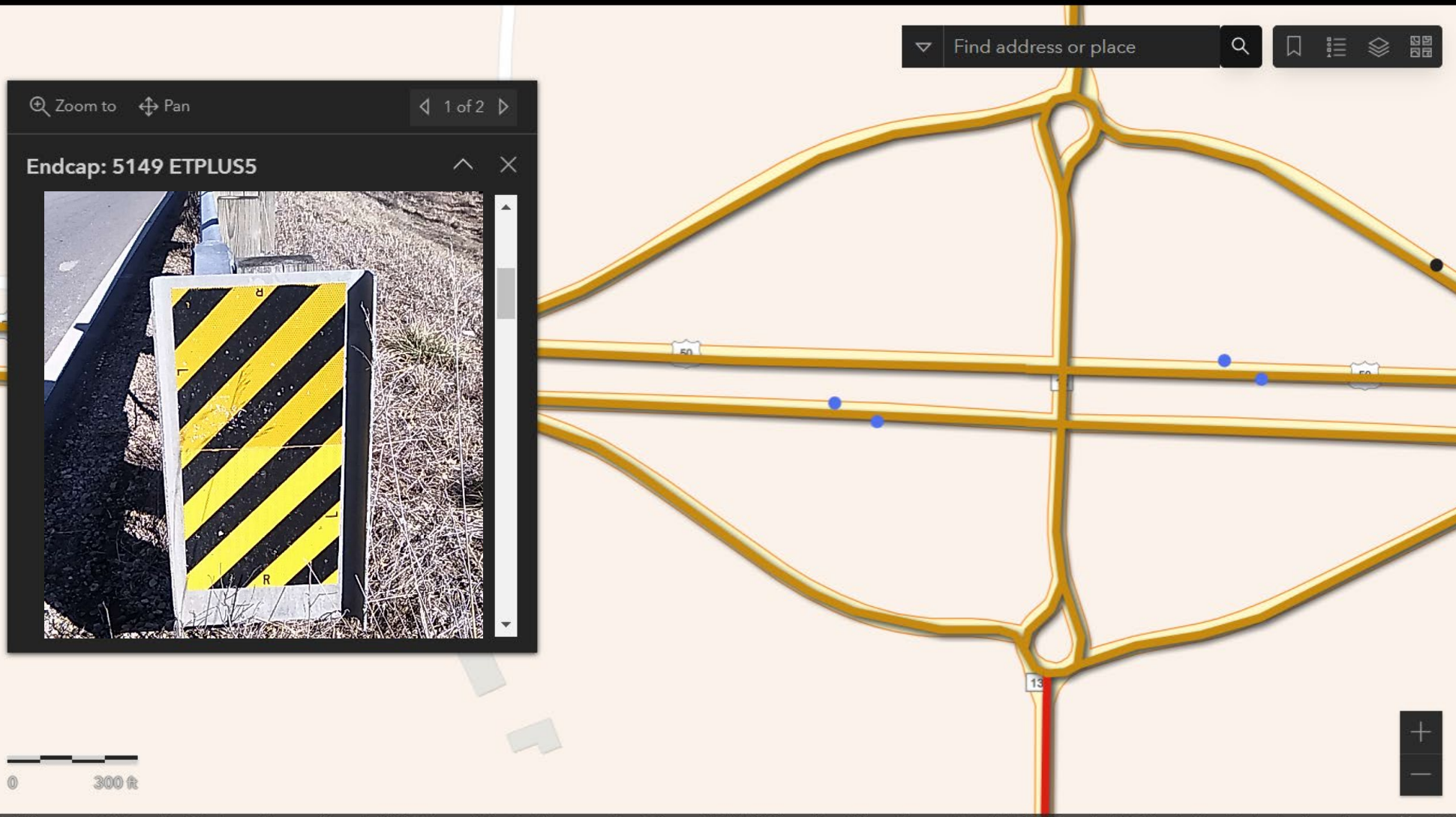






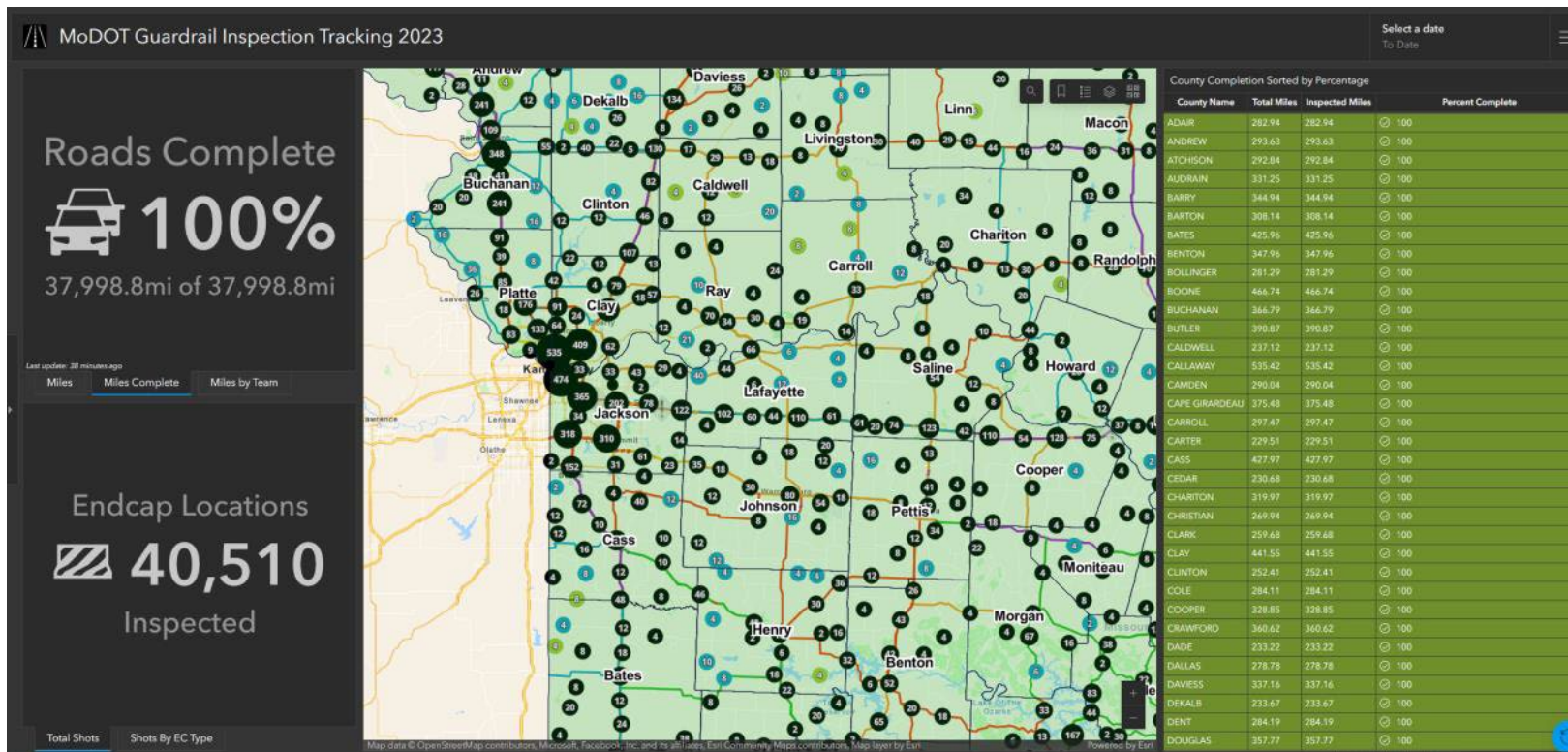
# Dashboard/Progress