MICHIGAN DESIGN MANUAL
BRIDGE DESIGN

CHAPTER 3

PLAN COMPOSITION - NEW AND RECONSTRUCTION PROJECTS

CHAPTER 3

PLAN COMPOSITION - NEW & RECONSTRUCTION PROJECTS

3.00

GENERAL (12-17-2018)

New Construction and Reconstruction (4R) is defined as a new bridge, a bridge replacement, a superstructure replacement, a deck replacement or widening of at least one lane width (including a lane used for maintaining traffic or retained for use as a future lane). See also Chapter 3 of Road Design Manual.

If a project includes 3R (See Chapter 12) and 4R work (See Chapter 7) the applicable standards are governed by the standards that correspond individually to each work type (3R or 4R). Work type overlap within a structure may cause a default to 4R standards within the overlap (entire structure). Identify each work type on the project information sheet to distinguish where 3R guidelines and 4R standards are separately applied.

When other work types are combined with 3R or 4R projects, they are also governed separately and identified as such on the project information sheet.

Projects categorized as CPM (capital preventive maintenance) projects are governed by guidelines that differ from 3R and 4R Guidelines. When CPM work types are packaged with a 3R or 4R project, the portion of the project that is outside the 3R or 4R work limits is governed by the guidelines that pertain to CPM work type. When describing the work type in the request for Plan Review Meeting, identify the work type separation so that the appropriate requirements are considered within each structure. Work type overlap within a structure may cause a default to 3R or 4R requirements.

Cross road over bridges shall be treated as individual segments regardless of project work type. (8-20-2009) (2-27-2012) (8-22-2016)

3.01

STUDY (12-17-2018)

The first plan of a structure is a feasibility study showing the basic design concept and the topography in the immediate structure area. This study is prepared on a reproduction of the General Plan of Site Sheet.

The study is submitted by the Unit Leader to the Chief Structure Design Engineer for approval. FHWA Oversight projects that are federally financed must also be reviewed by the FHWA. For definition/clarification of oversight see Chapter 2. These approvals must be obtained before Preliminary Plans can be started. The study, as approved, then becomes a permanent record and is to be kept by the Unit until the construction of the bridge is completed. (8-6-92)

A study must be completed for all new construction and reconstruction projects. Generally, structure studies are not required for deck replacements on slab and beam bridges unless the deck replacement involves widening requiring more than one beam line, the vertical alignment or horizontal alignment changes significantly, or the project has other unique characteristics that would benefit from the structure study process. Structure studies should be completed for deck replacements on complex bridges. (12-28-2020)

A study must be completed for all projects involving a culvert with a clear span between 10' and 20' that is constructed using staged construction. Construction of these ancillary structures using staged construction present unique challenges that must be considered, and a feasibility study showing the basic design concept for the selected culvert type is the first step in mitigating these challenges. Specific items that should be discussed include, but are not limited to, water diversion, ground water effects, and unique details required to connect the culvert sections at the stage line. (3-27-2023)

For rehabilitation, e.g., railing replacement and/or deck overlay projects see Chapter 4.

3.01 (continued)

Where a project involves earth excavation, the Project Manager sends a project description and requests a list of potentially contaminated sites identified by the Environmental Assessment Unit, Project Coordination Unit of the Project Planning Division and the Region Resource Specialist. The Project Manager/Cost and Scheduling Engineer will locate identified potential sites of contamination on the preliminary plans. If earth excavation will impact a potential contaminated site, the Project Manager/Cost and Scheduling Engineer will request further investigation of the site to be done by MDOT Geotechnical Services Section, Bureau of Bridges and Structures. Geotechnical Services Section will provide information on the type and extent of the contamination, appropriate pay items and quantities for the Plans and Specifications. For more detailed information see Section 14.13 of the Road Design Manual. (5-1-2000)

Before starting and during the preparation of the study plans, the following information relevant to the design of the bridge should be considered:

A. Engineering Report. (Including Environmental Impact Statement if applicable.) (8-20-99)

B. Topography.

C. Traffic data - If traffic data is unavailable at this time, it should be requested from Region/TSC Traffic and Safety personnel.

