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## GIS-Based Highway Safety Metrics Implementation and Evaluation

### Presenter

Adam Wellner  
Graduate Research Assistant  
South Dakota State University  
[Adam.Wellner@sdstate.edu](mailto:Adam.Wellner@sdstate.edu)

### Co-Presenter

Xiao Qin, Ph.D. PE  
Assistant Professor  
South Dakota State University  
[Xiao.Qin@sdstate.edu](mailto:Xiao.Qin@sdstate.edu)

Over 94 percent of the United States is rural open space. Although the geographic extent of rural area is enormous, rural counties, towns, and villages are less likely to have substantial resources for road maintenance and safety. Using GIS techniques, a data-driven approach to screening rural roadways for "sites of promise" can improve the efficient use of highway safety funding.

A GIS-based screening tool was developed using cutting edge techniques including sliding window analysis and Empirical Bayesian (EB) statistics. The tool implements these analysis methods in a custom integration, while taking advantage of GIS computing techniques to process and manage data spatially. The implementation of the tool is intended to reduce the time investment by practicing professionals, using cutting edge statistical and analysis techniques on a large (statewide) scale. Additionally, the tool is designed to make use of existing geometric and crash data, maintained by the roadway authority.

The developed tool is an efficient solution to several rural safety challenges, providing an effective tool for screening using existing data. This tool implements both model and crash count based screening methods, offering flexible and accurate screening options for safety engineers.