



Research Need Statement 532

Date:	June 27, 2018
Need Statement Champion:	Brian Kary – Director of Traffic Operations
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Idea Submitted by:	Brian Kary
Idea Originated from:	IdeaScale

Select Program:

MnDOT OR Local Road Research Board (LRRB)

Research OR Implementation

Need Statement Title:

Evaluation of Metro Freeway System for Reliability and Resilience

Need Statement: Describe the problem or the opportunity. Include background and objective.

Developing and operating a reliable and resilient freeway network, which can absorb, recover and adapt to actual and potential adverse events, is of critical importance in sustaining the way of life and economic vitality of the Twin Cities Metro area. Through the TeTRES tool developed in previous projects, research could be completed to study freeway network reliability and resiliency, which could help MnDOT develop TSMO strategies or corridor improvements to improve resiliency and travel time reliability.

This project would also integrate the TeTRES and TICAS Freeway Performance Tools into one system. The Traffic Information & Condition Analysis System (TICAS) was developed for the RTMC several years ago to help extract RTMC freeway data and develop performance measures for the metro freeway system. TeTRES is currently being developed to be able to monitor travel time reliability on metro freeways. This project would combine TeTRES and TICAS into one tool, plus incorporate additional weather data from either the National Weather Service or MDSS. The system could also be incorporated with a system being developed for tracking Winter Maintenance Performance Measures.

Provide a summary of the potential benefits:

Project will assist in developing travel time reliability measures that will allow for the development of traffic management strategies, and identifying and prioritizing future projects and improvements to the Twin Cities Metro freeway system.



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How does this project build upon previous research (include title or reference to a completed research effort)?

[Development of Travel Time Reliability Measurement System](#) (TeTRES was developed as part of this project), Eil Kwon

[Development of a Freeway Management and Operational Strategies with IRIS-in-Loop Simulation](#) (TICAS was developed as part of this project), Eil Kwon

[Development of a Road Condition Recovery Time Estimation System for Winter Snow Events](#), Eil Kwon

[Highway Travel Time Reliability Data and Analysis Tools](#) (MnDOT participated in a SHRP2 research project that developed tools and best practices for travel time reliability), SRF

Provide names to consider for a technical advisory panel:

Brian Kary (MnDOT Metro District RTMC), Garrett Schreiner (MnDOT Metro District RTMC), Jim Henrickson (MnDOT Metro District Planning), Paul Czech (MnDOT Metro District Planning), Deanna Belden (MnDOT Office of Transportation System Management), Tony Fischer (Met Council), Scott Peterson (Met Council)