3.01 (continued)

STUDY

D. Soil Data - Soil borings should be ordered as soon as possible after receiving the project.

In general, one soil boring should be requested for each substructure unit less than 100' long and two borings for footings longer than 100'. For retaining walls, MSE walls and sewers, borings should be taken every 300'. If conditions are found to vary appreciably, additional borings will be required. Refer to the MDOT Geotechnical Manual, on the MDOT Web site. (8-20-2009) (7-29-2019)

Soil boring requests should be submitted to MDOT Geotechnical Services Section. The request (electronic format preferred) should consist of MDOT Form # 1088, Request for Foundation Investigation and the requirements set forth in the form. The General Plan of Site Sheet as described in Section 3.01.01 shall include the following information:

1. Town, range and section number.
2. Scope of work.
3. Location of substructure units and borings.
4. Approximate bottom of footing elevations.
5. Notification when piles will be used regardless of soil character.
6. Indicate whether 400 kip nominal pile resistance (60 ton LFD) piles are appropriate (widening jobs). (8-20-2009)
7. Indicate if continuous superstructure is anticipated, and if integral abutments are being considered. (8-20-99)

If previous plans of an existing structure are available, the General Plan of Site and Log of Borings should be included.

(8-6-92) (12-17-2018)

3.01 (continued)

E. Maintenance Reports (reconstruction projects). (8-20-99)

F. Existing and/or proposed utilities.

G. Waterway data for stream and river crossings.
1. Stream crossings are to be checked to determine whether they are a part of the county drain system, and the findings are to be recorded as part of the project history. Contact Design Engineer - Hydraulics/Hydrology or Region Drainage Coordinator.

2. Scour potential shall be investigated and design provisions may be needed to prevent undermining of the substructure. Contact Design Engineer - Hydraulics/Hydrology or Geotechnical Services Section.

A scour analysis is required at all stream crossings where reconstruction is proposed. (8-20-2009)

H. Scoping Document and Region/TSC Scoping estimate. (8-20-99)

I. Minutes of city, county, or other meetings that have been held relevant to the project.

J. Correspondence files.

K. Existing Plans (reconstruction projects) and web-based street level viewer.

L. At all stream crossings, contact Roadside Development Unit to determine if an aesthetic or open railing should be considered.

M. Project Safety Analyses - Requests should be made to Transportation Systems Management and Operations, Safety Programs Section in Lansing and the TSC Traffic and Safety Engineer. (8-20-99) (12-16-2019)

N Capacity Analysis – Region/TSC Traffic and Safety (requested for deck replacement and reconstruction projects only). Also consider/evaluate all modes (users) of transportation. (2-27-2012)(12-16-2019)

3.01 (continued)

STUDY

3.01.01

Composition (12-17-2018)

The following information shall be included on the study plans:

A. The survey centerline showing horizontal alignment and stationing. The construction centerline, if different than the survey centerline.

B. Topographical features and contour lines.

C. Existing and proposed profiles along the construction centerlines of the roadways (and railroad, if the project includes one).

D. Benchmarks and witnesses with corresponding coordinates. (Provide coordinates if they are available. If not, add note 8.03 Y. to the study plans.) (12-5-2005) (8-23-2021)

E. Alignment sketch where data cannot be clearly shown on the overall plan view.

F. Utilities.

G. Traffic Data.

H. Concept of Maintenance of Traffic

I. Non-Motorized traffic requirements. Future sidewalk or bike path plans and all other modes of transportation. (12-16-2019)

J. Horizontal curve data, if any.

3.01.01 (continued)

K. A plan view of the structure and proposed approaches superimposed on the topography.

L. Elevation view of the structure, showing actual horizontal and vertical clearances.

M. Typical approach cross section. Provide a road typical cross section sheet in lieu of adding the section to the bridge study plans.

N. Deck cross section (see Bridge Design Guide 6.05 series).

O. Standard note designating the design loading.

P. Waterway information (stream and river crossing). Summary of Hydraulic Analysis must be on General Plan of Structure Sheet. See Section 8.05 F. (8-20-1999) (8-23-2021)

Q. In the title block, designate if this is Study A, B, C, etc., and above the title block indicate the proposed letting date. This is the only sheet on which these designations are required and will not be added to the Final Plans.

Generally, the above information is all that is required for the study. Other details and/or plan sheets may be added, if necessary or beneficial. The study is submitted by the Unit Leader to the Chief Structure Design Engineer for review. Major projects that are federally funded must also be reviewed by the FHWA. These approvals must be obtained before preliminary plans are started.
(8-20-99) (12-17-2018)

3.01.02

Cost Estimate (8-20-2009) (12-19-2016)

Complete a Bridge Cost Estimating Worksheet (located on the Bridge Management and Scoping website, Project Estimating section) for each study option considered.

