

Guide and / or I.M. Revision Notice

To: Cities, Counties, and Consultants

Date: June 18, 2010

From: Office of Local Systems

Revision Notice Number: 2010-02

The Federal-aid Project Development Guide (Guide) and / or Instructional Memorandums to Local Public Agencies (I.M.s) have been revised as indicated below. This revision notice identifies all new or revised documents and includes a summary of the significant changes. Where appropriate, it also references the existing Project Development Information Packet (Packet) or County Engineers I.M. documents that have been replaced or superseded.

The Iowa DOT does not provide paper copies of the Guide or I.M.s. Since these documents are updated frequently, we recommend using the on-line version of the [Guide and I.M.s](#) for reference. However, if you prefer using paper copies, all new or revised documents have been included in this file for convenient printing. If you maintain a paper copy of these documents, please remove the old documents and replace them with the new documents. Note: This file is designed for double-sided printing; therefore, all documents with an odd number of pages will be followed by a blank page.

For more information and additional download options, refer to the [Guide and I.M.s](#) web page. If you have any questions concerning these revisions, please contact Donna Buchwald Donna.Buchwald@dot.iowa.gov or 515-239-1051.

***** PLEASE NOTIFY ALL AFFECTED PERSONNEL OF THIS CHANGE *****

Document Title or I.M. Number	Summary of Significant Revision(s)
I.M. Table of Contents June 18, 2010	The I.M. Table of Contents has been revised to reflect new or revised I.M.s, as indicated below.
I.M. 3.405 Preliminary Plans June 18, 2010	This is a new I.M. This I.M. replaces the information that was previously included in County Engineer's I.M. 3.12, dated June 2002; and Index No. 7 of the Project Development information Packet, which included the Preliminary Plan Guidelines, dated Feb 24, 2006, Preliminary Plan Checklist, dated June 16, 2005, and Chart No. 7 – Preliminary Plan Process, dated November 2001. Substantive changes from the previous guidance include the following: Attachment B, Preliminary Plan Checklist: <ul style="list-style-type: none"> • The "Project Number" checklist item was expanded to provide additional guidance concerning multiple project numbers and projects that span multiple jurisdictions. • The "LPA Name and Project Location" checklist item was revised to clarify the requirements for the project description, including consistency with the description in the Statewide Transportation Improvement Program (STIP) for Federal-aid projects. • A "Benchmark" item was added to recommend inclusion of bench mark information to facilitate field reviews. • A separate "Utilities" item was added requiring all known utilities in the project area to be shown on the project plans and identified by name.
I.M. 3.410 Preliminary Bridge or Culvert Plans June 18, 2010	This is a new I.M. This I.M. replaces the information that was previously included in County Engineer's I.M. 3.131, dated May 2003. Substantive changes from the previous guidance include the following: <ul style="list-style-type: none"> • Much of the information previously included in County Engineers I.M. 3.131 is now included in the Iowa DOT Office of Bridges and Structures Preliminary Design Guidelines. Instead of duplicating this information, references are provided to these guidelines where appropriate. • The criteria for a hydraulic review is now included in this I.M. on pages 2 and 3. • The information required for preliminary bridge or culvert plan submittals has been clarified and summarized on page 4. • Attachment A, Flood Insurance Studies, contains an updated list of communities with detailed flood insurance studies. • Attachment C, Instructions for Completing Form 1-E, page 1, Line 7 – Fall in Stream: The instructions have been modified to clarify the difference between the stream slope and the Main Channel Slope.

Document Title or I.M Number	Summary of Significant Revision(s)
<p>I.M. 3.505 Check and Final Plans June 18, 2010</p>	<p>This I.M. has been revised. Substantive changes from the previous version include the following:</p> <p>Attachment A, Check and Final Plan Guidelines:</p> <ul style="list-style-type: none"> • Guidance related to Supplemental Specifications, Developmental Specifications, and Special Provisions was revised to state that the plans shall <u>not</u> include references to these specifications. Instead, the designer should identify these in the cover letter or e-mail when the plans are submitted to the Iowa DOT for review. Such specifications will be listed on the proposal form, but should not be included in the plans to reduce the chances for a conflict between the plans and proposal. • On pages 3-4, a new section titled, “Salvaged Materials” was added to state the Iowa DOT’s policy concerning salvaged materials. This guidance updates and replaces the policy distributed by e-mail on December 18, 2009. The new policy allows local agencies to salvage HMA millings for their own use, subject to certain limits. <p>Attachment B, Check and Final Plan Checklist:</p> <ul style="list-style-type: none"> • The “Project Number” checklist item was expanded to provide additional guidance concerning multiple project numbers and projects that span multiple jurisdictions. • The “LPA Name and Project Location” checklist item was revised to clarify the requirements for the project description, including consistency with the description in the Statewide Transportation Improvement Program (STIP) for Federal-aid projects. • On page 3, the “Tabulation of Standard Plans” item was updated to indicate the new, larger tabulation may be included on the “C” Sheets if there is not enough room on the title sheet. Also, a reminder was added that bidders should not be referenced to the Office of Bridges and Structures or Office of Local Systems to obtain copies of standard plans. • On page 3, the “U.S. Army Corps of Engineers 404 Permit” item was updated to require the use of Standard Note 281-1 and provide additional guidance on the use of temporary stream accesses. • On page 5, a “Salvaged Materials” item was added to indicate when the “Deliver and Stockpile of Salvaged Materials” bid item shall be used. • On page 8, a separate “Utilities” item was added requiring all known utilities in the project area to be shown on the project plans and identified by name. • On page 8, the “Curb Ramps” item was updated to clarify when curb ramps must be installed or upgraded to ADA standards. • On page 8, a “Status of Pedestrian Traffic” item was added to help ensure that ADA requirements for pedestrian accessibility are addressed during construction. • References to the Standard Specifications and various standard bid items, plans, details, and tabulations were updated.
<p>I.M. 3.510 Check and Final Bridge or Culvert Plans June 18, 2010</p>	<p>This I.M. has been revised. Substantive changes from the previous version include the following:</p> <ul style="list-style-type: none"> • On page 1 of the I.M., guidance was updated concerning the proper use of the AASHTO <i>Load and Resistance Factor Design (LRFD) Bridge Design Specifications</i> and AASHTO <i>Standard Specifications for Highway Bridges</i>. • Several checklist items were added to Attachment A, Bridge or Culvert Plan Supplementary Checklist, regarding eligibility of Highway Bridge Program (HBP) funds.

Instructional Memorandums To Local Public Agencies

Table of Contents



Some I.M.s are written either to counties or cities; others are written to both counties and cities. The intended audience is indicated in the "To:" field of the I.M. as well as the Table of Contents below. Many of the I.M.s are referenced by the Federal-aid Project Development Guide (Guide). These I.M.s are marked with an asterisk (*). For more information about the relationship between the Guide and I.M.s, refer to the [Guide and I.M.s web page](#).

Note: The I.M.s are currently in the process of being transitioned into a new format and numbering system. New or updated I.M.s will use the new format. Existing I.M.s will remain in the old format until they are revised or updated. Some of the I.M.s are not yet complete, as shown in light grey text. Some incomplete I.M.s will be based on an existing Project Development Information Packet document, some will be based on an existing County Engineers I.M. that will be renumbered, and some will include entirely new content. Where applicable, a reference and link to the existing Packet document or County Engineers I.M. is provided.

No.	Subject	Revision Date	Written To
Chapter 1 – General Information			
Section 1.0 -- General			
1.010	County Road Embargoes on the Iowa Detour and Road Embargo Map	November 2001	Counties
1.020	Pavement Friction Evaluation Program	August 2003	Counties
1.030	Ordering Forms and Supplies From the Iowa Department of Transportation	November 2001	Both
1.050	Manuals, Guides and Instructional Information Available to Counties	December 2002	Both
1.070*	Title VI and Nondiscrimination Requirements	February 21, 2008	Both
1.080*	ADA Requirements	February 21, 2008	Both
	Attachment A – Sample Curb Ramp Transition Plan (Word)	February 21, 2008	Both
Section 1.1 -- References			
1.120	References to the Iowa Code	August 2003	Counties
Chapter 2 – Administration			
Section 2.0 -- Finance			
2.010	Transfer of Local Secondary Road Use Tax Funds to the Farm-to-Market Fund	November 2001	Counties
	Attachment A - Local to FM Fund Transfer Resolution (Word)	November 2001	Counties
2.020	Federal and State Bridge Replacement and Rehabilitation Programs	August 2004	Counties
2.030	Transfer of Farm-to-Market Funds to the Local Secondary Road Fund	April 12, 2007	Counties
2.040	Temporary Allocation of Farm-to-Market Funds	November 2001	Counties
2.050	Procedure to Change a County Secondary Road Construction Program (see I.M. 3.11 , dated March 2003)	(future)	Counties
	Attachment A – Add FM or Local Project Resolution (see attachment to I.M. 3.11 , dated March 2003) (Word)	(future)	Counties
	Attachment B - Advance Local Project Resolution (see attachment to I.M. 3.11 , dated March 2003) (Word)	(future)	Counties
2.071	Secondary Road Budget Accounting Code Series	July 2005	Counties
Section 2.1 -- Maintenance			
2.110	Maintenance of County Roads at Intersections, Interchanges, and Grade Separations with the Primary Highway System	June 1998	Counties
2.120	Bridge Inspections	(future)	Both