Monitoring

MoDOT Guardrail Collection Tracking



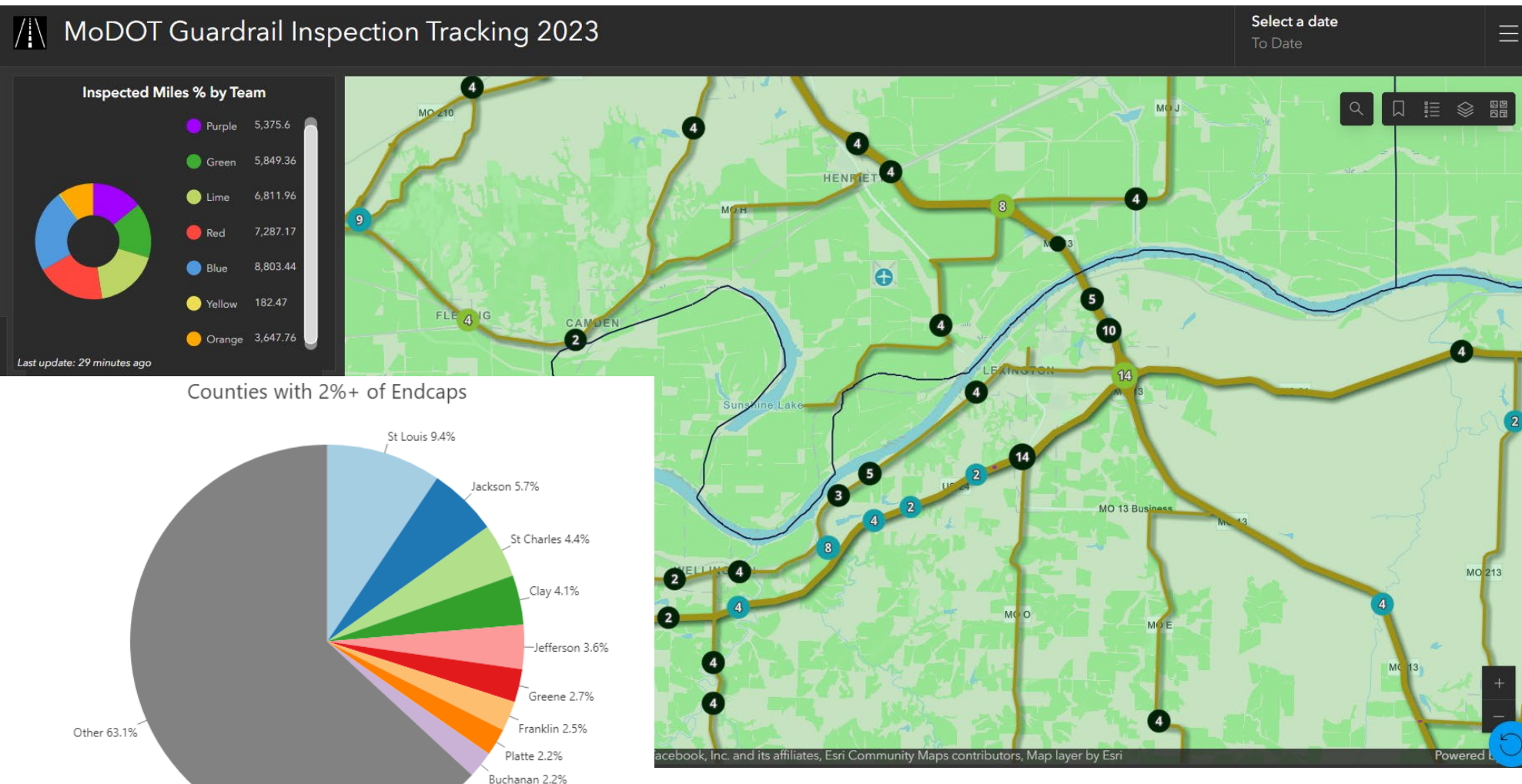
# Data Deliverables

- GeoDatabase delivery – 1 for every county
- AGOL dashboard shared with MoDOT also
- 40,510 end terminals documented

