

CHAPTER 4

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CHAPTER 4

PLAN COMPOSITION - REHABILITATION PROJECTS

4.00 GENERAL

Rehabilitation projects encompass all 3R types of work. Resurfacing, restoration and rehabilitation (3R) for bridge work is defined as bridge deck overlay and/or minor widening (no increase in number of through lanes), bridge painting, joint replacements and pin and hanger replacements. See also Chapter 3 of Road Design Manual. (3-9-2000)

If a project contains 3R (Chapter 12) and 4R (Chapter 7) work, 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, either 3R or 4R.

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 4R, 4R standards will apply to the entire project regardless of individual work types. Projects classified as 3R are governed by the standards that correspond to each work type (3R or 4R). (8-20-2009)

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"x11") of the proposed bridge deck cross-section.

4.01.02

Cost Estimate

Listed below is a tabulation of bridge costs for various types of construction for making rough cost estimates. (3-9-2000)

Type of Construction	Without Maintaining Traffic	With Maintaining Traffic
Railing Replacement	\$110 per foot	\$175 per foot
Deck Overlay *	\$ 12 per SFT	\$ 14 per SFT
Pedestrian Fencing	\$ 6 per SFT	\$ 7 per SFT

* Includes the area of the approach pavement wedges.

4.01.03

Reviews

(8-6-92) The study is submitted by the unit leader to the Bridge Supervising Engineer for approval. Approval must be obtained before Preliminary Plans can be started.

4.01.04

Hydraulic and Scour Investigation

For structures with rehabilitation work including overlays, deck patching, etc., contact the Hydraulics/Hydrology 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 Hydraulics/Hydrology Unit for further investigation and a final recommendation. (3-9-2000)

MICHIGAN DESIGN MANUAL

BRIDGE DESIGN

4.02

PRELIMINARY PLANS

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.
- D. On bridges over Interstate routes, indicate whether or not the structure carries Interstate traffic.
- E. Traffic Data (is required on resurfacing projects). For additional information see 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" x 11" sketch showing cross sections through the proposed bridge deck and the approach roadway.

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.

The approach roadway cross section should show the number and width of lanes and the shoulder width.

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.

This format is to be used for all Preliminary Plan distributions of 3R projects.

4.02.02

Preliminary Estimate

The estimate is prepared in the same manner as described in Section 3.02.02.

4.02.03

Distribution

A. THE Plan Review Meeting - Required

(3-9-2000) In general, for projects where THE Plan Review Meeting will be held, a preliminary plan distribution as shown in Subsection 3.02.04 is to be sent to the following agencies:

1. Bridge Supervising Engineer. If 3R criteria is not met, design exception / variance should be requested and justification offered (see Chapter 12 of this Manual and Chapter 3 & 14 of Road Design Manual). Design Exceptions shall be requested if design loading structural capacity and/or vertical clearance are deficient. (2-21-2017)
2. Design Files
3. Railroad (no reproducibles)
4. Bridge Management Engineer, C&T Div.
5. Specifications and Estimates Engineer
6. Unit Files (no reproducibles)

4.02.03 (continued)

Distribution

**B. THE Plan Review Meeting -
Not Required (3-9-2000)**

Occasionally, a project will not require THE Plan Review Meeting. In this case, Preliminary Plans should be distributed as shown above, along with an additional distribution as follows:

1. Region/TSC
2. Construction and Technology Division
3. Road Design
4. Utility company
(where their conduits will be disturbed*)
5. City
(both participating and nonparticipating)
6. County
(where county roads are involved)

4.02.03 (continued)

7. Utilities Supervising Engineer
8. Region/TSC Utilities - Permits Engineer
9. Division of Operations
(one set of prints, no estimate)
10. On overlay projects in the Metro Region/TSC area where the Michigan Intelligent Transportation System (MITS) traffic sensor system is used, one set should be sent to each:

MDOT - MITS Center
1050 6th Street
Detroit, MI 48226

and

MDOT - Freeway Operations
1050 6th Street
Detroit, MI 48226

* 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. (8-6-92)

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MICHIGAN DESIGN MANUAL BRIDGE DESIGN

4.03

FINAL PLANS

4.03.01

Drafting Procedure

The existing General Plan of Site and Structure sheets are presented to the drafting supervisor with instructions. Drafting personnel within the unit will produce the necessary detail sheets. (3-9-2000)

4.03.02

Composition (3-9-2000)

- A. Title Sheet.
- B. Index 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. Detail Sheets - as required.

4.03.03

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 Section [3.04](#).