



ROAD DESIGN MANUAL

January 2026



PREFACE

The Montana Department of Transportation (MDT) *Road Design Manual (RDM)* has been developed to provide uniform design practices for MDT and consultant personnel preparing contract plans, specifications and estimates for MDT projects. The design team should attempt to meet all criteria presented in the *RDM*. However, the *RDM* should not be considered a “standard” which must be met regardless of impacts.

The *RDM* presents most of the information typically required in the design of a roadway project; however, it is impossible to address every situation which the design team will encounter. Therefore, the design team must exercise sound engineering judgment on individual projects and, frequently, they must be innovative in their approach to roadway design. This may require, for example, additional research into the highway literature.

The *RDM* was developed by the MDT Road Design Section with assistance from the transportation engineering consulting firm of Kittelson & Associates, Inc. The RDM Review Committee consisted of:

Damian Krings, P.E. (Project Manager)	MDT Road Design Engineer (retired)
Paul Ferry, P.E.	MDT Highways Engineer (retired)
Benjamin Nunnallee, P.E.	MDT – Missoula Preconstruction
Charles Pierce	MDT – Road Design (retired)
Jennifer Nelson, P.E.	MDT – Road Design (no longer at MDT)
Chad Welborn, P.E.	MDT – Road Design
Kevin Farry	MDT – Road Design (retired)
Aaron Mason	MDT – Road Design
Bryan Miller, P.E.	MDT – Consultant Design (retired)
Marcee Allen	Federal Highway Administration (FHWA-retired)
Hermanus Steyn, P.E.	Kittelson & Associates, Inc.
Julia Knudsen, P.E.	Kittelson & Associates, Inc.
Yuri Mereszczak, P.E.	Kittelson & Associates, Inc.
Ribeka Toda	Kittelson & Associates, Inc.
Lee Rodegerdts, P.E. (Cover Page Photo Credit)	Kittelson & Associates, Inc.
Brad Cullimore	Kittelson & Associates, Inc.

The RDM Review Committee would like to thank the following contributors for their technical assistance in developing the manual:

Ryan Dahlke and Mark Studt – MDT Consultant Design
Dustin Rouse , Lesly Tribelhorn and James Combs – MDT Highways
John Cornell, Jerry Sabol, Jeremy Terry, Louise Stoner, Josh Dold, Scott Gerken, Jim Dunbar, Rodney Payne – MDT Road Design
Dave Hedstrom and Annette Compton – MDT Hydraulics
Danielle Bolan and Darcy O'Dell – MDT Traffic

This manual was revised in 2026 to reflect new design guidance since its original publication in 2016. An archived copy of the original manual is available [here](#).

REVISION PROCESS

All revisions to the MDT *Road Design Manual (RDM)* will be submitted and reviewed according to the following process:

Revision and Review

1. Submit all requests for clarifications, errors, omissions, questions and proposed revisions to the Road Design Manual Committee using the [Road Design Manual Comment Form](#).
2. The Road Design Manual Committee will review proposed changes during scheduled meetings.
3. The Road Design Manual Committee (see below) will coordinate with the appropriate Bureaus and District personnel to determine recommended revisions to the RDM. Final recommendations will be submitted and presented to the Road Design Engineer for approval consideration.
4. Proposed revisions that violate MDT Policy cannot be implemented unless the affected Policy has been revised, replaced or rescinded. Policy changes require approval from the appropriate Division Administrators. The Road Design Manual Committee will meet with the Highways Engineer, Statewide Project Development Engineer and the appropriate Division Administrators to present and discuss RDM recommended revisions that would require a change of Policy prior to approval.
5. The Road Design Engineer will issue a design memo describing each revision that has been approved. The electronic RDM errata/revision file will identify the RDM content affected by the revision and the supporting design memo.
6. All errata and approved revisions will be incorporated into the RDM for republishing every four years, at which time the replaced RDM, design memos, and errata/revisions file will be archived.

Road Design Manual Committee

The Road Design Manual Committee will consist of three to four members. The Road Design Engineer will remain a Committee core member. Two District and/or Helena Engineering Division personnel will be recruited to participate on the Committee for two year terms. The two year terms are to be staggered in a manner so that only one member is replaced in any given year. The Committee may invite a fourth member to participate on a minimum annual basis. The three members will make this decision based on agenda topics.

Review Committee responsibilities include:

1. Meeting on an annual basis, or as often as necessary, to review the proposed RDM changes.
2. Adequately reviewing and researching the proposed RDM changes.
3. Providing recommendations to approve or disapprove requested updates for the *RDM*,
4. Tracking all revisions to the *RDM* in chronological order

Table of Contents

- CHAPTER 1** Road Design Guidelines and Procedures
- CHAPTER 2** Basic Design Controls
- CHAPTER 3** Horizontal Alignment
- CHAPTER 4** Vertical Alignment
- CHAPTER 5** Cross Section Elements
- CHAPTER 6** Intersections and Interchanges
- CHAPTER 7** Multimodal Design Considerations
- CHAPTER 8** Urban Design Considerations
- CHAPTER 9** Roadside Safety
- CHAPTER 10** Work Zone Traffic Control
- CHAPTER 11** Drainage and Irrigation Design
- CHAPTER 12** Plan Preparation
- CHAPTER 13** Quantity Summaries
- CHAPTER 14** Specifications/Special Provisions/Detailed Drawings

APPENDICES