



Research Need Statement 541

Date:	July 20, 2018
Need Statement Champion:	Scott Bradley
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Idea Submitted by:	Christopher E. Smith, MnDOT Office of Environmental Stewardship
Idea Originated from:	IdeaScale

Select Program:

MnDOT OR Local Road Research Board (LRRB)

Research OR Implementation

Need Statement Title:

Use of Innovative Technology to Deter Bat Bridge Use Prior to and during Construction

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

Minnesota is home to eight species of bat. Four of Minnesota’s bat species migrate south during the winter months, while the other four bat species (“cave bats”) overwinter locally in natural caves and man-made structures such as mines, sewers, and buildings. Cave bats in Minnesota and elsewhere are threatened by a relatively new fungal disease known as white-nose syndrome (WNS), which has resulted in cave bat population declines of over 90% in parts of the northeastern U.S. These steep declines resulted in the U.S. Fish and Wildlife Service (USFWS) listing the northern long-eared bat (*Myotis septentrionalis*) as threatened under the federal Endangered Species Act in 2015, and it is anticipated that additional bat species will be listed in the coming years.

During the summer months, the northern long-eared bat and Minnesota’s three other cave bat species sometimes utilize bridges as day-time roosting habitat, and may also use them as places to form maternity colonies where they give birth and raise their young. When protected bat species are present on bridges, bridge repair and replacement projects are required to follow additional regulatory requirements to avoid and minimize impacts to the bats. Some of these requirements (e.g., timing restrictions) are challenging to implement given Minnesota’s short construction season.

This project seeks to develop alternative strategies for minimizing the impacts of Minnesota bridge projects on bats by evaluating the feasibility and efficacy of deploying technology such



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as non-lethal ultrasonic acoustic devices, physical exclusionary devices, and light devices in the field to temporarily deter bats from roosting on bridges ahead of construction or maintenance activities, while minimizing harm to bats and non-target species. Some or all test sites should be located in Minnesota or areas with similar bat species and habitats.

Provide a summary of the potential benefits:

- Provide agencies with an effective strategy(ies) for meeting current and anticipated regulatory requirements for work on bridges with bat use
- Make permitting, construction, and maintenance timelines more predictable and easily manageable
- Minimize the transportation sector's impacts on imperiled bat species
- Demonstrate due diligence and interagency collaboration on environmental issues
- Long-term agency cost savings

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

Bats in American Bridges (Bat Conservation International, 1999)

Bats and Bridges Technical Bulletin (Caltrans, 2003)

California Bat Mitigation Techniques, Solutions, and Effectiveness (Caltrans, 2004)

Acoustic Deterrence of Bats: A Guidance Document (Caltrans, 2011)

[Best Management Practices for Bat Species Inhabiting Transportation Infrastructure](#)
(Connecticut Department of Transportation, 2015)

Provide names to consider for a technical advisory panel:

Christopher E. Smith, Scott Bradley, Beth Brown, MnDOT Bridge Office representative, US Fish and Wildlife representative, MnDNR representative, MnDOT District Bridge representative, State Aid and/or State Aid Bridge representative, Carol Andrews (Saint Louis County) or other NE MN county representative, SE MN county representative (e.g. Houston, Fillmore, Winona), NGO (e.g. Bat Conservation International) representative