No.	Subject	Revision Date	Written To
Section 2.2 -- Traffic Service and Control			
2.210	Engineering and Traffic Investigations – Speed Limit Study	March 2002	Counties
	Attachment A - Speed Restriction Ordinance (Word)	March 2002	Counties
	Attachment B - Amendment to Speed Restriction Ordinance (Word)	March 2002	Counties
	Attachment C - Resolution for Establishing Speed Limits (Word)	March 2002	Counties
2.220	Establishing and Signing Area Service B and Area Service C Roads	January 2004	Counties
	Attachment A - Area Service "B" Ordinance (Word)	March 2002	Counties
	Attachment B - Area Service "B" Resolution (Word)	March 2002	Counties
	Attachment C - Area Service "C" Ordinance (Word)	January 2004	Counties
	Attachment D - Area Service "C" Resolution (Word)	January 2004	Counties
2.230	Signing for Low Cost Stream Crossings	June 2002	Counties
	Attachment A - Resolution for Low-Water Stream Crossing (Word)	June 2002	Counties
2.240	Iowa DOT Traffic Counts	(future)	Both
Section 2.3 -- Agreements			
2.310	Construction Agreements Between City and County on Secondary Road Extensions	April 2002	Both
	Attachment A - Resolution for Construction Agreement between City and County on Secondary Road Extensions (Word)	April 2002	Both
Chapter 3 – Project Development			
Section 3.0 -- General			
3.002*	Federal-aid Project Scheduling	February 16, 2007	Both
3.005*	Project Development Submittal Dates and Information	April 22, 2010	Both
3.010	Project Development Outline -- Federal-Aid Funding (BRS, BHS, BROS, BHOS, STS-S, STP-A, STP-E, STP-ES)	February 2002	Both
3.020	Project Development Outline -- Farm-to-Market Funding (FM)	February 2002	Counties
3.030	Project Development Outline -- Local Funding (L)	February 2002	Both
3.050*	In-Kind Contributions	April 12, 2007	Both
3.060	Project Numbers (see I.M. 3.14 , dated December 2002)	(future)	Both
Section 3.1 -- Environmental Reviews and Permits			
3.105*	Concept Statement Instructions (see Packet, Index No. 6, Concept Statement Instructions)	(future)	Both
	Attachment A – Example Concept Statement	(future)	Both
3.110*	Environmental Data Sheet Instructions (see Packet, Index No. 6, Environmental Datasheet Instructions)	(future)	Both
	Attachment A – Example Environmental Data Sheet	(future)	Both
3.112*	FHWA Environmental Concurrence Process (see Packet, Index No. 6, NEPA Project Classification Process)	(future)	Both
	Attachment A - Environmental Concurrence Process Overview (see Packet, Flowcharts, Chart No. 6 – Environmental Process Overview)	(future)	Both
	Attachment B - Environmental Assessment / FONSI Process (see Packet, Flowcharts, Chart No. 6A – Environmental Assessment / FONSI Process)	(future)	Both
	Attachment C - Environmental Impact Statement / ROD Process (see Packet, Flowcharts, Chart No. 6B – Environmental Impact Statement / ROD Process)	(future)	Both
	Attachment D - Section 106 Process (see Packet, Flowcharts, Chart No. 6C – Section 106 Process)	(future)	Both
	Attachment E - Section 4(f) Process (see Packet, Flowcharts, Chart No. 6D – Section 4(f) Process)	(future)	Both

No.	Subject	Revision Date	Written To
3.114*	Cultural Resource Regulations (see Packet, Index No. 6, Cultural Resource Regulations)	(future)	Both
3.120*	Farmland Protection Policy Act Guidelines (see Packet, Index No. 6, Farmland Protection Policy Act Guidelines)	(future)	Both
	Attachment A - Farmland Protection Policy Act Process Flowchart (see Packet, Flowcharts, Chart No. 6E – Farmland Protection Policy Act Process)	(future)	Both
3.130*	404 Permit Process	March 26, 2008	Both
	Appendix A – 404 Permit Checklist	March 26, 2008	Both
3.140*	Storm Water Permits	February 21, 2008	Both
	Attachment A – Sample Pollution Prevention Plan (Word)	February 21, 2008	Both
3.150*	Highway Improvements in the Vicinity of Airports or Heliports	December 3, 2007	Both
3.160*	Asbestos Inspection, Removal, and Notification Requirements	April 12, 2007	Both
	Attachment A – Notification of Demolition form (Word)	April 12, 2007	Both
Section 3.2 -- Design Guidelines and Exceptions			
3.205*	Urban Design Guidelines (see Packet, Index No. 5, Application of Design Criteria , Urban Design Aids , Alternative Urban Design Guides , and Design Exception Process for City Federal-aid Projects)	(future)	Cities
3.210*	Rural Design Guidelines	March 26, 2008	Counties
3.211	Rehabilitation of Existing Surfaces	November 2001	Counties
3.213*	Traffic Barriers (Guardrail and Bridge Rail)	November 2001	Both
3.214*	3R Guidelines	March 26, 2008	Both
3.215*	Clear Zone Guidelines	March 26, 2008	Both
3.216*	Economic Analysis (Benefit-to-Cost Ratio)	October 2001	Counties
3.218*	Design Exception Process	December 2002	Counties
	Attachment A – Design Exception Process Flowchart (see Packet, Flowcharts, Chart No. 4 – Design Exception Process)	(future)	Both
3.220*	Design Exception Information for Bridges Narrower than Approach Pavement (see I.M. 3.132 , dated February 2002)	(future)	Both
Section 3.3 -- Consultant and In-House Design			
3.305*	Federal-aid Participation in Consultant Costs	August 29, 2006	Both
	Attachment A – Federal-Aid Consultant Checklist	August 29, 2006	Both
	Attachment B – Guidelines for Federal-Aid Consultant Contracts	August 29, 2006	Both
	Attachment C – Payment Methods	August 29, 2006	Both
	Attachment D – Sample Consultant Contract (Word)	August 29, 2006	Both
3.310*	Federal-aid Participation in In-House Services	December 11, 2008	Both
3.315	Farm-to-Market Funded Consultant Contracts	(future)	Counties
Section 3.4 -- Preliminary Design			
3.405*	Preliminary Plans	June 18, 2010	Both
	Attachment A – Preliminary Plan Guidelines	June 18, 2010	Both
	Attachment B – Preliminary Plan Checklist	June 18, 2010	Both
	Attachment C – Preliminary Plan Process Flowchart	June 18, 2010	Both
3.410*	Preliminary Bridge or Culvert Plans	June 18, 2010	Both
	Attachment A – Flood Insurance Studies	June 18, 2010	Both
	Attachment B – Iowa DNR Floodplain Regulations	June 18, 2010	Both
	Attachment C – Instructions for Completing the Form 1-E	June 18, 2010	Both
	Attachment D – Instructions for Completing the Risk Assessment Form	June 18, 2010	Both

No.	Subject	Revision Date	Written To
Section 3.5 -- Final Design			
3.505*	Check and Final Plans	June 18, 2010	Both
	Attachment A – Check and Final Plan Guidelines	June 18, 2010	Both
	Attachment B – Check and Final Plan Checklist	June 18, 2010	Both
	Attachment C – Check and Final Plan Process Flowchart	June 18, 2010	Both
3.510*	Check and Final Bridge or Culvert Plans	June 18, 2010	Both
	Attachment A – Bridge or Culvert Plan Supplementary Checklist	June 18, 2010	Both
3.520*	Electronic Bid Item Information (see Packet, Index No. 8, BIAS 2000 Information)	(future)	Both
Section 3.6 -- Right-of-Way, Utilities, and Railroads			
3.605*	Right-of-Way Acquisition	June 18, 2007	Both
	Attachment A – Compensation Estimate Procedures	June 18, 2007	Both
	Attachment B – FHWA Authorization of Right-of-Way Costs Flowchart	June 18, 2007	Both
	Attachment C – Early Right-of-Way Acquisition Process Flowchart	June 18, 2007	Both
3.640*	Utility Accommodation and Coordination	December 11, 2008	Both
	Attachment A – Utility Coordination Flowchart	December 11, 2008	Both
	Attachment B – Utility Coordination Checklist (Word)	December 11, 2008	Both
3.650*	Federal-aid Participation in Utility Relocations	June 18, 2007	Both
	Attachment A – Utility Relocation Federal-Aid Eligibility Flowchart	June 18, 2007	Both
	Attachment B – FHWA Authorization of Utility Relocation Costs Flowchart	June 18, 2007	Both
3.670*	Work on Railroad Right-of-Way	May 1, 2007	Both
	Attachment A – Notification and Agreement of Maintenance Work in Railroad Right-of-Way (Word)	May 1, 2007	Both
	Attachment B – Notification of Construction Work in Railroad Right-of-Way (Word)	May 1, 2007	Both
	Attachment C – Work on Railroad Right-of-Way Flowchart	May 1, 2007	Both
3.680*	Federal-aid Projects Involving Railroads	May 1, 2007	Both
	Attachment A – FHWA Authorization of Railroad Costs Flowchart	May 1, 2007	Both
Section 3.7 -- Lettings and Contracts			
3.705	Local Letting Process – State or Local Funded (see I.M. 3.41 , dated September 2005; I.M. 3.42 , dated March 2002; and I.M. 3.43 , dated September 2002)	(future)	Both
3.710*	DBE Guidelines	June 18, 2007	Both
3.720*	Local Letting Process – Federal-aid	April 12, 2007	Both
	Attachment A – Pre-Award Checklist and Certification	April 12, 2007	Both
	Attachment B – Post-Award Checklist and Certification	April 12, 2007	Both
	Attachment C – Supplemental Agreement	April 12, 2007	Both
	Forms Packet Note: The documents included in the Forms Packet are not actually a part of I.M. 3.720 or its attachments. However, for convenient download, these documents are bundled together in a self-extracting executable file (forms.exe).	N/A	Both
3.730*	Iowa DOT Letting Process (see I.M. 3.44 , dated September 2005)	(future)	Both
	Attachment A – Iowa DOT Letting Process Flowchart (see Packet, Flowcharts, Chart No. 12 – DOT Pre-letting Process and Chart No. 13 – DOT Post-letting Process)	(future)	Both
3.750*	Project Development Certification Instructions	December 3, 2007	Both
	Attachment A – Project Development Certification Process Flowchart	December 3, 2007	Both
	Attachment B - Sample Project Development Certification Form	December 3, 2007	Both
3.760*	Public Interest Findings	December 3, 2007	Both

