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## EDUCATION

- PhD, Civil Engineering (Transportation), Georgia Institute of Technology, Atlanta, GA, 1999
- MS, Civil Engineering (Transportation), Utah State University, Logan, UT, 1996
- BS, Civil Engineering (Transportation), Brigham Young University, Provo, UT, 1991

## PROFESSIONAL EXPERIENCE

- Professor, Department of Civil, Construction, and Environmental Engineering, Iowa State University, 2012–present
- Director, Institute for Transportation, Iowa State University, 2014–present
- Assistant/Associate Professor, Department of Civil, Construction, and Environmental Engineering, Iowa State University, 2000–2012
- Graduate Research Assistant, Georgia Institute of Technology, 1995–1999

## BACKGROUND AND QUALIFICATIONS

Shauna Hallmark has served as principal investigator for over 55 research projects over 19 years through a wide range of sponsors, including the Strategic Highway Research Program, National Cooperative Highway Research Program, Iowa DOT, Minnesota Local Road Research Board, Iowa Highway Research Board, and FHWA.

Dr. Hallmark has conducted a number of research projects related to intersection safety issues. Additionally, she has worked on a number of projects that have developed workbooks, guidance documents, and other technology transfer material. In order to develop these materials, she has worked with end users such as state DOTs, county and local agencies, trade groups, and enforcement groups. Related projects include development of a guidebook to address lane departure crashes in Iowa, a toolbox of best practices to assist schools, law enforcement, and traffic engineers with managing traffic safety and operations at schools; developing lighting guidelines for rural intersections; developing planning level guidelines for implementation of roundabouts, development of a toolbox of best practices to assess the impact of roundabouts in a corridor; synthesizing traffic calming techniques in work zones; development of a toolbox to assess tradeoffs between safety, operations, and air quality for intersection and access management strategies; and synthesis of best practices and recommended strategies for shared left turn lanes.

Additionally, she had conducted numerous projects that involved the collection, reduction, and analysis of large datasets. Some related projects include the following:

- ***Evaluation of Intersection Collision Warning Systems*** (Minnesota DOT). The project evaluated driver behavior before and after installation of ICWS in Minnesota. Data was collected at five treatment and five control intersections before and after installation using a video data collection array. Stopping behavior and gap acceptance were compared.
- ***Evaluation of Truck Behavior at Reduced Conflict Intersections*** (Minnesota DOT). The project evaluated truck behavior at RCI and regular intersections to assess safety impacts due to large truck movements. Time to execute turning maneuvers were extracted from video and compared between treatment and control sites. Conflicts were also reduced and evaluated.
- ***Evaluation of Rural Intersection Treatments*** (Iowa DOT and Iowa Highway Research Board). The project evaluated countermeasures to improve safety at rural intersections including stop sign beacons and adding additional reflective treatment to stop sign posts.
- ***Warrants for Roundabouts*** (Local Road Research Board, Minnesota DOT). Project developed warrants for installation of roundabouts for local agencies.
- ***Modern Roundabout Guidance for the Iowa DOT*** (Iowa DOT and FHWA). Project developed planning level guidance for roundabouts.
- ***Evaluating the Relationship Between the Driver and Roadway Characteristics to Address Rural Intersection Safety Using the SHRP 2 Naturalistic Driving Study Data*** (FHWA and Iowa DOT). The project is using the SHRP2 naturalistic driving study data (NDS) to assess driver stopping and gap acceptance behavior at rural intersections. The focus is 2-way/2-way stop controlled intersections.
- ***Safety Impacts of Street Lighting at Rural Intersections*** (MnDOT/LRRB, Iowa DOT). The project evaluated the safety impact of street lighting at rural intersections.
- ***Evaluation of Work Zone Safety Using the SHRP 2 Naturalistic Driving Study Data*** (FHWA and AASHTO through the IAP). The project is using the SHRP2 NDS data to evaluate the role of driver distraction and speed in work zone safety critical events.
- ***Traffic calming strategies for rural Iowa communities*** (FHWA, Iowa DOT, Iowa Highway Research Board). The project identified treatments to reduce speeds along the main road in small rural communities. Eight different treatments were installed in six communities and speed was collected and compared before and after installation.
- ***Behavior Study of Merge Practices for Drivers at Work Zone Closures***. (Smart Work Zone Deployment Initiative and USDOT). The project identified and documented driver behaviors that are the most detrimental to traffic flow and safety within work zone lane closures. Data was collected at freeway work zone merges in Iowa using video data collection equipment.
- ***Effectiveness of Dynamic Speed Feedback Signs on High Crash Curves*** (FHWA, MTC, IHRB, and Iowa DOT). The project evaluated speed and crash reduction due to speed feedback signs, which were installed on two-lane curves in seven states (Arizona, Iowa, Florida, Ohio, Oregon, Texas, and Washington). The team identified sites and collected data across the 7 states. Changes in speed were evaluated and CMFs were developed.
- ***NCHRP 5-21: Safety and Performance Criteria for Retroreflective Pavement Markers*** (NCHRP through Texas Transportation Institute). Project is evaluating the impact of RPMs on driver behavior using the SHRP2 NDS data.
- ***Evaluating the effectiveness of red light running camera enforcement in Iowa*** (Iowa DOT). The