3.02

PRELIMINARY PLANS

Preliminary Plans are the second set of plans prepared. They are for distribution to various agencies which are involved with the bridge project to show them our intent. This allows each agency to make its comments or requests and give approval where such is required.

Preliminary Plans are required for projects. For minor rehabilitation, e.g., railing replacement and/or deck overlay projects, see Chapter 4.

Traffic volume information (if available) must be included in the Preliminary Plans.

When temporary structures are to be designed and made a part of the contract plans for FHWA Oversight jobs, Preliminary Plans for those structures must be submitted to the Federal Highway Administration (FHWA) for approval. MDOT Oversight jobs need not be sent to the FHWA. (8-20-99)

A public hearing must be held for all major projects or where we intend to close a portion of a route and detour all modes of transportation during construction. In general, the hearing will have been held as a prerequisite of the Environmental Impact Statement, and it is unnecessary for one to be requested by the Bridge Unit Leader. Should there be a question, contact the Public Hearings Officer, Hearings and Mitigation Section, Project Planning Division.
(12-16-2019)

3.02.01

Composition (8-20-99) (12-17-2018) (2020)

Generally, plan sheets required are as follows:

A. Title Sheet: Show job numbers, location map, notes and traffic data.

B. General Plan of Site Sheet: If a bridge project doesn't have a Study, all information that was to be shown on the Study Sheet shall be shown on the General Plan of Site Sheet. The following information should be added to the General Plan of Site Sheet:

1. The plan view of the structure and approaches as shown on the approved study.

2. Typical approach roadway cross section is no longer required on bridge plans because duplicate information is shown on road plans. It can be added on a case-by-case basis for unique situations or if the road plans do not supply the information.

3. General notes.

4. Any proposed relocation of existing utilities. Because of legal problems in other states, Designers should not label abandoned or out of service utilities as "abandoned". Such utilities should be labeled "Utility Line Out of Service". The name of the utility owner, if known, should also be placed on the plans.

5. A note designating all major items of work that are part of the project. This note should also identify items that are not part of the bridge plans but are included in road plans which are part of the project.

6. Where a bridge will cross a waterway or wetland, the plans should show a plan view, profile and cross section for any haul route required to access the project site. See Section 2.02.15 for additional information. (8-20-99)

3.02.01 (continued)

Composition (12-17-2018)

C. Log of Boring Sheet:
(Required for all new bridges and widening projects.) In addition to soil data, the elevations of the bottoms of footings, minimum pile penetration, and estimated pile tips shall be shown. All borings are to be plotted to a common datum utilizing the proposed stationing whenever possible. See Guidelines For Bridge Plan Preparation (MDOT Sample Plans Bridge) of Development Guide (Design Submittal Requirements Chapter 7) for various details and sample plan sheets.

Any recommendations or comments by the Soils Section are to be attached to the Preliminary Plan set that is turned in to the Design Supervising Engineer.

D. General Plan of Structure Sheet:
In general, the following views and sections shall be included:

1. Plan view of the structure including approach features such as pavement, shoulders, curb and gutter, and guardrail.
2. An elevation of the structure taken perpendicular to the roadway under, or for stream crossings, parallel to the roadway over.
3. A cross section of the deck showing the abutment, or half-abutment and half-pier.
4. Typical cross sections through the substructure units showing excavation and backfill limits.
5. Any other significant features peculiar to the project.
6. If temporary supports are to be used, they should be shown or noted on this sheet.

E. Existing General Plan of Site Sheet: If available, this sheet is required for all reconstruction and rehabilitation projects (4R). Create a new General Plan of Site for new structure or structure replacement projects and submit existing General Plan of Site as Reference Information Document (RID). See section 3.04.02. Include the existing General Plan of Site for all other projects. (12-17-2018)

3.02.01 (continued)

F. Existing General Plan of Structure Sheet:
If available, this sheet is required for all reconstruction and rehabilitation projects (4R). Any removal of portion of structure is to be designated on this sheet. For projects with a new superstructure create a new General Plan of Structure, submit existing General Plan of Structure as Reference Information Document (RID). See section 3.04.02. For all other projects include the existing General Plan of Structure. (12-17-2018)

G. Interchange Layout: An interchange layout is required for all projects where the bridge is in a complex interchange area.

