Operational Data to Assess Mobility and Crash Experience during Winter Conditions

Zachary Hans\textsuperscript{1}, Tina Greenfield\textsuperscript{2}, Neal Hawkins\textsuperscript{3}, Peter Savolainen\textsuperscript{4} and Emira Rista\textsuperscript{5}

Abstract

Highway agencies spend millions of dollars annually to ensure safe and efficient winter travel. Historically, the relationships between winter weather maintenance practices on safety and mobility have been difficult to systematically quantify. However, recent expansion of fixed and mobile sensors as well as data collection and archive practices may make performance assessment more feasible, facilitating more refined and location specific analyses. The objective of this project was to investigate potential applications of these expanded maintenance, roadway, traffic and weather data in Iowa, with an emphasis on conditions during crash events.

Data sets investigated include crash history, INRIX-based crowdsourced vehicle speed data, snow plow-based automatic vehicle location (AVL) data, snow plow-based roadway images, RWIS data and maintenance crew-based operations and weather reports.

Keywords: winter weather — winter maintenance— AVL — traffic speed — crash analysis

\textsuperscript{1} Zachary Hans CWIMS Director; InTrans; 2711 South Loop Drive, Suite 4700, Ames, IA 50010-8664; phone (515) 294-2329; fax (515) 294-0467; email: zhans@iastate.edu
\textsuperscript{2} Tina Greenfield RWIS Coordinator; Iowa Department of Transportation Office of Maintenance; 800 Lincoln Way, Ames, IA 50010; phone (515) 233-7746; email: tina.greenfield@iowadot.us
\textsuperscript{3} Neal Hawkins Associate Director; InTrans; 2711 South Loop Drive, Suite 4700, Ames, IA 50010-8664; phone (515) 294-7733; fax (515) 294-0467; email: hawkins@iastate.edu
\textsuperscript{4} Peter Savolainen Safety Engineer; InTrans; 2711 South Loop Drive, Suite 4700, Ames, IA 50010-8664; phone (515) 294-3381; fax (515) 294-0467; email: pts@iastate.edu
\textsuperscript{5} Emira Rista Graduate Student; ; InTrans; 2711 South Loop Drive, Suite 4700, Ames, IA 50010-8664; email: rista@iastate.edu