

Implementing Comprehensive Traffic Data Quality Examination Tools: A Case Study for Wistransportal V-SPOC Quality Assurance/Quality Control Enhancements

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Archived traffic detector data has been used for various operations, planning, and research purposes; data quality for those archived data systems is critical for its value. Factors affecting data quality arise from a variety of sources, including data loss or noise caused by network connectivity, detector deficiencies, and configuration errors. Due to the size of the archived data, it is time-consuming for users to identify sound data and difficult to identify malfunctioning detectors promptly. Various flagging procedures have been implemented to identify invalid or questionable archived traffic data. However, those flagging procedures may not be comprehensive enough to maintain adequate data quality. In a previous study conducted through a collaboration of the Wisconsin Traffic Operations and Safety (TOPS) Laboratory, the University of Wisconsin-Milwaukee, and Wisconsin Department of Transportation (WisDOT), authors recommended a sequence of tests along with a flagging procedure, which was demonstrated through a case study in Wisconsin. This presentation is a continuation of that study, and develops calibration algorithms and improvements based on a large amount of real-world data available through the WisTransPortal, a large scale data warehouse of traffic operations and safety data, maintained by the TOPS Lab in partnership with the WisDOT Bureau of Traffic Operations. A prototype is also implemented to demonstrate how the flagging procedure could help users find data with good quality and conversely identify detector deficiencies within the data archive.

Keywords: Archived traffic data; data quality; detector deficiency; data quality flagging procedure