No.	Subject	Revision Date	Written To
3.770	Paving Point Requirements	(future)	Counties
Section 3.8 -- Construction			
3.805*	Construction Inspection (see I.M. 3.51 , dated September 2002)	(future)	Both
3.810*	Federal-aid Construction by Local Agency Forces	December 11, 2008	Both
3.870	Farm-to-Market Voucher Process	(future)	Counties
Section 3.9 -- Project Close-out and Audits			
3.910*	Final Review, Audit, and Close-out Procedures for Federal-aid Projects	December 3, 2007	Both
	Attachment A – Project Close-out Process Overview Flowchart	December 3, 2007	Both
	Attachment B – Final Review and Audit Process Flowchart – Highway or Bridge Construction	December 3, 2007	Both
	Attachment C – Final Review and Audit Process Flowchart – Non-highway Construction, DOT Specifications	December 3, 2007	Both
	Attachment D – Final Review and Audit Process Flowchart – Non-highway Construction, Non-DOT Specifications	December 3, 2007	Both
	Attachment E – Pre-audit Checklist (Word)	December 3, 2007	Both
	Attachment F – Final Forms Packet Checklist (Word)	December 3, 2007	Both
3.920	Final Review, Audit, and Close-out Procedures for State-aid Projects	(future)	Both
3.930*	Interest Payment Procedures	December 3, 2007	Both
	Attachment A – Sample Interest Payment Information Form	December 3, 2007	Both
3.940	County Engineer Resolution	December 3, 2007	Counties
	Attachment A – Sample County Engineer Resolution (Word)	December 3, 2007	Counties
Chapter 4 – Systems Classification And Identification			
Section 4.0 -- General			
4.010	Procedures to Modify the Secondary Road Route Numbering System	September 2002	Counties
4.030	County Road Vacations	September 2002	Counties
	Attachment A - Resolution for Road Vacation Public Hearing (Word)	September 2002	Counties
	Attachment B - Notice of Public Hearing (Word)	September 2002	Counties
	Attachment C - Resolution to Vacate a County Road (Word)	September 2002	Counties
Section 4.1 -- (Reserved)			
Section 4.2 -- Farm-to-Market System			
4.210	Modification of the Farm-to Market (FM) System	March 2002	Counties
	Attachment A - FM Review Board Application Resolution (Word)	March 2002	Counties
4.220	Farm-to-Market Review Board Advisory Opinions on Proposed Jurisdictional Transfers	April 2002	Counties

INSTRUCTIONAL MEMORANDUMS

To Local Public Agencies



To: Counties and Cities	Date: June 18, 2010
From: Office of Local Systems	I.M. No. 3.405
Subject: Preliminary Plans	

Contents: This Instructional Memorandum (I.M.) includes guidelines and procedures for preparation, submittal, and review of preliminary plans for Local Public Agency (LPA) Federal-aid projects that will be let by the Iowa Department of Transportation (Iowa DOT). This I.M. also includes the following attachments:

- [Attachment A](#) – Preliminary Plan Guidelines
- [Attachment B](#) – Preliminary Plan Checklist
- [Attachment C](#) – Preliminary Plan Process Flowchart

Note:

- If the project involves a bridge or culvert, refer also to [I.M. 3.410](#), Preliminary Bridge or Culvert Plans.
- Projects funded with only Farm-to-Market or local funds do not require a preliminary plan review. However, if requested by the LPA, preliminary plans for such projects will be reviewed in accordance with the guidelines set forth in this I.M.

Preparation

Content and Format

Preliminary plans shall be prepared in accordance with [Attachment A](#) – Preliminary Plan Guidelines and [Attachment B](#) – Preliminary Plan Checklist. Attachment A provides general guidelines and instructions applicable for all types of projects. Attachment B provides a checklist of specific items that will be reviewed by the Iowa DOT Administering Office. The Iowa DOT strongly recommends that the LPA or its consultant use both these attachments to perform an internal plan review prior to submitting the project plans to the Iowa DOT.

Design Guidelines

For new or complete reconstruction projects, refer to either [I.M. 3.205](#), Urban Design Guidelines for Federal-aid Projects, or [I.M. 3.210](#), Rural Design Guidelines for Federal-aid Projects. For Resurfacing, Restoration, or Rehabilitation (3R) projects, refer to [I.M. 3.214](#), 3R Guidelines.

Federal-aid projects that do not meet these guidelines will require a design exception. If the need for a design exception has been identified at the preliminary plan stage, the design exception request and supporting documentation should be submitted with the preliminary plans. For more information, refer to [I.M. 3.218](#), Design Exception Process.

Even though the Iowa DOT does not review design criteria for projects funded with only Farm-to-Market or local funds, the Iowa DOT strongly recommends that LPAs properly document any design features that do not meet the current applicable AASHTO design guidelines.

Submittal

Timely submission of preliminary plans is important. All submittals shall be made to the Administering Office in accordance with [I.M. 3.005](#), Project Development Submittal Dates and Information.

Electronic Plans

LPAs may submit plans electronically in Adobe Acrobat's Portable Document Format (PDF), provided the electronic file conforms to the [File Specifications for Electronic Plan Submittals to the Iowa DOT](#). Do not submit paper copies if plans are submitted electronically. If the electronic file submitted does not conform to these specifications, the LPA shall either revise the file to meet the specifications or submit paper copies of the plans instead.

Due to e-mail file size limitations, the Iowa DOT recommends that electronic plans, and all other electronic submittals, be transmitted to the Iowa DOT using the submittal tools provided in the Transportation Project Management System ([TPMS](#)). To obtain access to TPMS, contact the Iowa County Engineer's Service Bureau at 515-244-0779. However, electronic plans may also be submitted via e-mail directly to the appropriate contact person in the Administering Office. In either case, the e-mail shall serve as the cover letter, and all other appropriate documentation shall be attached.

In addition to submitting preliminary plans to the Iowa DOT, preliminary plans should also be submitted to all utilities within the project limits or corridor. For more information, refer to [I.M. 3.640](#), Utility Accommodation and Coordination.

Review

Plans submitted in conformance with this I.M. should be returned by the Administering Office in a timely manner with relatively few comments. If the plans do not conform to these guidelines, the review process will require more time and effort by the LPA and the Iowa DOT, which could delay the project letting.

The process for submittal, distribution, and review of project plans is illustrated in [Attachment C](#) – Preliminary Plan Process Flowchart. As the flowchart shows, if the project involves bridge or culvert that requires a hydraulic review, or requires work on an interstate or primary highway, the plans will need additional reviews by other Iowa DOT offices. Because these reviews may require additional time, early submittal of such plans is strongly encouraged.

After the Administering Office has provided comments to the LPA, a field review may be conducted, if requested by either party. Any additional comments from the Administering Office shall be sent in writing to the LPA after the review, and the LPA shall provide a written response to those comments. The LPA may provide a separate response or include the response as part of the Check Plan submittal.

Note: Federal-aid projects may not proceed to final design or acquire right-of-way until after FHWA Environmental Concurrence has been received. For more information, refer to Sections 4.1, 5.1, and 6.1 of the [Federal-aid Project Development Guide](#).

