

# Research Need Statement 652

## I. Need Statement Champions and Information

### I.A. Need Statement Champion Information

I.A.1. First and Last Name of Research Champion: Duane Hill

I.A.2. Research Champion's Office: District 1 Duluth

I.A.3. Research Champion's Phone Number: 218-725-2704

I.A.4. Research Champion's Email: duane.hill@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):

**Complete Streets Speed Impacts**

### 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.

Complete streets concepts often change existing highway cross section to provide a more friendly environment for bicycles and pedestrians. Sometimes the desired effect is to reduce the vehicle operating speeds. This proposal is to assess the before and after operating speed of various cross-sectional changes so that the impact of future changes can be estimated. Speed limits are set based on operating speeds. Clear zone is determined by design speed and in some cases speed limit. The magic speed limit number is 40 MPH, where clear zone is reduced to zero, since traffic will remain on the paved surface when the speed limit is 40 or below. In the transition zone in urban areas, it is important to know the impact of cross-sectional changes in the design process even though speed limit authorizations are adjusted after the changes have been made and future operating speeds are measured.

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

Back in the 1990's the human factors lab did some research on cross sectional element impact on driver behavior.

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

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

This information would assist traffic engineers, road designers and project managers in selecting design elements that impact operating speed.

### 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: This information could impact design decisions.

III.A.2. Advancing Equity: Impacts design for bicycles and pedestrians

III.A.3. Asset Management: Impacts asset decisions

III.A.4. Safety: Impacts safety understanding.

III.A.5 Climate Change & Environment: Supports modes, alternative transportation

#### 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.

Yes

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

No

III.C.3. Environmental Aspects Other environmental impact. Please describe below.

Yes

III.C.4. MnDOT Policy Choose an item.

Yes

III.C.5. Lifecycle Choose an item.

No

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

Yes

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

Yes

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

Yes

III.C.9. Safety Choose an item.

Yes

III.C.10. Technology Choose an item.

No

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.

*Suggestions:* Should be someone like Jim Rosenow - geometrics, Derek Leuer – traffic engineering, Derek Fredrickson – project management in District, ADE from a District, Nissa Tupper – sustainability, Hanna Pritchard – Bike design.

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

Your Project Advisor is: Brent Rusco (651)366-3767 [brent.rusco@state.mn.us](mailto:brent.rusco@state.mn.us)