

#### 7.4.1 **An Integrated GPS-based Mobile Data Collection and Web-based GIS Platform for Supporting GDOT's Pavement Rehabilitation and Design Processes**

**Presenter**

**Zhaohua Wang**

Senior Research Engineer  
Georgia Institute of Technology  
zhaohua.wang@coa.gatech.edu

**Co-Presenter**

**Teague Buchanan**

Assistant Administrator  
Georgia DOT  
SPahno@dot.ga.gov; tebuchanan@dot.ga.gov

Pavement rehabilitation and design is a data-driven decision making process. To make an informed decision, pavement evaluation data including surface distresses and cores is essential for understanding the in-service pavement structures and conditions, which is currently collected by Pavement Design Branch of the Office of Materials and Testing in the Georgia Department of Transportation (GDOT). However, to better understand the performance of in-place pavements, the historical pavement condition data is also needed. Supported by Office of Materials and Testing and Office of Information Technology in GDOT, the Georgia Tech research team developed a complete IT-based solution that consists of a) a GPS-based handheld for field data collection, b) a Wi-Fi camera for capturing field pictures that are automatically integrated with handheld-collected data, c) a seamless data transfer, management, and uploading procedure, and d) a GIS-based web platform that integrates pavement evaluation data with other data sources such as existing GDOT map services and online map services, enables other offices and contractor to share their pavement coring data, and provides functions to extract the historical pavement PACES ratings for a programmed project and estimate the remaining service life using various interactive tools. The GPS-based handheld application has been successfully implemented and used for field data collection since 2008 for more than 80 pavement rehabilitation and design projects. About 4,000 digital images were collected and integrated with the pavement evaluation data. Currently, the first version of PEA web application has been deployed to GDOT's product testing server.