Preliminary Plan Guidelines

For Local Public Agency (LPA) Projects Let by the Iowa Department of Transportation (Iowa DOT)

Plan Format

Use of the Iowa DOT plan format is strongly recommended; however, except where noted otherwise, use of the Iowa DOT standard plans and details is not required for LPA projects. Use of the Iowa DOT format promotes uniformity and consistency of project plans. This results in lower bid prices because most contractors that bid on projects let by the Iowa DOT are familiar with the Iowa DOT format. It also reduces the amount of effort, and consequently, the cost required to create a set of plans suitable for letting by the Iowa DOT.

Iowa DOT Standard Plans

The Iowa DOT strongly encourages use of its standard plans. When used, standard plans should not be included in the plan set, but instead shall be incorporated by reference.

All of the standard plans listed below may be used on any city or county project. These standard plans are available on-line in either MicroStation format or Adobe Acrobat's Portable Document Format (PDF). Where specific design problems require special solutions, the standard plans may be modified and included in the plans as a detail or detail sheet; however, the standard plan number and revision date shall be removed. Each type of standard plan is further described below.

The [Standard Road Plans](#) have been developed by the Iowa DOT Office of Design to show standardized design features, construction methods, and approved materials to be used in highway construction in the State of Iowa.

The [Standard Culvert Plans](#) have been developed by the Iowa DOT Office of Bridge and Structures. These standard plans include complete details for a variety sizes and configurations of Reinforced Concrete Box (RCB) culverts.

The [Standard Bridge Plans](#) are also provided by the Iowa DOT Office of Bridges and Structures. The Standard Bridge Plans most applicable to local agency projects have been grouped together on the [County Bridge Standards Plans](#) web page. These standard plans include complete details for continuous concrete slab bridges and pretensioned prestressed concrete beam bridges, in a variety of widths, lengths, and spans.

Iowa DOT Road Design Details

The [Road Design Details](#) are available on-line in either MicroStation or PDF format. The Road Design Details contain standard design and tabulation forms, notations, details, and detail sheets. Similar to the standard plans described above, if a Road Design Detail is modified, the number and revision date shall be removed. The types of details included in the Road Design Details are further described below:

Standard Tabulations (100 series) include various tabulations for design data, bid items, and supplementary information. If used, these tabulations and forms shall be inserted on the plan sheets.

Standard Notations (200 series) are standardized notes that may be inserted on the plans as part of the General Notes. Using the Standard Notations saves time in writing the General Notes and promotes uniformity. The General Notes should contain general project information only. Information specific to bid items should be shown in the Estimate Reference Information.

Design Detail Sheets (500 series) are complete plan sheets. They provide details for common roadway items such as drainage appurtenances, fencing, certain pavement or shoulder construction details, traffic barriers and associated appurtenances, and more. If a Design Detail Sheet is used, it shall be included as a separate sheet in the plan set. It shall not be incorporated by reference.

Typical Details (1000 to 9000 series) are individual details. They include details for typical sections, curbs, shoulders, medians, etc. If a Typical Detail is used, it shall be placed on a plan sheet. It shall not be incorporated by reference.

Preliminary Plan Checklist

For Local Public Agency (LPA) Projects Let by the Iowa Department of Transportation (Iowa DOT)

Project No.: _____ Date: _____ LPA or Consulting Firm: _____

Name of Designer: _____ Phone No.: _____ email: _____

Note: This checklist is not intended to cover all of the details, notes and information that may be necessary for acceptable preliminary plans. However, this checklist addresses the items where most questions or problems generally arise. *This checklist is requested, but not required with the preliminary plan submittal.*

GENERAL

- Project Concept.** The proposed design criteria, improvements, and project limits are consistent with the scope and type of work shown in the approved Concept Statement for Local Systems Federal-aid Projects (Form 517001). Any significant changes to the project concept (e.g., proposed design elements, project limits, potential environmental impacts, type of work, etc.) shall be explained in the cover letter that accompanies the plans. For more information, refer to [I.M. 3.105](#), Concept Statement Instructions.
- Environmental Document Requirements.** If the approved environmental document (e.g., Section 4(f) statement, Environmental Assessment, or Environmental Impact Statement) specifies that certain conditions shall be met, or certain sensitive areas shall be avoided, the plans shall be consistent with these requirements.
- Format.** Plans may be submitted in either electronic or paper format. If plans are submitted in electronic format, they shall conform to the [File Specifications for Electronic Plan Submittals to the Iowa DOT](#). If plans are submitted in paper format, they shall be black or grayscale print on plain white paper.
- Dimensions and Legibility.** Plans shall be submitted as single-sided, 11"x17" sheets. To ensure that all of the plan is printed accurately, the border widths (i.e., clear space between the edge of paper and printing on the plan) shall meet the following minimum dimensions: top and bottom = 1/4 in.; left and right = 5/8 in. All lettering and details on the 11"x17" plan sheets shall be legible when printed.
- Preliminary Bridge or Culvert Plans.** Bridge or culvert plans shall also conform to the guidelines provided in [I.M. 3.410](#), Preliminary Bridge or Culvert Plans.

TITLE SHEET

- Preliminary Plans Stamp.** Preliminary plan submittals should be identified by using a red stamp, red pen, or other means, to mark the words "Preliminary Plans" on the designer's certification block.
- System Classification.** The roadway system classification shall be shown. The Systems Classification should be shown in large font near the center or upper middle part of the sheet. For county projects, use "Farm-to-Market System" for a project on a Farm-to-Market route or "Secondary Road System" for a project on a local route. For city projects, use "Urban Road System." For projects located on the corporation line, use the system classification that is under the jurisdiction of the lead governmental agency.
- Location Map.** A location map with a north arrow and major street names shall be shown. The location map should be located near the left or bottom left part of the sheet. The location map should also include a scale (or be noted as "Not to Scale") and identify the project limits including the beginning and ending stations. If project divisions are used, their limits shall also be indicated, either on the location map or in a plan note.
- Designer's Certification Block.** The plans shall include a certification block and seal that complies with the appropriate sections or chapters of the Code of Iowa and the Iowa Administrative Code (IAC). The designers certification block should be shown near the bottom right part of the sheet. The certification block shall not be signed or sealed for the preliminary plan submittal.

- LPA's Signature Block.** The plans shall include a signature block that includes the title of the appropriate LPA official(s) with a space for each official(s) signature and date. The LPA's signature block should be shown near the bottom right part of the sheet. The signature block shall not be signed for the preliminary plan submittal.
- Index of Sheets.** An index listing all sheets included in the plans shall be shown. The index of sheets should be shown near the right or upper right part of the sheet. Sheets should generally be listed in the following order: Title sheet, typical sections, standard details, estimated quantities tabulation, estimate reference information, supplemental tabulations, plan and profile sheets, other detail sheets, and cross sections. Use of the Iowa DOT sheet numbering system as shown in the Iowa DOT Road Design Manual, [Section 1E-2](#), is recommended. If used, it shall be used consistently.
- Project Number.** The Iowa DOT project number shall be shown in at least one place on all plan sheets. Recommended placements for the title sheet and all other sheets include the middle left margin and the bottom right margin. For the title sheet, the project number should also be shown near the upper right corner or in the center (above or below the project title). **Note:**
 - Usually, only one project number should be shown on the plans. However, if the plans will include more than one project, additional project numbers should be shown, along with a description of the limits of each project. In such cases, a separate entry in the Transportation Program Management System (TPMS) and a separate electronic bid item file will be required for each project.
 - If a single project spans more than one jurisdiction (e.g., across county or city boundaries), the project number used should correspond to jurisdiction in which the project stationing begins (i.e., the westerly or southerly end of the project).
 - If unsure about which project number or how many project numbers to use, contact the Administering Office for assistance.
- LPA Name and Project Location.** The name of the city or county shall be shown in at least one location on all plan sheets. Recommended placement is on the bottom left margin. On the title sheet, the name of the city or county and a brief description of the project location shall also be shown, preferably in the center part of the sheet. The description shall include the route or street name, plus the beginning and ending points of the project. Beginning and ending points shall be identified by a cross street, feature crossed, corporation limits, or some other feature that can be located on a map. If multiple routes or streets are included in the project, list each separately. For a Federal-aid project, the description on the plans shall be consistent with description for the project in the Statewide Transportation Improvement Program (STIP) and in TPMS Development.
- Letting Date.** A space or a box for the project letting date shall be shown, preferably on upper left margin of sheet. If the letting date is known, the appropriate date may be shown in the box or space provided.
- FHWA Structure Number.** If the project involves a bridge, the FHWA structure number shall be shown, preferably on or near the location map that shows the location of the bridge. Bridges are defined as any structure with a clear opening greater than 20 feet, as measured along the centerline of the roadway.

TYPICAL SECTION SHEETS

- Dimensions and Slopes.** Proposed cross section elements shall be detailed with adequate horizontal and vertical dimensions. Pavement slopes, cut slopes, and fill slopes shall also be specified.
- Materials Specified.** The type and thickness of surface, base and subbase materials for pavements, shoulders, sidewalks, or trails shall be shown.
- Number of Typical Sections.** Separate typical sections for each significantly different type of cross section found on the project shall be shown. Use separate typical sections to show differences in the number of lanes, pavement types, pavement thicknesses, curb and gutter, sidewalk, or recreational trails.
- Station Ranges.** If more than one typical section is used, the applicable stationing ranges shall be labeled for each. If the project contains more than one plan division, the applicable division(s) for each typical section should be noted.

