



# Road Design Standards: Interim Report

March 2016



Prepared by

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# Legislative Request

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This report is issued to comply with [2015 Laws of Minnesota, Chapter 75, Article 2, Section 57](#).

## **Sec. 57. Road Design Standards**

By August 15, 2016, the commissioner of transportation shall, in collaboration with city and county engineers, establish and adopt design standards and guidelines to be applied consistently to trunk highways, county state-aid highways, and municipal state-aid streets with similar characteristics. The standards and guidelines must align the state-aid standards with the Department of Transportation trunk highway standards and technical memoranda as appropriate. The commissioner shall report the adopted standards and guidelines to the chairs and ranking minority members of the senate and house of representatives committees with jurisdiction over transportation policy by August 15, 2016, and present an interim report by March 15, 2016.

The cost of preparing this interim report is \$46,000.

# Introduction

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Local, state and federal transportation agencies are examining different approaches to accommodate the broader array of multimodal transportation needs on their roadway systems. Minnesota state highways follow the flexible design guidelines outlined by the Minnesota Department of Transportation that are drawn from the American Association of State Highway and Transportation Officials guidelines and meet the full range of transportation needs.

State Aid system roadways follow more specific standards developed by local elected officials and county and city engineers. The standards are published as Minnesota Rules and can be found in [State-Aid Route Standards, State-Aid Operations Rules Chapter 8820](#), which provide guidance and rules that address many different roadway functions and characteristics, including:

- Geometrics for travel lanes
- Bike lanes
- Parking dimensions
- Other elements of the roadway system

To examine how a more flexible approach like the one used by the state standards could be incorporated into the more specific design requirements in the State Aid system standards, MnDOT examined the width standards (e.g., vehicle lanes, shoulders, bike lanes, boulevards) for both the trunk highway and State Aid systems. This required a statewide, planning-level review that compares these two standards, examines the national standards, and provides alternatives and recommendations on where the standards can be appropriately aligned.

To complete this task, MnDOT hired SRF Consulting Group, Inc. to facilitate coordination with a Transportation System Users Steering Committee and Technical Working Group. The TSUSC is comprised of pedestrian, bicycle and health advocates who have defined specific goals and desired outcomes for this comparison. The TWG is made up of MnDOT staff and city and county engineers representing the engineering perspective. The TWG also determines how best to integrate the goals defined by the TSUSC into the language of the Minnesota State Aid Rules. SRF completed a literature review, which was shared with the TSUSC and TWG to provide data-based research regarding safety implications and examples of national guidelines for roadway widths.

Fulfilling the tasks outlined by the Legislature will likely result in recommendations for potential changes to the following Minnesota Rules:

- [Minn. Rules 8820.9920](#)
- [Minn. Rules 8820.9936](#)
- [Minn. Rules 8820.9941](#)

The recommendations will likely align these rules with the following guidance documents:

- MnDOT Road Design Manual (1982)
- MnDOT Bikeway Facility Design Manual (2007)
- MnDOT Technical Memorandum No. 12-12-TS-06: Shoulder Width Standards for State Highways (2012)
- MnDOT Technical Memorandum No. 13-18-TS-07: Traveled Lane Width Standards for State Highways (2013)

# Literature Review

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A variety of safety literature, national design guidelines and research reports are being reviewed to determine how a facility is affected by roadway widths. Literature and research have been collected from the following sources:

- Minnesota Department of Transportation
- American Association of State Highway and Transportation Officials
- Federal Highway Administration
- Transportation Research Board
- National Association of City Transportation Officials
- Institute of Transportation Engineers
- Minnesota Local Road Research Board
- Florida Department of Transportation

SRF and MnDOT are currently evaluating the information from the literature review and discussing the findings with the two committees. This information will be used to help inform advocates, and city and county engineers, on the design standard history and safety implications, and provide the project team with the context needed to make data-driven recommendations.

# Approach

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MnDOT is addressing the legislative request by involving two committees to review the State Aid Standards and MnDOT Design Standards, identify differences and provide recommendations for potential changes to the standards. The TSUSC represents the concerns pedestrian, bicycle and health advocates have identified; defines task goals; and discusses recommendations from the TWG. The TWG reviews the technical differences between the State Aid Standards and MnDOT Design Standards and provides recommendations for potential changes to the standards based on experience and best practices.

