



Research Need Statement 527

Date:	June 18, 2018
Need Statement Champion:	Jihshya Lin (also Josie Tayse and Sue Zarling)
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Idea Submitted by:	Prof. An Chen, Iowa State University
Idea Originated from:	Jihshya Lin

Select Program:

MnDOT OR Local Road Research Board (LRRB)

Research OR Implementation

Need Statement Title:

Re-tightening the Large Anchor Bolts of Support Structures for Signs and Luminaires: Phase II

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

Phase I project generates the current re-tightening specifications that will be used for the coming year with one implementing project. With the to-be-obtained field performance data, Phase II will refine the procedures, along with completing the full research in Phase II to fill the gaps in snug tight, bolt materials and sizes, grip lengths, and continue fatigue tests, collect monitoring data, etc. All results will help in a complete bolt tightening and retightening procedures and specifications that will eliminate or minimize the loose nut problems for anchor bolts of MnDOT structures that will save cost in construction and maintenance, and improve the public's safety.

Provide a summary of the potential benefits:

Much improvement in safety, reduction in maintenance cost in inspection and re-tightening needs, improvement in construction assurance in bolt tightness and quality of construction and less problem for inspection. This will reduce costs in construction and maintenance, and improve the safety of the public.



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

To fill unfinished details and tasks from Phase I project and research from Alaska DOT's bolt yielding research in 2014 in TRB, "Measured Anchor Rod Tightening of High-Mast Light Poles in Alaska", that will complete the anchor bolt tightening and re-tightening procedures and specifications for MnDOT. This will also be proposed to AASHTO T-12 Committee to change the bolt tightening procedures.

Provide names to consider for a technical advisory panel:

Jihshya Lin (TL), Todd Niemann, Sue Zarling, Josie Tayse, Eric Embacher, Alex Govrik, Ben Jilk, Matt Pooler and Mike Anderson