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on Montana roadways

Montana Department of Transportation

PO Box 201001
Helena, MT 59620-1001

Memorandum

To: e-Distribution
See below

From: Lesly Tribelhorn, P.E. *LT*
Highways Engineer

Date: October 31, 2016

Subject: 2016 Road Design Manual and Geometric Design Standards

The MDT 2016 Road Design Manual is now available for implementation. The new manual is based on a performance-based road design philosophy. This philosophy provides design flexibility to achieve a desired project performance that satisfies a defined purpose and need.

The structure of the manual has changed. Chapters one through eleven provide uniform criteria and procedures for design. Chapters twelve through fourteen provide guidance for preparation of consistent contract plans and specifications. Appendices A through J consist of additional chapter content which includes supplemental design guidance, and detailed equations and descriptions. Appendix K provides example calculations for reference. The 2016 manual was developed exclusively with US Customary units.

Changes reflected in current design memos have been incorporated throughout the manual whenever possible, and text related to other standalone guidance or policy has been replaced with hyperlinks to those references to avoid potential contradictions. For example, all discussion of items related to MDT's preconstruction scheduling system (EPS), CADD drafting processes and standards, and cost estimation tools, have been replaced with links to the appropriate guidance that will continue to be updated independently of the Road Design Manual. Similarly, sample plans and Geometric Design Standards are standalone documents that will no longer be represented as part of manual. The Geometric Design Standards are policy. The Road Design Manual is not a policy. It is a supporting guidance document for applying the Geometric Design Standards using uniform design practices. For this reason, the Montana Transportation Commission approved Geometric Design Standards for both rural highways and urban and developed areas has been combined into a separate document. Geometric criteria tables have been removed from the manual and are provided in the Geometric Design Standards.

Principle design changes are reflected in the manual. Changes to the location of horizontal axis of rotation, spiral curve criteria and controlling criteria are some of the

more notable changes. New chapters have been added for multimodal transportation features and urban design considerations, as well as updated and additional discussion of many design elements. The new hydraulic design chapter (eleven) includes substantial updates and revisions.

The Geometric Design Standards document has been prepared in accordance with the Code of Federal Regulations and Transportation Commission approved design standards. The new document does not establish new standards. However, standards required by Federal Code have been incorporated in the document. The new document also merges different MDT standards sources into a single source document.

The 2004 Road Design Manual has been combined and will remain available on the external website for continued use on current projects. The new manual should be used to the extent possible on current projects. However, the decision should be made on a case-by-case basis whether to use the 2016 Road Design Manual or the 2004 manual. This should be decided by the design team and the project's program manager. Projects that are before PFR should be designed using the most current Geometric Design Standards and Road Design Manual.

The Road Design Manual Committee will address questions, comments and requests. Committee functions and the manual revision process are outlined in the Road Design Manual Preface. Periodic updates will be posted as revisions are made.

Hardcopies of the new Road Design Manual and Geometric Design Standards will not be distributed. The website and links have been modified to access the same external webpage. The webpage contains links to the 2016 Road Design Manual, the archived 2004 Road Design Manual, a comment form, sample plans and the Geometric Design Standards. Errata and a Frequently Asked Questions link will be added later.
<http://www.mdt.mt.gov/publications/manuals.shtml#rdm>

The 2016 Road Design Manual represents a shift in design philosophy. Please take time to become familiar with the 2016 Road Design Manual and Geometric Design Standards and begin to apply them accordingly. Comments, questions and requests should be submitted to the Road Design Committee on the comment form.

e-distribution:

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