## Transportation System Users Steering Committee

The role of the TSUSC is to identify common concerns advocates have recognized in the State Aid Standards. Throughout the review process, representatives were tasked with evaluating recommended design standards to ensure the concerns and needs of advocates are understood and considered.

The TSUSC group has eight members who work with bicycle and pedestrian facilities and advocates from various organizations. These individuals include:

- Debra Brisk – Hennepin County
- Craig Churchward – Avenue Design Partners
- Ethan Fawley – Minneapolis Bicycle Coalition
- Dorian Grilley – Bicycle Alliance of Minnesota
- Tony Hull – Nonmotorized Transportation Consultant
- Sam Rockwell – Blue Cross and Blue Shield of Minnesota: Center for Preservation
- Fay Simer – Stantec
- Jessica Treat – Transit for Livable Communities

The TSUSC met on Dec. 8, 2015 and Feb. 26, 2016. At the initial meeting, the committee identified the following goals:

- Address State Aid Standards that limit bicycle and pedestrian facilities on all roadways
- Provide pedestrian and bicycle facilities that address mobility demands of all age ranges
- Provide flexibility in design standards to allow for engineering judgment
- Provide a clear presentation of the standards in order to provide clarity for local communities
- Review the State Aid Standards variance process to alleviate project delays

Overall, the committee is interested in providing flexibility for the State Aid Standards, process and decisions. These themes were used as the basis for the recommendations for potential changes to the State Aid Standards.

## Technical Working Group

The role of the TWG is to review and evaluate the technical aspects of the State Aid Standards. This is done by analyzing the differences between the State Aid and MnDOT Design Standards based on best practices, practical experiences, and data-driven research. The goals previously identified by the TSUSC set the foundation for the technical analysis.

The TWG is made up of seven city, county and state engineers. These individuals are:

- Gregory Isakson – Goodhue County
- Mel Odens – Kandiyohi County
- Shelly Pederson – City of Bloomington
- Jim Rosenow – MnDOT
- Wayne Sandberg – Washington County
- Paul Stine – MnDOT
- Cindy Voigt – City of Duluth

The TWG met on Dec. 17, 2015; Jan. 14, 2016; and Feb. 1, 2016. Each of these meetings was used to compare and evaluate the identified differences between the State Aid and MnDOT Design Standards. During the evaluation process, the TWG worked to develop recommendations for changes to State Aid design standards to accommodate all modes of transportation in a uniform manner across Minnesota's transportation systems.

The TWG is aware that the following must be considered when developing its recommendations:

- There is a broad range of roadway functions (arterials, collectors, etc.), conditions (average daily traffic volumes, speed limit, etc.) and users (transit, farm equipment, freight, etc.) on the state aid system.
- State aid standards address urban roadways as well as a wide range of rural roadways.
- In comparison to MnDOT staff resources, many rural agencies have a single, professional (i.e., licensed) engineer on staff who has a multitude of responsibilities. The state aid standards allow rural agencies to make good design decisions knowing that the standards have been fully vetted and provide for improved safety on their roadway systems.
- There is concern that the current state aid variance process is too restrictive and time-consuming for local project development decisions.

A number of draft recommendations for potential changes to [Minn. Rules 8820.9920](#), [Minn. Rules 8820.9936](#), and [Minn. Rules 8820.9941](#) have been proposed following the first three TWG group meetings. These recommendations were presented at the second TSUSC meeting held Feb. 26, 2016.

Moving forward, the TWG will use TSUSC's feedback as it continues to develop recommendations for potential changes to State Aid Standards.

## Next Steps

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The project team is continuing its work towards establishing recommendations for possible changes to [Minn. Rules 8820.9920](#), [Minn. Rules 8820.9936](#), and [Minn. Rules 8820.9941](#), to be adopted and applied consistently on county state aid highways and municipal state aid highway facilities. The TWG will meet to finalize the draft of recommended design standards. These meetings will incorporate feedback provided by the TSUSC and address the remaining differences. Additional meetings will be held with both the TWG and the TSUSC, as needed, to produce a final recommendation that meets the requirements of the legislation.

TWG members will present the standard recommendations to select roadway user representatives (e.g., transit, freight, postal service, farming operations) to identify any concerns before the draft recommendations are finalized. Once the draft recommendations are finalized, the proposed changes will be brought through the official Rules adoption process as identified in [Minn. Stat.14.386](#). Any concerns will be reviewed and addressed and then a final report on the recommended design standards will be presented to the legislature by August 15, 2016.