3.02.01 (continued)

Composition (12-17-2018) (12-16-2019)

H. Concept for Maintaining Traffic: Preliminary plans of structure should include a proposed concept for maintaining all modes of transportation through the construction zone. Depending on the method selected, the plans or attachments should show or note the following:

1. Detours
    a. Show the proposed detour route
    b. Indicate the use of expressway crossovers

2. Part-width Construction
    a. Note the number of lanes to be maintained
    b. Indicate one-way or two-way traffic
    c. Note whether signals will be required
    d. Note if traffic is diverted on existing shoulders or temporary widening
    e. Show construction staging details

3. Traffic under a Grade Separation
    a. Indicate the number of lanes to be kept open
    b. Note if traffic is diverted on existing shoulders
    c. Note any time restrictions on lane closures

4. Temporary Runaround
    a. Show the centerline alignment
    b. Show a cross section of the temporary road

5. Navigable Water Traffic (12-17-2018)

The Design Project Manager/Cost and Scheduling Engineer should consult with the Region/TSC Traffic Engineer and the Division of Operations in Lansing to arrive at the concept for maintaining traffic.
(8-20-99)

3.02.02

Preliminary Estimate

The preliminary estimate consists of only the major items for the project. Unit prices are obtained from the Specifications, Estimates and Plan Review Section and used by the Unit to determine project costs.

The Specifications and Estimates Section requires a set of Preliminary Plans and an Engineer's Preliminary Estimate of Cost for Preliminary Plan, Form 0287, with all major items listed before they can provide unit prices. (6-17-2013)

The Engineering and Contingencies on the Preliminary Estimate are to be approximately 15 percent for all projects. The total estimate is to be rounded off to the nearest $100. (8-6-92)

3.02.02 (continued)

Preliminary Estimate Items (8-20-99)

1. Preliminary

    Temporary Structures
    Removal of Existing Structures
    Removal of Portions of Structures
    Cofferdams

2. Substructure

    Unclassified Excavation
    Temporary Steel Sheet Piling
    Permanent Steel Sheet Piling
    Foundation Piling
    Tremie Concrete
    Substructure Concrete
    Steel Reinforcement - Substructure
    Substructure Repair

3. Superstructure

    Superstructure Concrete
    Steel Reinforcement - Superstructure
    Structural Steel Fabrication & Erection
    Shear Developers
    Prestressed Concrete Beams
    Prestressed Concrete Deck
    Expansion Joint, if cost is a major item
    Bridge Railing
    Concrete, Bridge Deck Overlay
    Cleaning and Coating Structural Steel

4. Miscellaneous (12-17-2018)

    Structure Backfill
    Slope Protection
    Riprap
    Structure Embankment
    Drainage Items
    Temporary Supports
    Channel Excavation
    Approach Work
        (If included in Bridge Plans)
    Maintaining Traffic costs
    Miscellaneous Road Costs

Where some of the above items represent a minor percentage of project cost, they may be grouped and given a lump sum price.

3.02.03 (deleted) (12-17-2018)

3.02.04

Reviews (8-20-99)

A. Utility Coordination and Review Process (12-17-2018)

This process should be initiated shortly after the project has been assigned.

The Lansing/Region/TSC design unit is responsible for requesting existing utility information from the utility companies. This will be accomplished by submitting the number of required sets of copies of the plans (which can be determined by using the Utility Relocation Tracking System Program (URTS) available to the Lansing/Region/TSC secretarial staff) along with the control section, job number, location (including township and county if appropriate) and a detailed description of the proposed work. The secretarial staff will complete the transmittal (form) letter(s) and distribute the plans and letters to all the appropriate entities. Plans should be sent to utility companies even if it may seem that their facility is far enough away so as not to be affected. All utility companies receive two sets of plans except Consumers Energy, which receives four sets and Region/TSC Utilities-Permits, which receives one set. Letter Requesting Utility Information at Base Plan Stage (MDOT form #2480) is available from the MDOT web site, or see Appendix 3.02.04A.

3.02.04 A. (continued)

Once the existing utility locations are received and incorporated in the plans and the proposed work is shown on the plans, the Project Manager/Cost and Scheduling Engineer submits the plans to the Utilities-Permits Section in the Development Services Division, who will distribute the plans with a transmittal letter to the utility companies. Any possible utility conflicts should be identified at this stage. If it is obvious no conflicts exist, the Utilities-Permits Section may elect to eliminate this distribution.

