

Research Need Statement 649

I. Need Statement Champions and Information

I.A. Need Statement Champion Information

I.A.1. First and Last Name of Research Champion: **Tim Andersen**

I.A.2. Research Champion's Office: **MnDOT Materials & Road Research**

I.A.3. Research Champion's Phone Number: **651-366-5455**

I.A.4. Research Champion's Email: timothy.lee.andersen@state.mn.us

I.B. Research Co-Champion

I.A.1. First and Last Name of Research Co-Champion:

I.A.2. Research Co-Champion's Office:

I.A.3. Research Co-Champion's Phone Number:

I.A.4. Research Co-Champion's Email:

I.C. Research Needs Title (115 Characters): **Haul Road and Detour Maintenance**

I.D. Project Sponsor: **Joint MnDOT and Local Road Research Board**

II. Research Need Background and Description

II.A. Research Need Background

II.A.1. Describe the problem or opportunity.

Designated detours and haul roads are often a part of construction projects. Policies have been developed to ensure that these roads are returned to their pre-construction condition. Also, overweight trucks can sometimes be allowed to travel on roads through MnDOT permit process. The current permit assessment is based on flat fee (ex. not based on excess damage caused by the overweight trucks). however accurate methods and the development of a complete compensation is a challenge. New technologies have been developed over the past several years that could help agencies develop improved methods. They include:

1. Ground penetrating radar
2. Lidar
3. Thermal imaging
4. Traffic speed deflectometer

Software has also been developed that combines all of these technologies to diagnose problems and targets the reasons for failure throughout the pavement section.

II.A.2. If applicable, describe how this project will build on previous research.

II.A.3. If applicable, include the title/s or previous research.

II.A.4. What is the **objective** of the proposed research?

This effort will develop methods to determine appropriate compensation for haul roads and designated detours.

III. Strategic Priorities, Benefits, and Expected Outcomes

Section III. is for MnDOT sponsored and co-sponsored projects only; all LRRB projects proceed to section IV.

III.A. MnDOT Strategic Priorities

Instructions: Briefly describe how the project aligns with the following MnDOT Research Strategic Priorities. Complete all that apply.

III.A.1. Innovation & Future Needs:

III.A.2. Advancing Equity:

III.A.3. Asset Management: The current permit assessment of detour and haul roads is based on flat fee (ex. not based on excess damage caused by the overweight trucks). Accurate methods and the development of a complete compensation is a challenge to manage assets.

III.A.4. Safety:

III.A.5 Climate Change & Environment:

III.B. Expected Outcomes

Instructions: Check all expected direct outcomes of this research.

- New or improved technical standard, plan, or specification
- New or improved manual, handbook, guidelines, or training
- New or improved policy, rules, or regulations
- New or improved business practices, procedure, or process
- New or improved tool or equipment
- New or improved decision support tool, simulation, or model/algorithm (software)
- Evaluation of a new commercial product
- New or improved technical standard, plan, or specification
- Other. Please specify below:

III.C. Expected Benefits

Instructions: Select all expected benefits that may be realized if the findings and recommendations from this research is adopted or implemented

III.C.1. Construction Savings Choose an item.

III.C.2. Decrease Engineering/Administrative Costs Choose an item.

III.C.3. Environmental Aspects Choose an item.

III.C.4. MnDOT Policy **Changed or inform a policy**

III.C.5. Lifecycle Choose an item.

III.C.6. Operations and Maintenance Savings Choose an item.

III.C.7. Reduce Risk Choose an item.

III.C.8. Reduce Road User Cost Choose an item.

III.C.9. Safety Choose an item.

III.C.10. Technology **New method of using technology**

III.C.11. Other, please describe below:

IV. Technical Advisory Panel

Instructions: Please list the name and affiliation of individuals to consider for the Technical Advisory Panel.

County Engineer

Matt Rottermond - MnDOT Materials Engineer - Mankato

MnDOT Soils Engineer – Chris Dulian – Rochester

Paul Johns – MnDOT Construction

MnDOT Resident Engineer representative

Eyoab Zegeye Teshale – MnDOT Research

Your assigned Project Advisor is available to answer questions and provide guidance (assigned by the Office of Research & Innovation).

Your Project Advisor is: Marcus Bekele, (651)366-3903, marcus.bekele@state.mn.us