

MICHIGAN DESIGN MANUAL BRIDGE DESIGN

CHAPTER 1

INTRODUCTION (12-16-2019)

The Bridge Design Manual addresses the procedures involved in preparing plans of bridges and other major structures on the interstate/freeway, arterial, collector and local road system governed by the Michigan Department of Transportation (MDOT). Incorporation of or connectivity to other modes of transportation (pedestrian, bicycle, multi-use paths, etc.) must be considered.

In compiling these procedures, an effort was made to include all information related to plan preparation. The major portion of the manual is devoted to design criteria and the presentation of plan information. But other chapters deal with the routines of processing the work, the source material supporting design considerations, and the involvement of other agencies affected by the project. In general, the Bridge Design Manual is intended to be a single source reference for the MDOT Design Engineers and consultants assigned the responsibility of producing bridge plans.

Much of the information presented originates from the Bridge Squad Leaders' Notes, for many years the reference manual for the MDOT Bridge Engineer. These notes were updated and rearranged to comprise several chapters of the volume. This was expanded with input from other MDOT divisions and outside agencies, the policies of which influence the design and geometry of bridges. Some contributions resulted from experience in fabricating, constructing, and maintaining bridges.

The design of highway bridges in Michigan is based on the Standard Specifications for Highway Bridges and LRFD Bridge Design Specifications published by the American Association of State Highway and Transportation Officials (AASHTO). Repetition of any of these specifications would be unnecessary and was avoided in preparing this manual. In some cases, however, the AASHTO specifications are vague or leave a decision to the judgment of the Engineer.

LRFD Guide Specifications for the Design of Pedestrian Bridges and Guide for the Development of Bicycle Facilities will aid in the design of other modes of transportation.

Guidelines in the Bridge Design Manual are provided as clarification and thus supplement the provision of AASHTO. Some minimum requirements in the AASHTO specifications have been found through experience to be insufficient. In these instances, the Design Manual supersedes AASHTO with more rigorous controls.

Procedures and guidelines continually change. The material in the Bridge Design Manual is continually updated and every attempt is made to keep the Manual as current as possible. When the need for an addition or change arises, the Manual is updated on a monthly basis. These updates will describe the revision, explain the reason, serve as a commentary and assign the date of its implementation. (12-16-2019)

It is expected that many of the changes will be additions prompted by comments from those using the Manual. While considerable effort was made to compile all information that should be required to prepare plans, some points no doubt have been overlooked. For this reason, any questions or suggestions regarding the text of the Bridge Design Manual will be appreciated.