If required, a Utility Meeting will be scheduled and held prior to The Plan Review Meeting. All utility conflicts are to be resolved prior to The Plan Review Meeting.

B. The Plan Review Meeting - Required (12-17-2018)

Preliminary plans are reviewed by the agencies affected by the project and by Department personnel responsible for various aspects of construction. Much of this review takes place at a Scope Verification or The Plan Review Meeting held at the site (if required) with many of the concerned parties present. Included are: Design and Region/TSC personnel, as well as, representatives from the FHWA on FHWA Oversight projects, counties, cities, and both municipal and private utility companies.

Design Division's Quality Assurance Supervising Engineer is responsible for the distribution of preliminary plans and estimates to those attending The Plan Review Meeting. The Design Engineer will provide the Plans & Field Review Section's administrative assistant with tracings (or reproducible copies) and a completed MDOT form #0303; Plan Review Meeting. This form should include all utility companies in the area that either have received plans after completion of the Scope Verification or have responded indicating possible conflict. The administrative assistant will order and distribute the required sets of prints.

The Design Engineer will provide ProjectWise links to the plans to those not attending The Plan Review Meeting, or copies of the plans as requested. (8-6-92)

3.02.04 B. (continued)

Reviews (8-20-99) (12-17-2018)

The job specific Supporting Documents folder in ProjectWise supplies a list of recommended invitees to receive an email invitation to view the plan set in electronic format. Hard copies of plans can be supplied upon request to individuals outside of the Department who do not have access to view the plans electronically.

After Preliminary Plan distribution, time should be taken to investigate and initiate any construction permits necessary for the project. Complete details are contained in Chapter 14.

A written response is required to reply to any review recommendations made during preliminary plan review or The Plan Review Meeting. The response should verify compliance with review recommendations that will be incorporated into the plans, and provide an explanation for any comments received that cannot be included with the project. (8-6-92)

1. FHWA: Preliminary Plan prints are sent to the FHWA for all FHWA Oversight projects.

   The FHWA requires two sets of Preliminary Plan prints with estimate.

2. Design Files:
   A copy of The Plan Review Meeting letter is sent to the Design files.

3.02.04 B. (continued)

3. Railroad:

   Preliminary Plan prints are sent to the railroad companies as follows:

   Highway Over Railroad

   Selected plan sheets (Title Sheet, General Plan of Site, General Plan of Structure, pier and crashwall detail sheets, plan sheets showing utilities within railroad right-of-way, and sheets showing how structure drainage is to be handled).

   Railroad Over Highway

   Also, the Preliminary Plans are sent to the Railroad Coordination Unit – Office of Rail for all railroad grade separations. (10-22-2012)

   Contact the Railroad Separations Engineer for addresses of the affected railroads.

   When it is expected that temporary steel sheet piling will be required, the railroad should be requested to submit any specified requirements as to the size and extent of the sheeting.

4. Design Engineer-Bridge Management: Preliminary Plans with estimate. No transmittal letter is required.

5. Design Engineer - Specifications and Estimates: One copy of the estimate and plans. No transmittal letter is required.

3.02.04 B. (continued)

Reviews (8-20-99) (12-17-2018)

6. USGS Stream Gauges:
   At sites where USGS stream gauges are located, two sets of Preliminary Plan prints should be sent to the U.S. Department of Interior for review and comments. If relocation of gauges is necessary, a letter requesting approval of relocation site, as shown on the plans, must accompany the prints.

7. Hydraulics/Hydrology Unit:
   The Hydraulics/Hydrology Unit is included on the electronic notification send out of the Preliminary Plans for all projects involving waterways.

8. Unit Files:
   The Design Unit is required to keep one set of Preliminary Plan prints with a Preliminary Estimate in its files. Also, the Design Unit should have one set of reproducible copies of the Preliminary Plans; these can be used in obtaining prints of the Preliminary Plan, if necessary, after final plan preparation has begun.

C. The Plan Review Meeting-Not Required (12-17-2018)

Occasionally, a project will not require The Plan Review Meeting. In this case, the Project Manager/Cost and Scheduling Engineer shall distribute the Preliminary Plans as shown previously, along with an additional distribution as follows:(8-6-92) (10-22-2012)

1. Region/TSC:
   Send an electronic invitation to the Preliminary Plans and corresponding estimates for review and commenting to the Region/TSC Project Development /Cost and Scheduling Engineer and Construction for all bridge projects. (8-6-92)

2. Construction & Technology Division:
   Send an electronic invitation to the Preliminary Plans and the corresponding estimate for review and commenting to the Engineer of Construction & Technology on all projects.

