



Montana Department of Transportation
PO Box 201001
Helena, MT 59620-1001

Memorandum

To: Distribution
From: Paul Ferry, P.E.
Highways Engineer
Date: February 13, 2009
Subject: Roadway Width Decision Process

The attached document provides the guidelines for determining roadway widths for new construction, reconstruction and widening projects. This process was developed to help achieve the goals initiated in the Management Memo dated August 5, 2008.

This process should be used for all appropriate projects that are not past the Scope of Work. It can also be used to evaluate roadway widths for projects that are farther along in the development process as long as the evaluation does not delay project delivery.

The Project Design Managers (PDM) should notify the Traffic & Safety Bureau that they would like an evaluation performed on a specific project. The Project Design Manager must provide estimated costs per mile for the width increments that will be evaluated.

Example: Existing Finished Top Width = 24 feet
Estimated cost to widen to 28 feet = \$300,000 per mile
Estimated cost to widen to 32 feet = \$550,000 per mile
Estimated cost to widen to 36 feet = \$900,000 per mile

(Note that it is not always necessary to evaluate all width increments up to 40 feet)

After the information is submitted to the Traffic & Safety Bureau they will determine the Level of Service do a safety evaluation for each increment.

If you have questions concerning this, please contact me at 444-6244.

Pf.

Attachment

Distribution:

James Walther,	Preconstruction Engineer	w/attachment
Lesly Tribelhorn,	Highways Design Engineer	“
Damian Krings,	Road Design Engineer	“
Tim Conway,	Consultant Design Engineer	“
Duane Williams,	Traffic & Safety Engineer	“

Pierre Jomini,	Safety Management Engineer	“
Roy Peterson,	Consultant Plans Engineer	“
Jim Frank,	Glendive District Engineering Services Supervisor	“
Gary Neville,	Billings District Engineering Services Supervisor	“
Joe Olsen,	Butte District Engineering Services Supervisor	“
Shane Stack ,	Missoula District Engineering Services Supervisor	“
Steve Prinzing,	Great Falls District Engineering Services Supervisor	“
John Cornell,	Road Plans Checker	“
Kevin Farry,	Road Plans Checker	“
Bryan Vieth,	Consultant Design Bureau	“

Roadway Width Decision Process February 5, 2009

Purpose

To determine the roadway widths for new construction, reconstruction and widening projects through the evaluation of all available criteria.

Team members

Permanent Members (or designee with authority to make a decision)

- Preconstruction Engineer
- Traffic & Safety Engineer
- Highways Engineer
- Safety Management Engineer

Project Specific Members

- Project Design Manager
- District Representative

Process

The width determination procedure should typically be conducted prior to the development of the alignment and grade (Activity 216). To start the process the Project Design Manager (PDM) will provide the appropriate cost information to the Traffic & Safety Bureau who will perform the evaluation outlined in the Roadway Width Decision Matrix which is included in the Design Guidelines policy memo effective August 5, 2008. They will determine Levels of Service (LOS) and a safety benefit/cost (b/c) ratio for various roadway widths. The PDM will set up the team meeting after the Traffic & Safety Bureau has completed the evaluation described in items 1 & 2 below.

1. Level of Service
 - A. Can the existing width achieve LOS B for 20, 15, 10-year AADT.
 - B. Will increasing the width achieve LOS B for 20, 15, 10-year AADT.
 - If yes, what width for what design AADT
 - If no, what treatment is necessary to achieve LOS B for 20-year AADT (e.g. auxiliary lanes)
2. Safety Evaluation
 - A. Evaluate safety improvements resulting from 4-foot incremental increases in roadway width. The roadway, utility and right-of-way costs associated with the incremental increases will be provided by the Project Design Manager. Continue to increase the width to the Route Segment Plan width or the width shown in the AASHTO table, whichever is greater. A benefit/cost (b/c) ratio will be determined for each increment.
 - B. If all incremental widths provide a b/c ratio greater than 1, review the following criteria to determine if the width should be something other than 32 feet.
 - Crash trends (run-off-the-road, sideswipe, etc.)

- Crash clusters – can the safety criteria be met by addressing treatable trends with spot improvements (e.g. roadway widening through horizontal curves).
- Other crash data (e.g. truck crashes)

The 32-foot width was selected, because on the average it tends to achieve substantive safety on rural roads. It also provides sufficient width to allow the installation of rumble strips. The purpose of reviewing the crash data is to determine if adding top width is the most effective method to improve safety. Different types of accident trends may be more effectively addressed through the improvement of a combination of geometric features in addition to or instead of increasing the top width (e.g. flattening side slopes and widening to a 28-foot top as opposed to widening to a 32-foot top).

3. Non-related width criteria evaluation

A. After the LOS has been determined and the safety evaluation is completed, the following criteria should be considered by the team in the determination of the top width. The PDM will provide the background data for each bullet.

- AASHTO Width Criteria – Meeting or exceeding these widths is required for National Highway System routes. A design exception will be necessary if a lesser width is used. The AASHTO widths can also be used as a check for Non-NHS routes.
- Route Segment Plan Width – The route segment plan can be used as a check. The route segment widths should not be used as the sole reason to justify a narrower width than what is determined by the width decision matrix.
- Environmental Document – Review the environmental document to assess the purpose and need. Commitments made in the document should also be addressed. If a width other than the width used in the document is recommended, a supplement to the document may be needed.
- Adjacent Roadway Widths – If the segments of roadway adjacent to the project are relatively new, the team may select a width that matches the adjacent roadway width for corridor continuity. If the adjacent segments are old or if the project is part of a corridor reconstruction, the team may consider a comparison to longer segments of roadway or of the entire corridor
- Miscellaneous
 - Is the roadway wide enough for the installation of rumble strips
 - Comparison with roadways having similar traits
 - Change in land use – projected development may change traffic characteristics
 - Volume of commercial traffic