- Existing Features.** For projects that involve widening, milling, resurfacing, or other modifications to the existing pavement and / or shoulder; the type, thickness, and width of existing pavement and / or shoulder structure should be shown on the typical cross section.

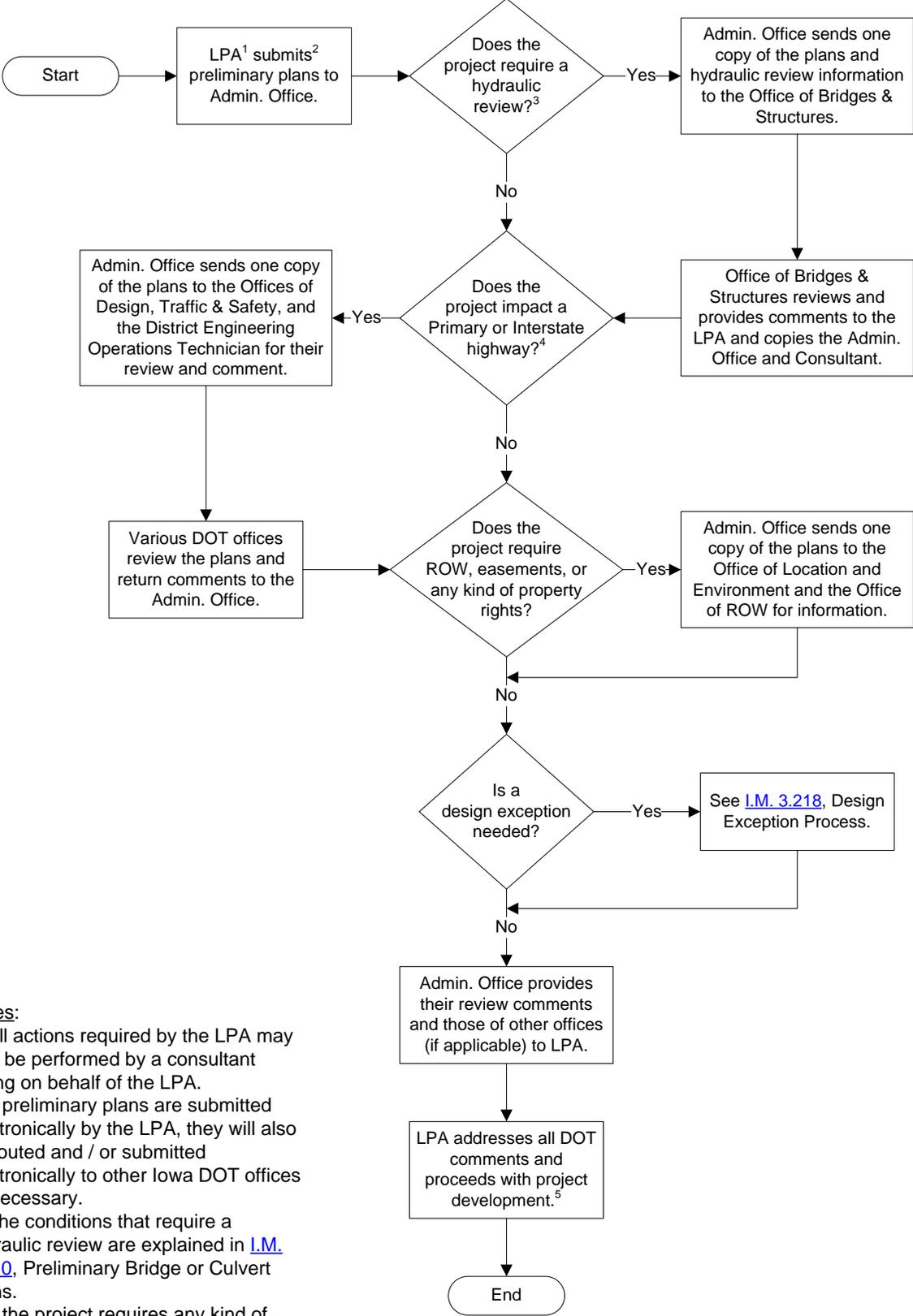
PLAN AND/OR PROFILE SHEETS

- Existing Features.** The plans should show the location of existing topographical features (e.g., existing pavement, structures, buildings, etc.).
- North Arrow.** A North arrow shall be shown on all plan sheets.
- Scale.** All plan and profile sheets shall show a horizontal scale. Profile sheets shall also show a vertical scale.
- Proposed Right-of-Way (ROW).** If the project involves ROW acquisitions, permanent easements, or temporary easements, the proposed right-of-way lines, easement lines, property lines, parcel numbers, and property owners shall be shown. For projects involving several ROW acquisitions or easements, use of separate ROW sheets is recommended.
- Existing ROW.** Existing ROW lines shall be shown.
- Profiles.** The vertical profile data shall be shown, including the percent grade, vertical curve length, K factor, stopping sight distance (SSD), and design speed. The point of vertical curvature (P.V.C.), point of vertical tangency (P.V.T.), and point of vertical intersection (P.V.I.) stations and elevations shall be labeled.
- Benchmarks.** List the type, location, and elevation of each benchmark. This information may be listed on a separate sheet if necessary.
- Alignments.** The horizontal curve data shall be shown, including the point of intersection (P.I.) station, curve length, radius or degree of curvature, tangent length, and delta angle. The point of curvature (P.C.), and point of tangency (P.T.) stations should also be shown.
- Utilities.** All known utility facilities within or immediately adjacent to the project limits shall be shown, including the approximate location of such facilities and the name of the utility company. For more information, refer to [I.M. 3.640](#), Utility Accommodation and Coordination.
- Railroad (RR) Crossings.** All RR crossings within or immediately adjacent to the project limits shall be shown, including the RR property lines and the name of railroad company. This information shall be included anytime the Contractor will be required to gain access or perform work on the RR right-of-way or within 25 feet of the centerline of the outermost RR track, even if the RR facilities are not directly impacted by the project. For more information, refer to [I.M. 3.670](#), Work on Railroad Right-of-Way.

TRAFFIC SIGNAL SHEETS

- Scale.** Drawings shall be of sufficient scale to show the necessary details. A 1"=20' scale is recommended.
- Pavement Markings Details.** Pavement markings, including lane lines, stop bars, crosswalks, symbols, and legends should be shown.
- Signal Details.** Signal pole, signal head, mast arm, and detector loops locations should be shown.
- Roadway Details.** Edges of pavement, curbs, sidewalks, and pedestrian curb ramps should be shown.

Preliminary Plan Process Flowchart



Notes:

- 1) All actions required by the LPA may also be performed by a consultant acting on behalf of the LPA.
- 2) If preliminary plans are submitted electronically by the LPA, they will also be routed and / or submitted electronically to other Iowa DOT offices as necessary.
- 3) The conditions that require a hydraulic review are explained in [I.M. 3.410, Preliminary Bridge or Culvert Plans](#).
- 4) If the project requires any kind of activity within the existing right-of-way of an Interstate or Primary Highway, this constitutes an "impact."
- 5) Federal-aid projects may not proceed to final design or acquire right-of-way until after FHWA Environmental Concurrence has been received.

INSTRUCTIONAL MEMORANDUMS

To Local Public Agencies



To: Counties and Cities

Date: June 18, 2010

From: Office of Local Systems

I.M. No. 3.410

Subject: Preliminary Bridge or Culvert Plans

Contents: This Instructional Memorandum (I.M.) includes guidelines and procedures for preparation, review, and submittal of Local Public Agency (LPA) preliminary bridge or culvert plans for projects that will be let by the Iowa Department of Transportation (Iowa DOT). This I.M. also includes the following attachments:

[Attachment A](#) – Flood Insurance Studies

[Attachment B](#) – Iowa DNR Floodplain Regulations

[Attachment C](#) – Instructions for Completing the Form 1-E

[Attachment D](#) – Instructions for Completing the Risk Assessment Form

Note: This I.M. provides guidance specific to preliminary bridge or culvert plans. The guidance provided in [I.M. 3.405](#), Preliminary Plans also applies. However, because of the differences between bridge or culvert plans and roadway plans, the guidance provided by this I.M. shall govern in case of a conflict.

Design Guidelines

The following guidelines are presented as an aid to preliminary bridge design. This I.M. does not contain all of the information needed to prepare a satisfactory preliminary bridge or culvert design. Therefore, it is essential for LPAs to use a licensed professional engineer, competent in hydrologic and hydraulic analysis, to design preliminary bridge or culvert plans.

Iowa DOT Guidelines for Preliminary Design of Bridges and Culverts

The Iowa DOT Office of Bridge and Structures (OBS) provides a document titled, [Guidelines for Preliminary Design of Bridges and Culverts](#), referred to hereinafter simply as the "Iowa DOT Guidelines". This document provides extensive guidance on nearly all aspects of preliminary design for bridge or culvert projects. LPA designers shall use the Iowa DOT Guidelines. In general, this I.M. will not duplicate guidance already contained in the Iowa DOT Guidelines, but instead will reference the Iowa DOT Guidelines where appropriate.