3.02.04 C. (continued)

3. Transportation Planning Services Division:
   Send an electronic invitation to the Preliminary plans for review and commenting.

4. Road:
   The Road Design Section is sent an electronic invitation to the plans for review and commenting. If the road design is being done by a consultant, please ensure access to view the electronic files is set up.

5. Municipally-Owned Utility Outside City Limits*:
   If the project is located outside the corporate limits of a city, but there are city-owned utilities in the project vicinity, send one set of prints of the Preliminary Plans to the Utility Coordination, Permits and Agreements Section - Development Services Division for the file and two for each utility for forwarding. The Utility Coordination, Permits and Agreements Section - Development Services Division is to be notified whether the bridge project is combined with a road contract.

6. City of _____(any except Detroit):
   Transmit the following to the Utility Coordination, Permits and Agreements Section - Development Services Division
   - one set for the files, plus
   - one set for each nonparticipating city (population less than 25,000), or
   - two sets and one estimate of cost for each participating city, except
   - three sets and one estimate for Flint, Lansing, or Warren (for a list of participating cities see Subsection 3.02.05).

   In addition, provide the Utility Coordination, Permits and Agreements Section - Development Services Division with two sets for each municipally-owned utility.
   The Utility Coordination, Permits and Agreements Section - Development Services Division is to be notified if the bridge is to be let without a road contract.

3.02.04 C. (continued)

Reviews (8-20-99) (12-17-2018)

7. City of Detroit:
   Transmit 13 sets of Preliminary Plans and two estimates to the Utility Coordination, Permits and Agreements Section - Development Services Division (one for file, 12 to be forwarded). If the bridge is to be let without a road contract, notify the Utility Coordination, Permits and Agreements Section - Development Services Division

8. County Drain Commission:
   Two sets of Preliminary Plan prints are to be sent to the County Drain Commissioner for comments and/or approval. Also, a copy of the transmittal is sent to the MDOT Drainage Coordinator in the Design Division, Bureau of Highway Development. (5-1-2000)

9. County of _____ :
   For all bridge projects involving county roads, two sets (three if Wayne County) of Preliminary Plan prints are to be sent to the county.

10. Consultant:
    If a consultant is doing the design, one set of Preliminary Plan prints with Preliminary Estimate is returned to them.

11. Geometrics Coordination Engineer:
    On all projects, the Geometrics Coordination Engineer is sent an electronic invitation to review and provide comments on the Preliminary Plans for comments.

12. Electrical Unit - Design:
    The Electrical Unit Leader is sent an electronic invitation to review and provide comments on the Preliminary Plans for all bridge projects where lighting is involved.

3.02.04 C. (continued)

13. Utilities-Permits Engineers:

    The Region/TSC Utilities/Permits Engineer and the Assistant Engineer of Utilities/Permits in Lansing are sent copies of the letters to the utility companies for all projects that involve utilities. No plans are required. (8-6-92)

14. Municipal Utilities Unit - Design:

    The Municipal Utilities Unit Leader is sent an electronic invitation to the Preliminary Plans for all bridge projects involving water main or sanitary sewer designed by that unit.

3.02.05

Act 51 Participation
(7-28-2025)

For bridge construction work, only certain activities qualify for participation by municipalities pursuant to Act 51 and the State Trunk Line Highway System excerpt. A list of the cities required to participate in accordance with Act 51 PA 1951 along with guidelines for determining types of work which should be included in Act 51 are posted in Section 14.41.03 of the MDOT Road Design Manual.

3.03

Final Project Coordination (FPC)
(12-17-2018)

The Final Project Coordination indicates 90-95% completion of the plans, proposal and supporting documents herein after referred to as the FPC package. See Chapter 14 of the Road Design Manual for FPC Requirements and Procedures.

3.03.01

Composition

The FPC package should be as complete as possible to ensure that items essential to the FPC reviewers are present and complete. The FPC package must include all items in the Milestone Checklist and as noted in section 3.04 with the following exceptions/clarifications:

A. Final Plans

1. Project information sheet index should include all anticipated plan sheets, even if not included in FPC package.
2. Miscellaneous Quantities may be preliminary.
3. Abutment/Pier Details – rebar may not be finalized, and miscellaneous details may not be complete.
4. Superstructure Details – All details must be present. Rebar may not be finalized.
5. Reinforcement Details – sheet(s) may be omitted.
6. Slab and Screed Details – sheet(s) may be omitted.