project collected incidences of red light running before and after installation of red light running camera enforcement. Metrics such as number of incidences, time into red, and headway were compared. Guidelines for application of RLR cameras was also developed.

- ***Evaluation of Enhanced Treatments of Curve Signage on Rural Two-lane Highways*** (FHWA through LEIDOS). Project identified problematic curve locations and installed treatments in Oregon, Connecticut, Missouri, and Iowa.
- ***Evaluation of the TAPCO Sequential Dynamic Curve Warning System*** (FHWA through LEIDOS). Project identified problem curve sites and installed treatments at 13 curves in 5 states. Additionally, speed and volume data were collected and compared before and after installation.

#### RELEVANT PUBLICATIONS

- Mudgal, A. S. Hallmark, A. Carriquiry, and K. Gkritza. 2014. Driving Behavior at a Roundabout: A Hierarchical Bayesian Model. *Transportation Research Part D*, Vol. 26, pp. 20–26.
- Hallmark, S. L., B. Wang, A. Mudgal, and H. Isebrands. 2011. On-Road Evaluation of the Emission Impacts of Roundabouts. *Journal of the Transportation Research Board*, No. 2265, pp. 226–233.
- Hallmark, S. L., E. Fitzsimmons, H. Isebrands, and K. Giese. 2010. Evaluating the Traffic Flow Impacts of Roundabouts in a Signalized Corridor. *Journal of the Transportation Research Board*, Vol. 2182, pp. 139–147.
- Isebrands, H., S. Hallmark, E. Fitzsimmons, Jessica Stroda. 2008. *Toolbox to Evaluate the Impacts of Roundabouts on a Corridor or Roadway Network*. Minnesota Department of Transportation, St. Paul, MN.
- Isebrands, H. N., and S. Hallmark. 2008. *Planning-Level Guidelines for Modern Roundabouts*. Institute for Transportation, Iowa State University, Ames, IA.
- Isebrands, H. N., S. L. Hallmark, and W. Li. 2010. Safety Impact of Roadway Lighting at Rural Intersections. *Journal of Transportation Engineering*. Vol. 136, No. 11, pp. 949–955.
- Isebrands, H., and S. Hallmark. 2012. Statistical Analysis and Development of Crash Prediction Models for Roundabouts on High-Speed Rural Roundabouts. *Transportation Research Record: Journal of the Transportation Research Board*, No. 2312, pp. 3–13. 2012 Patricia Waller Award: Outstanding Paper on Safety and System Users.
- Fitzsimmons, E. J., S. L. Hallmark, M. Orellana, T. McDonald, and D. Matulac. 2009. Investigation of Violation Reduction at Intersection Approaches with Automated Red Light Running Enforcement Cameras in Clive, Iowa Using a Cross-Sectional Analysis. *Journal of Transportation Engineering*, Vol. 135, No. 12, pp. 984–989.
- Hallmark, S. L., N. Hawkins, and O. Smadi. 2015. *Evaluation of Dynamic Speed Feedback Signs on Curves: A National Demonstration Project*. Federal Highway Administration, Washington, DC.

#### PROFESSIONAL AFFILIATIONS, HONORS, AND SERVICE

- TRB AHB50: Committee on Traffic Control Devices
- TRB AHB 65: Operational Effects of Geometrics
- ISU Regents Award for Faculty Excellence