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Transportation Group Manager
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**James Norris, PE (NAFE #791S)**
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**Shaun Andres, PE**
Forensic Engineer
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**Time**: 9 to 10 AM

**Title: Forensic Engineering Analysis of Commercial Vehicle Electronic Logging Devices, Telematics, Dash Cameras, and GPS Units**

**Abstract**: Starting in 2017 for interstate commercial vehicles, the Federal Motor Carrier Safety Administration (FMCSA) has mandated electronic logging devices (ELDs). ELDs not only replaced paper logbooks, but they also may provide other valuable information in the forensic analysis of a collision event. Other additional data sources, such as telematics (fleet monitoring), dash cameras, and GPS units, can form an interconnected network of data to assist the forensic engineer in understanding not only the collision scenario, but also the vehicle's pre-collision speeds, diagnostic trouble codes, movements, and the driver's actions. This paper provides insight into the availability and use of ELDs, telematics, dash camera, and GPS unit data as they relate to the forensic evaluation of heavy commercial vehicle collisions. These systems can vary from simple tracking to customizable event recording. The information presented provides the forensic engineer with an understanding of the recorded data potentially available from a heavy vehicle-involved collision. The paper also provides insight into how to obtain the data — and steps to properly interpret and apply that data to the analysis of heavy-vehicle-involved incidents.



Mathew Martonovich, PE, has been a NAFE member since 2017. He holds licensure as a Professional Engineer (PE) in multiple states. He is the Transportation Group Manager at Nederveld, Inc., working out of the Rocky Mountain Service Center in Lakewood, Colorado. He has over 17 years of experience in collision reconstruction methods and a specialty in commercial vehicle collision analysis and mechanical systems. Martonovich has extensive training and experience in the analysis of commercial vehicle collisions, engine control module (ECM) data, GPS, electronic logging device (ELDs), antilock braking system ECU, and other sources of electronic data. He holds a master of science degree in Civil Engineering, with a Transportation Engineering emphasis from the University of Colorado. Martonovich has authored numerous technical articles included in the *NAFE Journal* as well as other forums in the forensic engineering field.



James E. Norris II, PE, has over 19 years of practice in Civil and Forensic Engineering, specializing in Traffic Crash Reconstruction. He has been a NAFE member since 2012 and holds licensure as a Professional Engineer (PE) in multiple states. He is the Transportation Group Supervisor at Nederveld, Inc., working out of the Knoxville Service Center in Knoxville, Tennessee. Norris has developed expertise in the engineering determination of vehicle speeds, incident timing and distances, collision avoidability, human factors, contributing factors related to incidents, and roadway design, among others. He has extensive training and experience in the retrieval and interpretation of data imaged from passenger vehicle Event Data Recorders (EDRs) and commercial vehicle electronic control units (ECUs). He has provided expert witness testimony in his areas of practice at both trials and depositions. He holds a bachelor of science degree in Civil Engineering and a master of science degree in Civil Engineering, with a Transportation Engineering emphasis — both from the University of Tennessee.



Shaun K. Andres is a mechanical engineer with a bachelor of science degree in Mechanical Engineering from Purdue University Northwest (formerly Calumet), and holds licensure as a Professional Engineer in multiple states. He has been a Forensic Engineer working out of the Chicago Service Center in Schaumburg, Illinois, since 2019. He has a background in energetic/explosive train design and testing, electrical switchgear and mechanical linkage design and testing, and experience in mechanical system failure investigation, building envelope investigation, fire and explosion investigations, and collision investigations. Andres has training and hands-on experience in the acquisition and analysis of engine control module (ECM) data, GPS, dashcam video and data, antilock braking system ECU data, surveillance video, and other sources of electronic data.