B. Proposal

1. Progress clause will be Draft.
2. Unique Special Provisions must be submitted for approval but may not be approved.
3. Notice to Bidders, coordination clauses and permits will be submitted for approval but may not be approved.
4. Railroad Coordination – special provisions, coordination clause and agreement (if required) must be complete, pending final approval.
5. Cost Summary – some items may be estimated.

3.04

Plan Completion (OEC and Certification Acceptance) (12-17-2018)

The Plan Completion date indicates 100% completion of the plans, proposal and supporting documents. See Chapter 14 of the Road Design Manual for Plan Completion Requirements and Procedures.

Final plans are required for all projects. For minor rehabilitation (3R), e.g., railing replacement and/or deck overlay projects, see Chapter 4.

Also See Section 14.57 of the Road Design Manual for more details regarding plan completion and OEC/Certification Acceptance.

3.04.01

Plan Composition (12-17-2018)

The following list and ordering of sheets is suggested for final plans:

A. Title Sheet - all projects.

B. Project information Sheet

C. Legend Sheet

D. Note Sheet

E. Miscellaneous Quantities

F. Typical Cross Sections (if applicable)

G. Miscellaneous Details

H. Guardrail Details

I. Survey Information Sheet

J. Interchange Layout - for bridges in complex interchanges.

K. Staging Plans - all part-width construction projects let separately from road projects. (May be shown on General Plan of Structure)

L. Traffic Detail Sheets - where maintaining traffic is part of the project.

3.04.01 (continued)

Plan Composition

M. General Plan of Site Sheet - all projects.

N. Log of Borings Sheet - all new bridges and widening projects.

O. General Plan of Structure - all projects.

P. Abutment Details - all new bridges and widening projects.

Q. Pier Details - all new bridges and widening projects.

R. Structural Steel, Prestressed Concrete, etc., Detail Sheets - all new bridges and widening projects.

S. Expansion Joint Detail Sheet (when applicable). (8-20-99)

T. Superstructure Detail Sheets - all new bridges, widening, and slab replacement projects.

U. Slab and Screed Data Sheet. (8-20-99)

V. Steel Reinforcement Sheets - all projects.

W. Standard detail sheets as required.

X. Any road plans as applicable.

Existing General Plan of Site, existing General Plan of Structure and other existing sheets deemed necessary must be placed in Reference Information Document (RID) process as electronic data files. See Section 3.04.02 for process and definition.

3.04.02 (12-172018)

Reference Information Documents

A. Process and Definition

The Reference Information Document (RID) process provides availability of electronic data files through the e-Proposal website. RID files are non-contractual items for prospective bidders and awarded contractor to use to gain a better understanding of the project. RID can include design CADD files, survey deliverable files and other miscellaneous items pertinent to the project.

Milestone reviews by MDOT RID Support are intended to be on the same timeline as other reviews mentioned in the previous sections. RID files will be submitted to the Specifications and Estimates Unit and MDOT RID Support for review prior to final turn in. The files are subsequently published at the same time as the Proposal and Plans. Any changes made to the RID files after this time, due to an addendum, will be the responsibility of the Project Manager. Each published 'set' released after the original publication must include a revised RID_Index.xlsm using the Project Changes tab that includes only the changed files and a brief explanation of the changes made to the files.

See the Chapter 5 of Development Guide (Design Submittal Requirements) for more information.

3.04.02 (continued)

B. Common Bridge RID Files and Criteria for Use

The Design Project Manager/Cost and Scheduling Engineer is responsible for ensuring that all appropriate RID files (including files from resource areas outside of Bridge Design) are incorporated into the RID folder for the project and in the RID_Index.xlsm file. Below are several types of RID files that are common to bridge projects.

1. Geotechnical Recommendations – The final Geotechnical Foundation Engineering Report must be included in the RID if foundation analysis was performed for a project.

2. Existing Plans – PDF's of all applicable existing plans (including shop drawings) for a bridge should be included on all projects.

3. Pictures – If photos of the project would be helpful to illustrate the site or existing bridge conditions, they may be included.

4. CADD Files – For projects that are detailed on geospatial coordinates, CADD files including the general plan of site and structure as well as corresponding base files may be included.