Selection of Design Flood and Clearances for Stream Crossings

A stream crossing consists of both the bridge and the roadway approaches. Stream crossings on high traffic volume or emergency access roads should generally be designed to a higher criteria such as a 50-year design flood. Where practical, clearance below the low superstructure should be three feet above design high water or one foot clearance above extreme high water, whichever is greater. The approach roadways should generally be one foot above design high water. Some "extreme high water" elevations can be disregarded in setting the grade if they are so high as to be impractical to design for.

Table 1 below is provided for guidance primarily for rural county roads. The further you reduce your design flood frequency (e.g. from a 50-year to a 10-year flood), the lower the quality of service. The table lists minimums. Use the highest discharge that you feel you can justify.

Table 1 – Design Flood Guidelines for Rural County Roads

Project ADT	Frequency of Design Flood	Clearance ^(a)			
		Bridge ^(b)		Approach Roadway ^(c)	
		Large Streams (> 100 mi ²)	Other Streams	Large Streams (> 100 mi ²)	Other Streams
Land Access Roads	2 ± year	3' above Q ₅₀	2' above Q ₂	1' above Q ₂	1' above Q ₂
49	5 year	3' above Q ₅₀	2' above Q ₅	1' above Q ₅	1' above Q ₅
50 -99	10 ± year	3' above Q ₅₀	2' above Q ₁₀	1' above Q ₁₀	1' above Q ₁₀
100 - 399	25 ± year	3' above Q ₅₀	3' above Q ₂₅	1' above Q ₂₅	1' above Q ₂₅
≥ 400	50 ± year	3' above Q ₅₀	3' above Q ₅₀	1' above Q ₅₀	1' above Q ₅₀

Notes:

- a) Clearances (freeboard) may be adjusted in some cases. See discussion below.
- b) Bridge clearance is determined by natural flood elevation, not backwater elevation.
- c) Approach roadway clearance will be determined using the bridge backwater elevation.

Clearance guidelines may be relaxed in those instances where it is impractical to provide recommended clearance because of unreasonably high cost. For example, costs may be high if a grade raise would result in the replacement of a large amount of present pavement. Also, costs may be high if the bridge is in a developed area with commercial or residential property. These examples should be handled individually as special cases. Clearance guidelines may also be relaxed where the stream is not expected to carry significant amounts of ice or debris, such as on most smaller streams.

Low Water Stream Crossings

Low water stream crossings (fords, vented fords, and low bridges) will be reviewed on an individual basis. Iowa DOT does not have a policy on these types of crossings and therefore only reviews the hydraulic characteristics and does not approve or disapprove the plan.

If a low water stream crossing is proposed, the designer should refer to the guidance provided in the following Iowa Highway Research Board reports:

- [Liability and Traffic Control Considerations for Low Water Stream Crossings](#), HR-218, April 1981.
- [Design Manual for Low Water Stream Crossings](#), HR-247, October 1983.
- [Low Water Stream Crossings: Design and Construction Recommendations](#), TR-453, December 2001.

In addition, for guidance concerning signing of low water stream crossings, refer to [I.M. 2.230](#), Signing for Low Water Stream Crossings.

Plan Content and Format

The Iowa DOT recommends that LPA bridge or culvert projects follow the same format used by Iowa DOT bridge or culvert plans. For more information, refer to the checklists and sample plans for bridges and culverts included in the Iowa DOT Guidelines.

Hydraulic Review

Selection Criteria

Federally funded bridge or culvert projects will require a hydraulic review by the Iowa DOT Office of Bridges and Structures, if any of the following criteria are met:

1. The proposed structure is located in a community that has a completed detailed Flood Insurance Study. These communities are listed in [Attachment A](#) – Flood Insurance Studies.
2. The proposed structure has a smaller opening size than the existing structure.
3. The proposed structure is a culvert that is replacing an existing bridge.

For projects that meet any of the criteria listed above, submit the hydraulic review information to the Administering Office with the preliminary plans, as outlined in the "Submittal" section below.

The LPA may also request a hydraulic review, even if not required by the criteria shown above. However, such reviews will be conducted at the discretion of the Office of Bridges and Structures, and only as time permits.

Iowa DOT Review

The Office of Bridges and Structures will perform a general review the plans and hydraulic information. Hydraulic calculations will not be checked in detail, but given a cursory review to determine if the results and proposed structure appear to be reasonable. The Office of Bridges and Structures will return written comments to the LPA via e-mail or fax, and provide copies to the Administering Office and the consultant. Copies of hydraulic review documents will not be returned.

Reviews by Other Agencies

Bridge or culvert projects often involve impacts to waterways or water resources. As a result, there are several environmental reviews or permits by other State or Federal agencies that should be considered early in the project development process. Some of the more common reviews or permits are outlined below.

Floodplain Development Permits

The Iowa Department of Natural Resources (Iowa DNR) administers several permit programs that are designed to conserve and protect Iowa's water, recreational, and environmental resources. One such program is the Flood Plain Development Program. Under certain conditions, construction, operation, and maintenance of bridges, culverts, temporary stream crossings, road embankments, and channels changes may require a Flood Plain Development Permit. Projects requiring a permit must also meet certain design criteria, including design discharge, maximum backwater, and minimum freeboard clearances. For additional information, including a summary of the permit criteria and requirements, refer to [Attachment B](#) – Iowa DNR Floodplain Regulations.

Sovereign Lands Construction Permits

In accordance with [571 Iowa Administrative Code, Chapter 13](#), the Iowa DNR also regulates the use of sovereign lands and waters. These are State-owned lands and waters under the jurisdiction of the Iowa Natural Resource Commission, including Meandered Sovereign Lakes, Meandered Sovereign Rivers, State Forests, Wildlife Management Areas, State Parks, and State Preserves.

Bridge or culvert projects involving construction on or over sovereign lands or waters must be sent to the Iowa DNR Sovereign Lands Section for approval. For more information, including permit application forms, instructions, and listings and maps of sovereign lands and waters, refer to the [Iowa DNR Sovereign Lands Construction Permits](#) web page.

Flood Insurance Study (FIS) Requirements

The Iowa DNR works with the Federal Emergency Management Agency (FEMA) to administer the National Flood Insurance Program in Iowa. If a detailed Flood Insurance Study (FIS) has been approved for the community in which the project is located, any proposed projects in that community must meet the requirements of the FIS. If the FIS requirements cannot be met, a variance may be requested; or, if the LPA's designer believes the FIS is in error, the LPA can request to have the FIS corrected. For a list of communities with completed detailed Flood Insurance Studies, refer to [Attachment A](#) – Flood Insurance Studies.

Section 404 Permits

Section 404 of the Clean Water Act requires the U.S. Army Corps of Engineers (Corps) to review and approve any projects that involve placement of fill or dredged material in or around streams, wetlands or other aquatic resources. All bridge and culvert projects should be submitted to the Corps for review. The Clean Water Act and its implementing regulations place special emphasis on eliminating or reducing impacts to wetlands and

streams, so designers should strive to limit these types of impacts when possible. For more information, refer to [I.M. 3.130](#), Section 404 Permit Process.

Submittal

All preliminary bridge or culvert plan submittals should be made to the Administering Office in accordance with [I.M. 3.005](#), Project Development Submittal Dates and Information. Projects that require a hydraulic review should follow the Major Project schedule; however, early submittals are strongly encouraged. This will enable the Iowa DOT to provide comments in a timely manner, and it will allow other agencies such as the Iowa DNR and the Corps adequate time to review and process the applicable permits. The preliminary plan submittal shall include the following as a minimum:

1. A cover letter or e-mail that includes:
 - a. Iowa DOT project number
 - b. project location and description
 - c. proposed letting date
 - d. type of review requested
 - e. list of the submittal contents
2. One copy of the preliminary plans, including:
 - a. a bridge or culvert situation plan showing the type, size and location (TS&L) of the proposed structure(s)
 - b. roadway plans for the approaches showing horizontal and vertical geometrics

If a hydraulic review is required or requested, the submittal shall include the following additional information:

3. One extra copy of the preliminary plans as noted above.
4. Hydraulic calculations.

Include stage-discharge and backwater calculations. Computer output from hydraulic analysis software is preferred; however, hand calculations are also acceptable. For acceptable types of hydraulic analysis software, refer to the Iowa DOT Guidelines or contact the County and City Preliminary Hydraulic Review Engineer in the [Office of Bridges and Structures](#) for assistance.

5. A completed Form 1-E.

The Request for Approval: Local Road System (Form 1-E) summarizes and documents data for the existing and proposed bridge or culvert. This form is required only for structures with a total clear span of 20 feet or more, but is recommended for all structures that require a hydraulic review in order to speed up the review process. For instructions and a sample form, refer to [Attachment C](#) – Instructions for Completing the Form 1-E.

6. A completed Risk Assessment Form.

The Risk Assessment (Form 517002) is used to evaluate the risk and economics of proposed structures. It also provides the LPA with a good checklist of design items such as detours, flood data, upstream buildings, flood plain regulations, etc. This form is required only for structures with a total clear span of 20 feet or more, but is recommended for all structures that require a hydraulic review in order to speed up the review process. For instructions and a sample form, refer to [Attachment D](#) – Instructions for Completing the Risk Assessment Form.