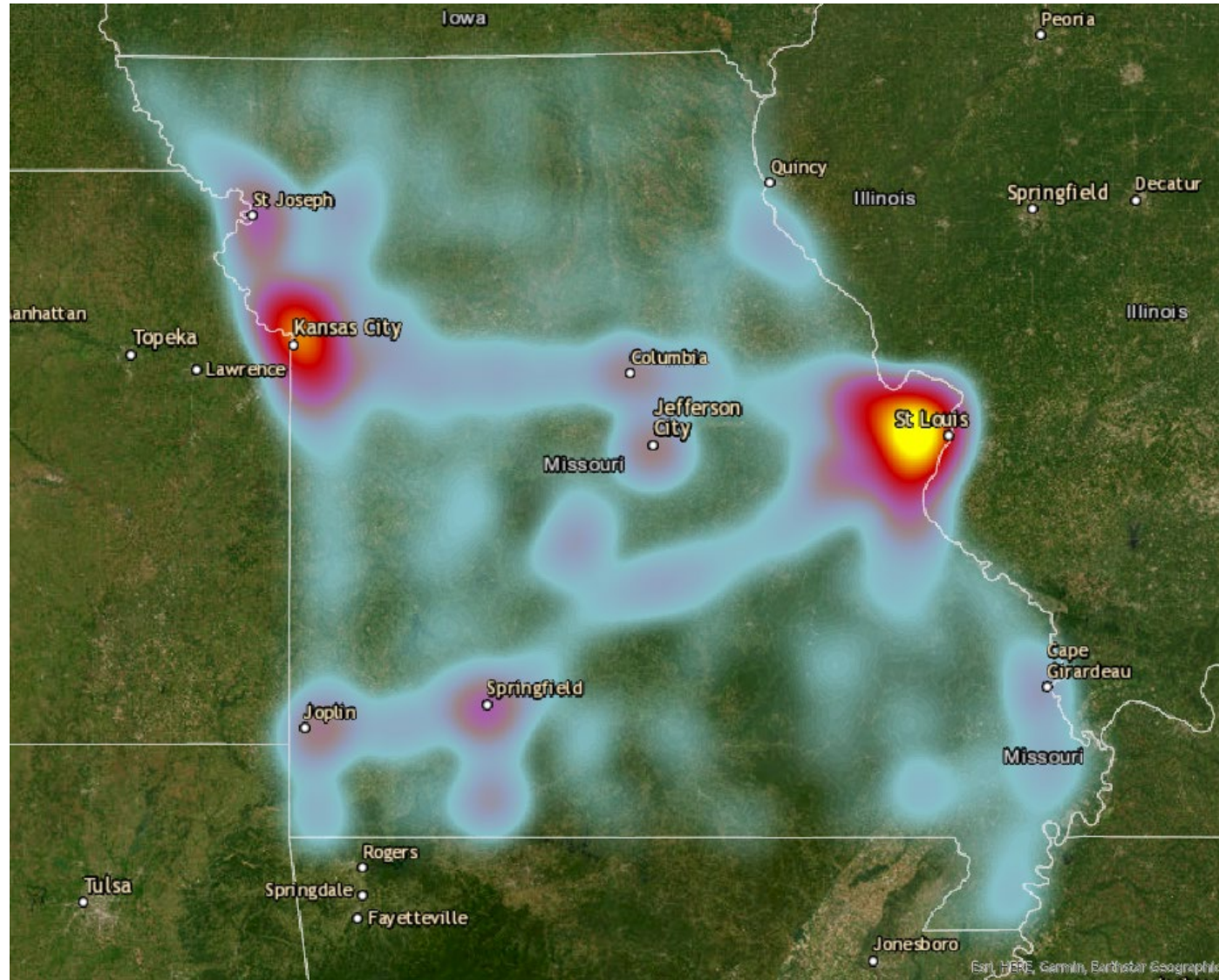




# Data Delivery

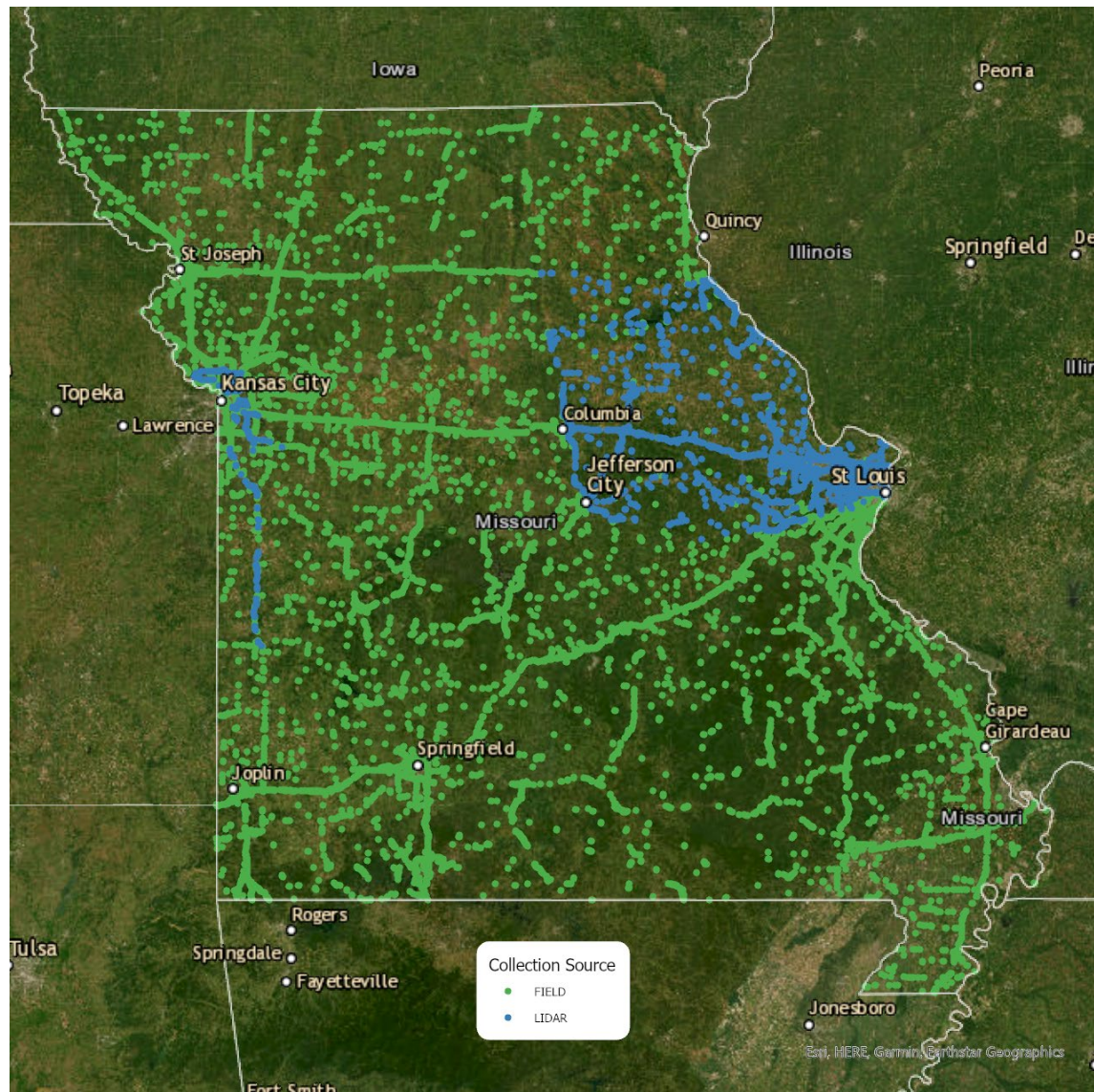


# Guardrail Heat Map

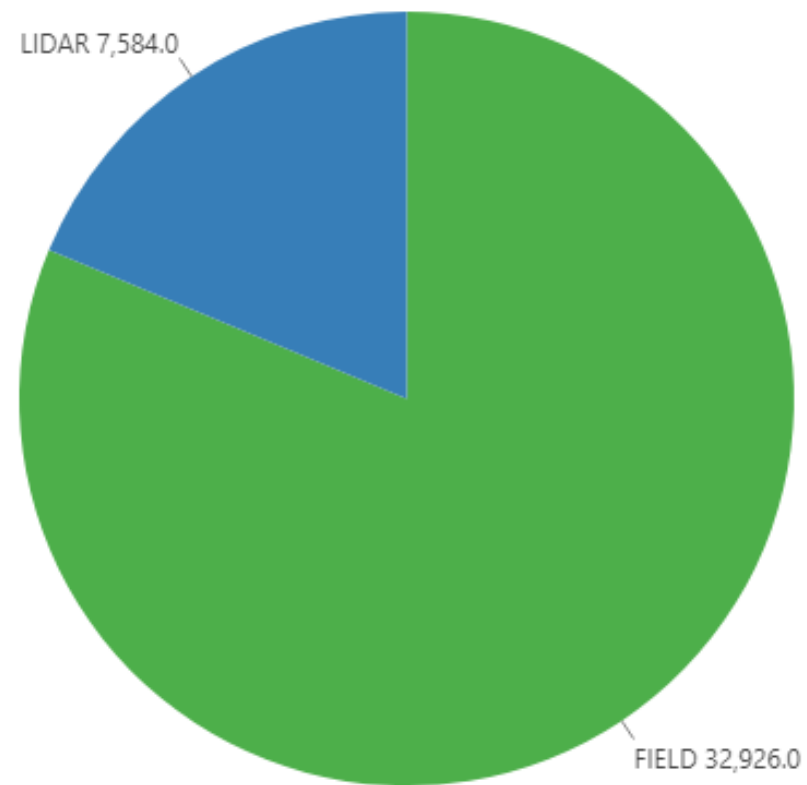




# Data Collection Source



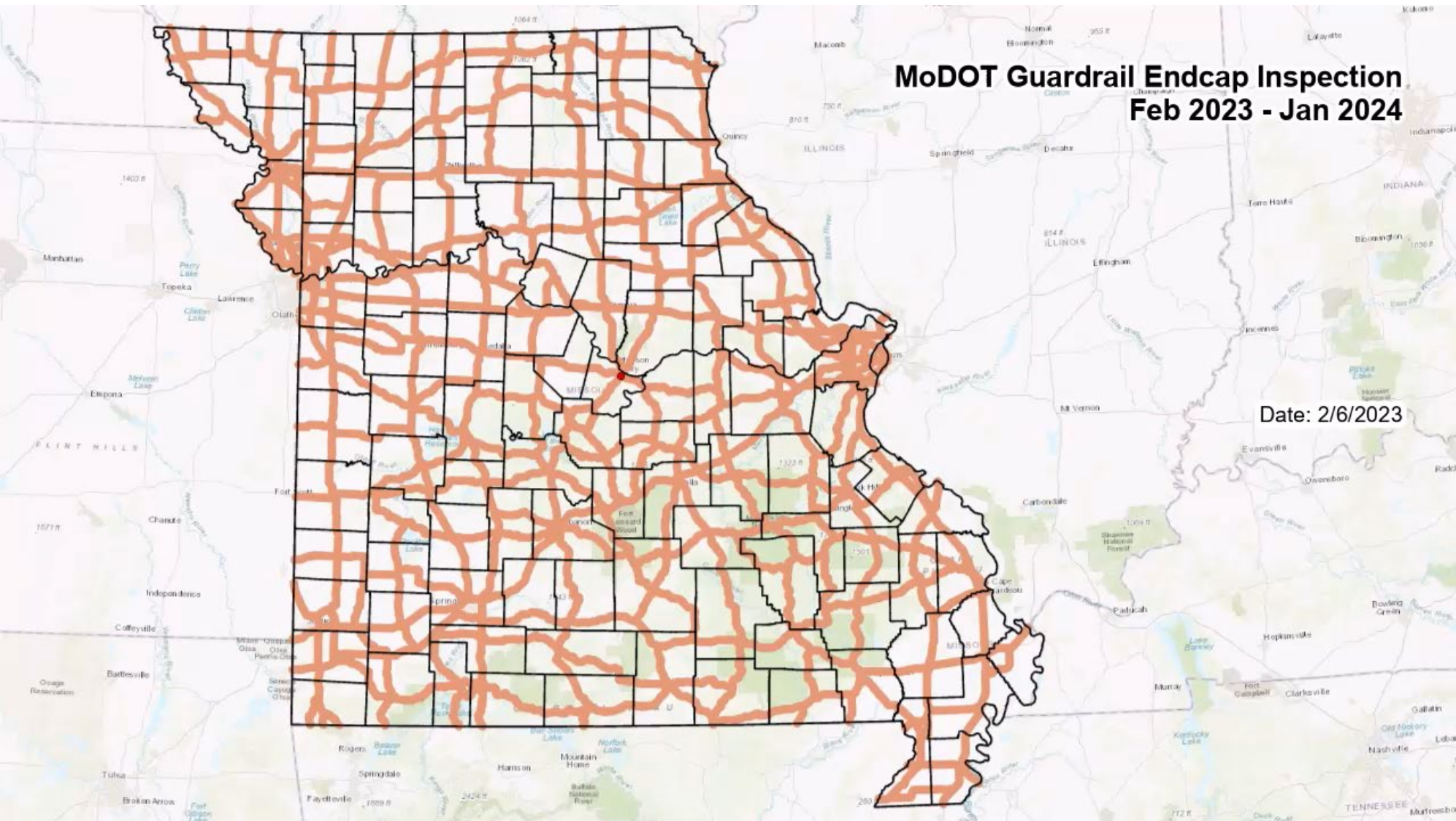
Collection Source



■ FIELD 81.3% (32,926.0) ■ LIDAR 18.7% (7,584.0)



# Timelapse of Data Collection





# Lessons Learned

- Real time data uploading was essential
- Longer days (daylight only) saved time and money
- Creation of special “jigs” early in the project saved time and better QC
- LiDAR segments— more manual collection would be chosen
- Real time updates from the dashboard shared with MoDOT



# Next Steps

- Improvements in the works
- Progress in Missouri's systems





**Bartlett & West**



# Questions?

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