5. Survey Information – If survey was performed for the project, the Survey Support Area will place final survey files in the RID folder in the survey deliverable folder structure. The Project Manager/Cost and Scheduling Engineer must copy this information to the RID folder for the project. Verify that the files contained in the folder are the latest version utilized on the project.

6. Other Information – If the Design Project Manager/Cost and Scheduling Engineer has other information not described above that may be useful to the contractor, MDOT RID Support or the Bridge Design Supervising Engineer should be consulted to confirm whether disclosing additional information causes any concerns for the Department.

3.05 (12-17-2018)

PROGRAMMED COST ESTIMATES

The project estimate should be reviewed at the following stages of plan development:

A. Upon completion of Study.
B. Upon completion of Preliminary Plans.
C. Whenever the scope of work changes.
D. When lettings are delayed appreciably (review yearly).

The programmed cost estimate must be updated whenever the current cost estimate exceeds that shown on the Status of Plans by more than 10 percent.

Projects funded by bond issues may not be significantly altered in scope or cost. To avoid the need for a change, all items contributing to a project's cost should be conservatively evaluated and included in the Engineer's Estimate. (8-20-99)

Occasionally, the Estimating Engineer will notify the Project Manager that the difference between the final cost estimate and the programmed estimate exceeds the limits given in Section III of the Project Manager's Handbook. In this case, the Project Manager should request the Statewide Transportation Planning Division's approval of the final estimate. (8-6-92)

STATE OF MICHIGAN

DEPARTMENT OF TRANSPORTATION

RICK SNYDER
GOVERNOR

KIRK T. STEUDLE
DIRECTOR

Dear

Subject: Request for Utility Information

Project Location (Route, City or Township, County):

Scope of Work:

Control Section(s): **Job Number(s):** **Proposed Plan Completion Date:**

For your Information, the design of this project will be done by a consultant: ☐ No ☐ Yes

If Yes, the consultant is:

Please mark your utility facilities on one set of the enclosed plans for the above mentioned Michigan Department of Transportation project. These facilities should be dimensioned to known features, such as a right-of-way line or road centerline. One set of marked plans and the attached "Request for Utility Information – Return Form" should be sent to the Transportation Service Center (TSC) utility coordination engineer listed. If you do not have any facilities in the area, please send only the completed return form. Please respond by .

For all potential utility conflicts, especially underground, the department may require the exact field location of your facilities. The enclosed plans are incomplete, and any utility relocation design should be undertaken only after discussion with the TSC utility coordination engineer. If certain items of utility work, such as adjustment of manholes, placing of conduits, etc., are to be included in this project, please indicate this in the Request for Utility Information – Return Form's comments section.

Sincerely,

Project Manager

Enclosure
cc: TSC Utility Coordination Engineer (w/plans)
N. Lefke

MDOT 2480 (03/06)

Michigan Department
of Transportation
2480 (03/06)

REQUEST FOR UTILITY INFORMATION – RETURN FORM

Date:

To:

Please return this completed form and marked plans (if applicable) by to the following utility coordinator:

Control Section(s): **Job Number(s):**

Utility Response Information

Utility facilities within project limits	☐ No	☐ Yes
Marked MDOT plans enclosed	☐ No	☐ Yes
Utility company maps enclosed	☐ No	☐ Yes
Facilities are dimensioned from	☐ Right-of-Way	☐ Road Centerline ☐ Other: _____
Facilities are	☐ Underground	☐ Aerial

If available, approximate vertical dimension(s)_____

Size and type _____ Year:_____

Facilities are ☐ Active ☐ Out of Service

Bridge(s)

Facilities attached to underside of bridge	☐ No	☐ Yes
Facilities located in bridge deck, sidewalk or barrier wall	☐ No	☐ Yes
Buried facilities near bridge	☐ No	☐ Yes
Aerial facilities near bridge	☐ No	☐ Yes

Municipal Utilities and County Drains Only

Any work proposed to be included in project? ☐ No ☐ Yes (If Yes, explain)_____

_____

Utility Contact for Design Phase:

Name: _____

Address: _____

City, State and Zip Code: _____

Telephone: _____

Fax: _____

E-Mail: _____

Utility Contact for Construction Phase:

(Information to be shown on MDOT Plans)

Name: _____

Address: _____

City, State and Zip Code: _____

Telephone: _____

Fax: _____

E-Mail: _____

Comments: _____

_____

_____