7. Site photos, including the following views as a minimum:
 - a. looking upstream
 - b. looking downstream
 - c. looking across the downstream valley
 - d. looking at the existing bridge opening (include enough detail to identify the bridge type)
 - e. looking at the existing bridge from the roadway surface

Flood Insurance Studies

The following table was obtained from the Flood Plain Permits Section of the Iowa Department of Natural Resources (Iowa DNR) in Des Moines. This table includes only those communities (cities and counties) in Iowa that have a completed detailed flood insurance study, as of April 12, 2010.

A project located in a community that has a Detailed Flood Insurance Study completed must have a hydraulic review by the Iowa DOT Office of Bridges & Structures. If a project is located in a city with a completed detailed flood insurance study, it still must be reviewed, even if the county in which the city is located does not have a completed detailed flood insurance study.

For additional information about flood insurance studies and flood plain mapping, refer to the Iowa DNR [National Flood Insurance Program Coordination / Local Floodplain Programs](#) web page.

Table 1 – List of Communities with Completed Detailed Flood Insurance Studies

COMMUNITY NAME	COUNTY NAME	FIRM DATE	DATE MAP LAST REVISED
ALGONA	KOSSUTH	6/1/1983	6/1/1983
AMES	STORY	1/2/1981	2/20/2008
ANKENY	POLK	5/16/1983	12/6/1999
ATLANTIC	CASS	8/5/1986	8/5/1986
AUDUBON	AUDUBON	8/15/1979	5/17/1989
AVOCA	POTTAWATTAMIE	12/16/1980	2/5/2005
BELLEVUE	JACKSON	10/15/1982	10/15/1982
BETTENDORF	SCOTT	6/1/1978	2/4/1998
BLACK HAWK COUNTY	BLACK HAWK	11/17/1982	11/17/1982
BREMER COUNTY	BREMER	7/16/1990	3/4/2008
BUFFALO	SCOTT	9/17/1980	9/17/1980
BURLINGTON	DES MOINES	7/2/1981	4/17/1985
CAMANCHE	CLINTON	12/18/1984	12/18/1984
CAMBRIDGE	STORY	6/15/1981	2/20/2008
CARROLL	CARROLL	3/19/1990	3/19/1990
CASCADE	DUBUQUE	4/2/1979	10/16/1992
CEDAR FALLS	BLACK HAWK	2/1/1985	2/1/1985
CEDAR RAPIDS	LINN	12/15/1982	3/18/1991
CENTER POINT	LINN	7/5/1982	7/5/1982
CENTRAL CITY	LINN	12/15/1982	12/15/1982
CHARLES CITY	FLOYD	2/2/1977	2/20/2008
CHELSEA	TAMA	12/16/1980	1/19/2006
CHEROKEE	CHEROKEE	1/2/1981	1/2/1981
CLARINDA	PAGE	7/2/1981	7/2/1981
CLEAR LAKE	CERRO GORDO	8/4/1987	8/4/1987
CLINTON	CLINTON	9/17/1980	9/14/1982
CLIVE	POLK	11/1/1979	10/16/1992
COGGON	LINN	7/16/1984	7/16/1984
COLUMBUS JUNCTION	LOUISA	2/6/1991	2/6/1991
CORALVILLE	JOHNSON	9/29/1978	2/16/2007
COUNCIL BLUFFS	POTTAWATTAMIE	6/15/1978	2/5/2005
CRESTON	UNION	4/4/1983	4/4/1983
DALLAS COUNTY	DALLAS	5/1/1994	12/4/2007
DAVENPORT	SCOTT	3/1/1978	2/4/1998
DENISON	CRAWFORD	5/17/1982	5/17/1982
DENVER	BREMER	7/16/1990	3/4/2008
DES MOINES	POLK	2/4/1981	7/15/1988

COMMUNITY NAME	COUNTY NAME	FIRM DATE	DATE MAP LAST REVISED
DES MOINES COUNTY	DES MOINES	2/17/1982	2/17/1982
DUBUQUE	DUBUQUE	5/15/1970	9/6/1989
DUBUQUE COUNTY	DUBUQUE	9/1/1983	6/2/1995
DUNKERTON	BLACK HAWK	1/16/1980	1/16/1980
DURANGO	DUBUQUE	7/16/1981	7/16/1981
DYERSVILLE	DUBUQUE	12/1/1977	6/2/1995
ELK RUN HEIGHTS	BLACK HAWK	8/1/1983	8/1/1983
ELKADER	CLAYTON	9/29/1978	7/16/1996
ELLIOTT	MONTGOMERY	5/17/1989	5/17/1989
EMERSON	MILLS	4/3/1984	12/17/1987
ESTHERVILLE	EMMET	10/14/1977	10/14/1977
EVANSDALE	BLACK HAWK	11/2/1977	4/16/1993
FAIRFAX	LINN	9/19/1984	9/19/1984
FAIRFIELD	JEFFERSON	2/18/1981	9/30/1994
FOREST CITY	WINNEBAGO	1/2/1981	4/16/1993
FORT MADISON	LEE	5/3/1982	5/3/1982
GLENWOOD	MILLS	5/17/1982	5/17/1982
GREENE	BUTLER	10/5/1982	10/15/1982
GRIMES	POLK	9/30/1983	4/30/1986
GRISWOLD	CASS	5/1/1987	5/18/1992
GUTTENBERG	CLAYTON	3/4/1980	9/5/1984
HAMBURG	FREMONT	8/4/1988	8/4/1988
HAMPTON	FRANKLIN	5/1/1979	5/1/1979
HARLAN	SHELBY	4/4/1983	4/4/1983
HASTINGS	MILLS	9/16/1982	9/16/1982
HAWARDEN	SIOUX	1/16/1981	1/16/1981
HIAWATHA	LINN	2/3/1982	2/3/1982
HILLS	JOHNSON	8/16/1988	2/16/2007
HUDSON	BLACK HAWK	1/16/1980	1/16/1980
HUMBOLDT	HUMBOLDT	5/19/1981	5/19/1981
IDA GROVE	IDA	9/5/1979	9/5/1979
INDEPENDENCE	BUCHANAN	5/16/1977	7/16/2008
IOWA CITY	JOHNSON	5/2/1977	2/16/2007
IRWIN	SHELBY	7/16/1981	7/16/1981
JANESVILLE	BLACK HAWK	7/16/1990	3/4/2008
JOHNSON COUNTY	JOHNSON	8/19/1985	2/16/2007
JOHNSTON	POLK	5/3/1982	7/19/2000
KEOKUK	LEE	3/1/1978	3/1/1978
KEOSAUQUA	VAN BUREN	9/5/1979	9/5/1979
KIRKMAN	SHELBY	5/17/1982	5/17/1982
LA PORTE CITY	BLACK HAWK	1/2/1981	3/16/2004
LE CLAIRE	SCOTT	8/15/1980	8/15/1980
LE MARS	PLYMOUTH	5/1/1978	5/1/1978
LEE COUNTY	LEE	6/15/1981	6/15/1981
LELAND	WINNEBAGO	1/2/1981	1/2/1981
LINN COUNTY	LINN	12/15/1982	12/15/1982
LOUISA COUNTY	LOUISA	2/6/1991	2/6/1991
MALVERN	MILLS	9/16/1982	9/16/1982
MANCHESTER	DELAWARE	10/15/1982	8/3/2009
MARENGO	IOWA	1/16/1980	1/7/1998
MARION	LINN	7/5/1982	7/5/1982

