Safer Roads Through Statewide Asset Data Collection & Field Assessment

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Overview

• Statewide asset project and why it happened
• What was needed and how it was done
• Results
• Considerations and lessons learned
WHY
GOALS
- Identify non-compliant assets
- Improve public safety
- Reduction of DOT liability

CHALLENGES
- No current locations or inventory
- Cost-effectiveness of full inventory
- Creation of reference and identification materials
- Speed and currency of collected data
- Cost sharing of inventory by different asset management areas
Collect and assess all barrier end treatments and longitudinal barriers on state-owned highways

- Over 15,000 centerline miles of data collection
- Project expanded to include additional assets
- Database design for assets
- Training for MnDOT staff
- Addition of other roadside assets to project
Approach

• Requirements discussions and database design
• Mobile lidar and 360-degree image collection
• Location and initial ID of end treatments
• Field crews assess barrier end treatments and crash cushions
• Notify MnDOT about install issues or damage
• Extract remaining features to enterprise Geodatabase
• Data reporting via GIS portal
• Deliverables: identification library and inventory manual, asset locations and attributes in enterprise asset management system format, training in use of inventory manual
Targeted Assets

ORIGINAL SCOPE
• End terminals
• Longitudinal Metal Barriers
• Transitions

EXPANDED SCOPE
• Signs
• LRS Centerline
• Edge of Pavement
• Paint Striping
• Rumble Strips
• Concrete Barriers
• Light Poles
• Traffic Signals
• Overhead Sign Clearances
• Bridge Clearances
• Utility Line Clearances
• Catch Basins
• Reference Markers (Mile Markers)
Outcomes

• Successfully identified 99.9% of safety features
• Increased analyst capture speed from 0.25 route miles per hour (RMPH) to 10 RMPH in 6 months
• Use of library and semi-automated extraction reduced needed staff by over 40%
Lessons Learned

• Identify ALL roads to be driven and create a mapping file before starting
• Get special permissions in advance: e.g., native lands, prisons
• Get sign-off on data dictionary from all stakeholders up front
• Identify possible traffic events and plan to be somewhere else
• Define how to handle disruptions: construction, accidents
More Lessons Learned

• Omissions are the hardest errors to catch
• Look for outliers and breaks in patterns
• Keep workflow SMEs with the workflow all the way through, but swap out operators
• Assume the worst
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