Geza Pesti, Ph.D., PE

Research Engineer

YEARS OF QUALIFYING EXPERIENCE: 35

Education

- Ph.D., Civil Engineering, University of Nebraska-Lincoln
- M.S., Civil Engineering, University of Nebraska-Lincoln
- Dipl. Eng. (M.Sc.), Civil Engineering, Budapest University of Technology

Background and Qualifications

Dr. Pesti has over 27 years research, 6 years teaching and 2 years consulting experience. His research at TTI has primarily focused on traffic operations and control for freeways, arterials and work zones. He is currently involved in a U.S.DOT funded research project to deploy and pilot-test the Reduced Speed Zone Warning/Lane Closure (RSZW/LC) application developed by the Crash Avoidance Metrics Partners (CAMP) consortium under the V2I Safety Applications Project. He is also working on a major TxDOT project that provides advanced traveler information for the I-35 corridor expansion project in Central Texas. He has studied and evaluated a number of active traffic management and ITS technologies such as dynamic queue warning systems, condition-responsive speed advisory and advance traveler information systems, various merge control strategies including the dynamic late merge concept. He also studied queue spillover from exit ramps, evaluated the effect of ramp spacing on weaving operation and assessed the mobility and emission impacts of night-time vs. day-time road construction. He extensively used microscopic traffic simulation and modeling in these research projects. He was a key researcher in a project that developed guidelines for the effective use of traffic responsive signal control on arterial closed loop systems and led another project that applied these guidelines to implement traffic responsive signal operation on several arterial corridors in Texas. He also has experience with mesoscopic dynamic traffic assignment models and used them in several projects to predict traffic pattern changes, identify bottleneck locations and assess the expected network-level impacts of incidents, road construction activities, and evaluate the effectiveness of various traffic and demand management strategies. Prior to joining TTI, he worked at the University of Nebraska-Lincoln (UNL), where he was involved in transportation research and education for over six years. A significant part of his research at UNL focused on the evaluation of smart work zone technologies that he conducted as part of the Midwest States Smart Work Zone Deployment Initiative that was awarded the National Highway Safety Award in Operational Improvements by the FHWA and Roadway Safety Foundation. He also conducted research in Systems and Industrial Engineering at the University of Arizona and has 2 years of consulting experience with Atkins. His research results have been published in over 50 peer-reviewed journal and conference papers and in a number of research reports. He is member of ITE and ITS America and has been actively involved with several committees of the Transportation Research Board. He is a registered professional engineer in Texas.

Recent Work Experience

Dates	Position(s)	Organization
2003 - Present	Research Engineer	Texas A&M Transportation Institute
1997 - 2003	Research Assistant Professor	Mid-America Transportation Center
1997 - 2003	Assistant Professor	University of Nebraska – Lincoln, Dept of Civil Engineering
1994 – 1996	Project Engineer	WS Atkins – Hungary

Relevant Project Level Experience

Key Researcher, I-35 Connected Work Zone - Phase 2 (USDOT/TxDOT) 2012-present. The first phase of the project that focused on improving freight movement along the construction corridor has been completed. A web-based tool was developed to help optimize routes for long haul trucks by providing a steady stream of traveler information through on-board devices capable of receiving work zone infrastructure data. The second phase of the project that is currently underway focuses on the deployment and pilot-testing of the Reduced

Speed Zone Warning/Lane Closure (RSZW/LC) application developed by the Crash Avoidance Metrics Partners (CAMP) consortium under the V2I Safety Applications Project. The system will be deployed and tested at several work zones on the I-35 corridor.

Task Leader - Performance Measurement, I-35 Corridor Traveler Information (Texas Department of Transportation) 2012-present. TTI designed, deployed, and implemented an advanced construction traveler information system for the $2 billion reconstruction of Interstate 35 in Central Texas. As a Task Leader for Corridor Performance Measurement, Geza has developed systems for the automated calculations of mobility and work zone performance measures at corridor- and project levels, and dash-board type corridor performance reports. He was working with both real-time and archived datasets from different sources such as Bluetooth readers, Wavetronix sensors, lane closure databases, Waze and INRIX data. He analyzed these data to provide travel time and delay information, calculate performance metrics, determine optimum work zone schedule, and assess the operational impacts of incidents. He also developed methods and applications for post-event evaluations of construction activity and incident impacts.

Co-Principal Investigator, Regional Impact of Roadway Constructions on Traffic and Border Crossing Operations in the El Paso Region (Center for International Intelligent Transportation Research), 2009-2010. The objective of this study was to develop a regional work zone impact assessment tool that agencies in the El Paso region can use to predict the expected impact of concurrent road construction projects and identify critical roadway segments and corridors where the impacts of construction are most severe. A dynamic traffic assignment model was utilized to predict traffic pattern changes in response to road construction activities and identify critical links and regions where change in traffic control may be needed.

Principal Investigator, Improved Traffic Control for Freeways and Work Zones (Texas Department of Transportation) 2005-2007. The primary objective of the research was to identify and evaluate effective ways of improving traffic operations and safety on congested freeways. The research focused on end-of-queue warning, work zones with lane closure, and queue spillback at exit ramps. Three sets of evaluation studies were conducted: (1) two queue warning systems deployed on IH 610 and US 59 in Houston, Texas were evaluated based on field observations; (2) strategies to resolve a ramp spillback problem at an exit ramp in El Paso, Texas, were analyzed using traffic simulations; (3) the Dynamic Merge work zone traffic control concept was evaluated using traffic simulations, and recommendations were developed for its potential use for different lane closure configurations.