Dan Middleton, Ph.D., PE

Senior Research Engineer

YEARS OF QUALIFYING EXPERIENCE: 29

Education

- Ph.D., Civil Engineering, Texas A&M University, 1994
- M.S., Civil Engineering, The University of Tennessee, 1979
- B.S., Civil Engineering, The University of Tennessee, 1970

Background and Qualifications

As Research Engineer in the Advanced Transportation Operations Program of the Texas A&M Transportation Institute, Dr. Middleton is responsible for developing research programs in Transportation Engineering. He has been extensively responsible for evaluating vehicle detection systems and innovative applications of those systems. A significant portion of this research applied to monitoring commercial vehicle activity in such applications as weigh-in-motion and state-of-the-art sensors of various types for monitoring vehicular characteristics. He is currently the Principal Investigator (PI) on a border project to use connected vehicle technology to expedite safety inspections of commercial vehicles and determine methods to accurately monitor vehicle passage at the U.S./Mexico border—both passenger and freight vehicles. He recently completed a project for the Texas Department of Transportation entitled "Develop Guidelines for New Vehicle Detection at High-Speed Signalized Intersections". He was also recently PI on a project to determine the feasibility of a mobile device application for commercial vehicle enforcement prescreening.

Dr. Middleton recently completed two research projects focusing on detection of motorcycles, one sponsored by the National Cooperative Highway Research Program (NCHRP) and another as support to a vehicle detection manufacturer as part of an SBIR research project. He has led many other projects investigating vehicle detection, to include "Evaluate and Develop an Improved System for Collecting and Reporting Traffic Loads to Better Meet the Needs of Bridge and Pavement Engineers," "Evaluation of Innovative Methods to Reduce Stops to Trucks," "Evaluation of the Existing Technologies for Vehicle Detection and Establishment of Communication Data Requirements," and "Evaluation of TxDOT Detector Placement for High-Speed Approaches to Signalized Intersections."

Dr. Middleton was PI on studies addressing the impacts of commercial vehicles such as "Development of a Texas Strategic Plan for Commercial Vehicle Operations." Dr. Middleton has served as PI on multiple studies evaluating the use of weigh-in-motion and other vehicle monitoring systems to assist in the enforcement and/or monitoring of commercial vehicles. For example, he was the PI on studies sponsored by the Federal Highway Administration entitled "Assess the Feasibility of a Standardized Electronic Diagnostic Device for Maintenance and Inspection of Commercial Motor Vehicles" and "Determination of Truck Accident Countermeasures on Urban Freeways." He also conducted a study on a Houston freeway in which he evaluated the effects of warning devices on truck speeds on a freeway connector.

Recent Work Experience

Dates	Position(s)	Organization
2013 - Present	Research Engineer	Texas A&M Transportation Institute
1997 - 2013	Program Manager	Texas A&M Transportation Institute
1994 - 1997	Associate Research Engineer	Texas A&M Transportation Institute
1983 – 1994	Assistant Research Engineer	Texas A&M Transportation Institute

Professional Licenses and Affiliatinons

- Professional Engineer, Texas No. 60764
- Transportation Research Board
- TRB Truck Size and Weight Committee (Friend)
- TRB Highway Traffic Monitoring Committee (Friend)
- Institute of Transportation Engineers
- Society of Automotive Engineers
- ITS America
- ITS Texas

Areas of Expertise

- Vehicle detection and monitoring
- Commercial vehicle operations
- Connected and Automated vehicles

Selected Relevant Publications / Presentations

- D. Middleton. “Deployment of Detection-Control System (D-CS) Algorithm into Different Signal Controller Platforms”, Workshop presented to Pennsylvania DOT, Harrisburg, PA, December 2016.
- D. Middleton. “Using ITS to Improve Safety at Rural High-Speed Intersections—(D-CS)”. Presentation to National Rural ITS Conference in Snowbird, UT, August 2015.
- D. Middleton. “Using ITS to Improve Safety at Rural High-Speed Intersections,” Presented at the National Rural Intelligent Transportation Systems Conference in Branson, Mo, August 2014.
- D. Middleton. “Develop Stand-Alone Vehicle Detection System for Remote Areas,” Presented at the National Rural Intelligent Transportation Systems Conference in St. Cloud, Mn., August 2013.
- D. Middleton. “Overview of Traffic Monitoring Devices”, presented to the Texas A&M University student chapter of the Institute of Transportation Engineers, June 2013.
- D. Middleton. “Using Designated Routes to Keep Oversize/Overweight Loads Moving” Presented at the National Rural Intelligent Transportation Systems Conference in Coeur d’Alene, ID, August 2011.

Selected Research Reports

- D. Middleton, S. Samant, L. Ruback, L. Cornejo, and J. Susen. *Border Counts Using Leddartech Counter*. Center for International Intelligent Transportation Research. Report No. 185046-00005. September 2016
- D. Middleton, J. Li, J. Le, and C. Quiroga. *Accommodating OS/OW Loads: An Update. IAC* Report 0-4741-1. Texas Department of Transportation. August 2016.
- D. Middleton, H. Charara, L. Cornejo, and S. Samant. *Long-Term Border Traffic Counts*. Center for International Intelligent Transportation Research. Report No. 186054-00009. October 2015
- D. Middleton, P. Songchitruksa, M. Pratt, S. Sunkari, S. Geedipally, and H. Charara. *Investigation of New Vehicle Detectors for High-Speed Signalized Intersections*. FHWA/TX-15/0-6828-1. Texas Department of Transportation, August 2015.
- D. Middleton, H. Charara, L. Cornejo, and S. Samant. *Investigation of Detectors for Border Traffic Counts*. Center for International Intelligent Transportation Research. Report No. 186054-00008. September 2014
- D. Middleton, H. Charara, and S. Samant. *New Detectors for Counting Vehicles at Border Crossings*. Center for International Intelligent Transportation Research, Project 186053-00005. September 2013.
- D. Middleton, P. Turner, H. Charara, S. Sunkari, and S. Geedipally. *Improving the Quality of Motorcycle Travel Data Collection*. NCHRP Project 08-81. August 2013.
- D. Middleton and R. Rajbhandari. *Evaluation of Vehicle Detection Systems to Count Trucks at the Bridge of the Americas*. Center for International Intelligent Transportation Research. Report No. 186052-00007. October 2012.
- D. Middleton, H. Charara, and S. Turner. Develop a Turn-Key System for Remote Traffic Monitoring for Federal Land Management. Award No. DTFH70-10-E-00020. September 2012.
- D. Middleton, Y. Li, J. Le, and N. Koncz. *Accommodating Oversize and Overweight Loads: Technical Report*. Texas Department of Transportation, July 2012.
- D. Middleton, R. Longmire, H. Charara, and J. Bonneson. *Field Evaluation of Detection-Control System*. Federal Highway Administration, January 2012.
- D. Middleton, R. Rajbhandari, R. Brydia, E. Kraus, S. Hernandez, K. Cheu, V. Iragavarapu, and S. Turner. *Synthesis of TxDOT Uses of Real-Time Commercial Traffic Data*. FHWA/TX-11/0-6659-1, Texas Department of Transportation, September 2011.
- D. Middleton, G. Pesti, P. Songchitruksa, R. Brydia, K. Balke, and G. Ullman. *Use of Intelligent Transportation Systems in Rural Work Zones*. FHWA/TX-11/0-6427-1. Texas Department of Transportation, September 2011.
- J. Coleman, D. Middleton, S. Glenn, and M. Kieran. *Examine the Transportation Efficiency of Truck Lanes: Final Report*. Transport Canada. March 2011