

BRIDGE DESIGN MANUAL

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CHAPTER 4 • PLAN COMPOSITION - REHABILITATION PROJECTS

4.00 GENERAL

(revised 9-28-2026)

The 7th Edition of AASHTO's Policy on Geometric Design of Highways and Streets ("Green Book" or "GB7") categorizes projects into three different project types, with the historic 3R/4R classifications following in parentheses:

- New Construction (4R)
- Reconstruction (4R)
- Construction on Existing Roads (3R)

For additional information on project classification for bridge project types see RDM [Section 3.08](#) or BDM [Chapter 6 Appendix 6.02.01B](#)

Rehabilitation projects encompass all Construction on Existing Road (3R) work.

If a project contains multiple project types such as Reconstruction (4R) (See BDM [Chapter 7](#)) and Construction on Existing Road (3R) (See BDM [Chapter 6](#)), the determination of the work category will be based on the work type that is more than 50% of the total cost of the project. The whole project will be considered as the controlling dollar work type.

The single classification of combined work does not necessarily dictate the standards that apply to the project. When it is determined by cost criteria that a project is classified as New Construction or Reconstruction (4R), those GB7 standards will apply to the entire project regardless of individual work types. Projects classified as Construction on Existing Roads (3R) are governed by the standards that correspond to each work type (3R or 4R).

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4.01 STUDY

4.01.01 Composition

Where rehabilitation work is routine and conforms to our guidelines a study is not required. Where an unusual design treatment is proposed or construction staging bears consideration, a study showing these features should be prepared and submitted for review before beginning work on the Preliminary Plans. This study should consist of:

- A. Existing General Plan of Structure Sheet.
- B. Sketch (8½ in. x 11 in.) of the proposed bridge deck cross-section.

4.01.02 Cost Estimate

(revised 3-9-2000)

MDOT Listed below is a tabulation of bridge costs for various types of construction for making rough cost estimates.

Type of Construction	Without Maintaining Traffic	With Maintaining Traffic
Railing Replacement	\$110 per foot	\$175 per foot
Deck Overlay ^{A1}	\$12 per Sft	\$14 per Sft
Pedestrian Fencing	\$6 per Sft	\$7 per Sft

^{A1} = Includes the area of the approach pavement wedges.

4.01.03 Reviews

(revised 8-6-1992)

The study is submitted by the unit leader to the Chief Bridge Design Engineer for approval. Approval must be obtained before Preliminary Plans can be started.

4.01.04 Hydraulic and Scour Investigations

(revised 3-9-2000)

For structures with rehabilitation work including overlays, deck patching, etc., contact the Hydraulic Unit in the early stage of the project. If the project requires additional work, the project manager will be informed and requested to assign the project to the Hydraulic Unit for further investigation and a final recommendation.

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4.02 DATA SOURCES

4.02.01 Composition

- A. A deck cross section showing the existing bridge width.
- B. A deck cross section showing the proposed bridge width.
- C. A cross section of the approach roadway.
 - 1. On bridges over Interstate routes, indicate whether or not the structure carries Interstate traffic.
- C. Traffic Data (is required on resurfacing projects). For additional information see BDM [Section 3.02.01](#).

This information can be furnished by submitting either of the following:

- 1. The usual prints of the existing Plan of Site and Plan of Structure.
- 2. An 8½ in. x 11 in. sketch showing cross sections through the proposed bridge deck and the approach roadway.
- 3. The deck cross section should show the type of railing and/or resurfacing material proposed, as well as the number and width of traffic lanes and the width of the proposed shoulders.
- 4. The approach roadway cross section should show the number and width of lanes and the shoulder width.
- 5. One sketch will be required for each crossing except that two or more identical crossings in a package may be covered by a single sketch.
- 6. This format is to be used for all Preliminary Plan distributions of Construction on Existing Roads (3R) projects.

4.02.02 Preliminary Estimate

The estimate is prepared in the same manner as described in BDM [Section 3.02.02](#).

4.02.03 Distribution

4.02.03A The Plan Review Meeting - Required

(revised 9-28-2026)

Provide, in general, for projects where the Plan Review Meeting will be held, a preliminary plan distribution should be sent as shown in BDM [Section 3.02.04](#) and sent to the following as applicable:

- A. Chief Bridge Design Engineer.
 - 1. If Construction on Existing Road criteria is not met, design exception / variance should be requested and justification offered (see BDM [Chapter 6](#) and RDM [Chapters 3 & 14](#)).
 - 2. Design Exceptions shall be requested if design loading structural capacity and/or vertical clearance are deficient.
- B. Railroads (Grade Separations).

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1. Send Preliminary Plans to the Railroad Coordination Unit – Office of Rail. For additional information see BDM [Chapter 11](#).

C. Bridge Management Systems Engineer

D. Project Files:

1. The Design Unit is required to keep the Preliminary Plan files with a Preliminary Estimate in ProjectWise.

4.02.03B The Plan Review Meeting - Not Required

(revised 9-28-2026)

Occasionally, a project will not require the Plan Review Meeting. In this case, Preliminary Plans should be distributed as detailed before in BDM [Section 4.02.03A](#), along with an additional distribution as follows:

On overlay projects where the Michigan Intelligent Transportation System (ITS) traffic sensor system is used, one set of plans should be sent to mdot-itsreview@michigan.gov

Where utilities will not be disturbed, copies of the transmittal letter to the Region/TSC Project Development Engineer are sent to the Region/TSC Utilities-Permits Engineer and to the Assistant Engineer of Utilities-Permits in Lansing.

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4.03 FINAL PLANS

4.03.01 Composition

(revised 3-9-2000)

- A. Title Sheet.
- B. Index or Project Information Sheet - as required.
- C. Traffic Details - as required.
- D. General Plan of Structure Sheet - as required.
- E. Existing General Plan of Site Sheet.
- F. Existing General Plan of Structure Sheet.
- G. Plan Detail Sheets - as required.

4.03.02 Final Plan Quantities

Payment for an incidental item of work should be included in a pay item for which quantities should not change significantly. Consideration should also be given to the sequence of operations, as payment for the incidental work will not be made until work on the pay item is complete.

4.04 PROGRAMMED COST ESTIMATES

The programmed estimate should be reviewed and updated, if required, as shown in BDM [Section 3.05](#).