COMMUNITY NAME	COUNTY NAME	FIRM DATE	DATE MAP LAST REVISED
MARSHALLTOWN	MARSHALL	4/17/1984	4/17/1984
MASON CITY	CERRO GORDO	12/2/1980	3/16/1995
MAXWELL	STORY	2/15/1984	2/20/2008
MILLS COUNTY	MILLS	9/16/1982	8/3/1989
MINDEN	POTTAWATTAMIE	6/1/1982	2/5/2005
MISSOURI VALLEY	HARRISON	8/1/1977	8/1/1977
MONTICELLO	JONES	4/2/1979	4/2/1979
MONTROSE	LEE	2/18/1981	2/18/1981
MUSCATINE	MUSCATINE	1/5/1978	8/25/1981
MUSCATINE COUNTY	MUSCATINE	10/17/1986	10/17/1986
NASHUA	CHICKASAW	9/29/1978	9/29/1978
NEVADA	STORY	8/3/1981	2/20/2008
NEW HARTFORD	BUTLER	9/29/1986	9/29/1986
NEW VIENNA	DUBUQUE	10/18/1983	5/16/1994
NICHOLS	MUSCATINE	10/17/1986	10/17/1986
NORTH LIBERTY	JOHNSON	11/5/1986	2/16/2007
OAKLAND	POTTAWATTAMIE	8/3/1981	2/5/2005
OELWEIN	FAYETTE	7/4/1988	7/4/1988
OTTUMWA	WAPELLO	8/15/1980	8/15/1980
PACIFIC JUNCTION	MILLS	4/4/1983	3/16/1989
PALO	LINN	11/17/1982	11/17/1982
PLAINFIELD	BREMER	7/16/1990	3/4/2008
PLEASANT HILL	POLK	5/3/1982	10/8/1982
POLK COUNTY	POLK	3/1/1984	7/19/2000
POTTAWATTAMIE COUNTY	POTTAWATTAMIE	4/14/1983	2/5/2005
PRINCETON	SCOTT	11/1/1979	11/1/1979
RED OAK	MONTGOMERY	8/3/1981	1/3/1990
RIVERDALE	SCOTT	1/5/1978	11/13/1979
ROBINS	LINN	7/5/1982	7/5/1982
ROCK RAPIDS	LYON	8/1/1986	5/2/1991
SAGEVILLE	DUBUQUE	6/15/1984	6/15/1984
SCOTT COUNTY	SCOTT	6/1/1977	2/4/1998
SIOUX CITY	WOODBURY	8/1/1979	6/6/2001
SPENCER	CLAY	1/16/1981	4/19/1983
STORY CITY	STORY	1/16/1981	2/20/2008
STORY COUNTY	STORY	6/1/1983	2/20/2008
UNDERWOOD	POTTAWATTAMIE	6/1/1982	2/5/2005
URBANDALE	POLK	6/15/1979	7/19/2000
VINTON	BENTON	3/2/1981	6/3/2008
WATERLOO	BLACK HAWK	7/3/1985	7/3/1985
WAVERLY	BREMER	3/2/1981	3/4/2008
WEBSTER CITY	HAMILTON	8/1/1978	8/1/1978
WEST BRANCH	CEDAR	3/16/1983	3/16/1983
WEST DES MOINES	POLK	11/1/1979	2/16/2006
WEST LIBERTY	MUSCATINE	10/17/1986	10/17/1986
WINDSOR HEIGHTS	POLK	6/15/1979	10/16/1992
WOODBURY COUNTY	WOODBURY	6/17/1991	6/17/1991
WORTHINGTON	DUBUQUE	10/18/1983	10/18/1983

Iowa DNR Flood Plain Regulations

Introduction

The Iowa Department of Natural Resources (Iowa DNR) has published several rules in 567 Iowa Administrative Code (IAC) that regulate construction in flood plains of Iowa rivers and streams. These rules apply to construction of bridges, culverts, road embankments, channel changes, stream bank stabilization, impoundments (dams), and levees. Note: The guidance provided in this Attachment is only a summary. For additional details and guidance, refer to the text of the rules and to the Iowa DNR [Flood Plain Development Permits](#) web page.

Submittal Criteria

[567 IAC 70](#) describes important introductory information concerning the regulations. Topics include definitions of terms, procedures and forms for requesting a flood plain development permit, procedures for review of permit applications, and procedures for appeals.

The following tables summarizes the types of projects that must be submitted to the Iowa DNR, as prescribed by [567 IAC 71](#).

Table 1 - When DNR Flood Plain Approval is Needed

Type of Project	Permit Needed if Drainage Area of Stream Is:	Chp. 71 Reference
Bridges, Culverts or Road Embankments that cross the stream: Rural Area Urban Area	<ul style="list-style-type: none"> • 100 square miles or more. • 2 square miles or more. 	71.1(1) 71.1(3)
Road Embankments that do not cross the stream (rural area)	<ul style="list-style-type: none"> • 10 square miles or more if obstructing 3% or more of the channel or 15% or more of the flood plain. 	71.1(2)
Channel Changes ^(a) Rural Area – not associated with road project Rural Area – associated with road project Urban Area Protected Streams ^(b)	<ul style="list-style-type: none"> • 10 square miles or more. • 10 square miles or more when: <ol style="list-style-type: none"> 1) more than 500 feet of channel is being altered, or 2) length of existing channel is reduced by more than 25%. • 2 square miles or more. • Any drainage area requires a permit. 	71.2(1)a 71.2(1)b 71.2(2) 71.2(3)
Bank Stabilization Rural Area Urban Area	<ul style="list-style-type: none"> • 100 square miles or more, or • 10 to 100 square miles if channel cross sectional area is being reduced by 3% or more. • 100 square miles or more, or • 2 to 100 square miles if channel cross sectional area is being reduced by 3% or more. 	71.9(1)a 71.9(1)b 71.9(2)a 71.9(2)b
Levees, Dams (Ponds), Flood Plain Excavation or Stockpiling	<ul style="list-style-type: none"> • See Iowa DNR rules or call the Iowa DNR to determine when approval is needed. 	

Notes:

- Channel changes are allowed on many streams, although there are restrictions on how much channel work can be done. Mitigation for environmental damage may be required for channel changes. The Iowa DNR may grant variances to their channel change criteria in some instances, as specified in 567 IAC 72.31.
- Channel changes are usually prohibited on "Protected Streams." See 567 IAC 72.50 for a current list of protected streams.

Backwater and Freeboard Requirements

If a permit is required, the following tables provide a summary of the Iowa DNR backwater and freeboard requirements for bridges or culverts and associated channel changes, as prescribed in [567 IAC 72](#).

Table 2 – Bridges and Associated Channel Changes ^(a)

Damage Potential of Uses Affected ^(b)	Maximum Backwater		Minimum Freeboard	Chp. 72 Reference
	Q ₅₀ and less	Q ₁₀₀		
Low	0.75 feet	1.5 feet	3.0 feet above Q ₅₀	72.1(1)
Moderate	0.75 feet	1.0 feet	3.0 feet above Q ₅₀	72.1(2)
High/Maximum	0.75 feet ^(c)	1.0 feet ^(c)	3.0 feet above Q ₅₀	72.1(3)

Table 3 – Culverts and Associated Channel Changes ^(a)

Culvert Type	Maximum Backwater	Minimum Freeboard	Chp. 72 Reference
New culverts or culverts replacing bridges	(same as for bridges)	No minimum freeboard. Could be evaluated on case- by-case basis if debris and ice is a problem	72.1(5)
Culverts replacing culverts	Backwater of existing culvert, or maximum backwater allowed for bridges, whichever is greater.		

Notes:

a) These are applicable to channel changes on the floodway of any stream draining between 10 and 100 square miles when either more than 500 feet of the existing channel is being altered, or the length of the existing channel is being reduced by more than 25 percent.

b) Low Damage Potential --- Flood damage potential associated with all uses not classified as maximum, high, or moderate.

Moderate Damage Potential --- Flood damage potential associated with industrial and commercial buildings containing removable or non-damageable goods or material. Also, seasonal homes.

High Damage Potential --- Flood damage potential associated with residences, businesses, industrial and commercial buildings containing damageable goods.

Maximum Damage Potential --- Flood damage potential associated with buildings or uses which are vital to the public, or uses that could have adverse environmental impacts if flooded (e.g., hospitals, repositories for public records, storage of hazardous material).

c) Backwater cannot exceed, and must be minimized when backwater affects buildings, flood control works, etc., unless increase is mitigated.

Applying for a Permit

For additional guidance, forms, and instructions, refer to the Iowa DNR [Flood Plain Development Permits](#) web page.

Instructions for Completing the Form 1-E

The Request for Approval: Local Road System (Form 1-E) is available on-line in both Adobe Acrobat [Portable Document Format \(PDF\)](#) and [Microsoft Word](#) format. A sample Form 1-E is included after the instructions below.

Line 1 – Location:

Indicate the location within the section where the bridge or culvert is located. For example: "SW ¼ of NE ¼ of Section 12."

Line 3 – Project number:

Use the Iowa DOT project number, as assigned by the Administering Office.

Line 5 – Extreme high water:

This is an actual known elevation, not a calculated elevation such as in Line 29 for "Design high water." Accurate information here is very important. This information indicates how the existing structure performed during extreme floods and helps determine the bridge opening that will be needed.

If possible, include a high water mark at or near the typical valley section used for designing the bridge opening. On existing bridges, the downstream high water marks are more usable than high water marks on a pier or upstream from the bridge. Pier high water marks are effected by draw down. Upstream high water marks are effected by backwater caused by the present bridge. However, all are helpful in designing a new bridge.

Line 6 – Ordinary high water:

"Ordinary high water" on Form 1-E really means a typical high water that happens every year or two and no more often than every five years. Do not use long interval flood data here, such as a 50-year flood. Also, Line 6 should not be confused with the "Ordinary High Water" that is calculated for 404 Permits, as discussed in I.M. [I.M. 3.130](#), 404 Permit Process. These are completely different uses of the same term, so do not confuse them.

Line 7 – Fall in stream:

Stream slope is more accurately determined using low water shots than using stream bed shots. Stream bed shots may contain blow holes and humps that can considerably distort the value. These holes and humps can be so gradual that they are not apparent until the survey information is plotted. Give the plan data if the stream is in a Drainage District and the last clean-out plans are available. The stream slope should not be confused with the Main Channel Slope (MCS). The MCS is based on the basin slope of the watershed, not the stream slope up and downstream of the structure.

Line 8 – Buildings in the floodplain:

This information is important especially if design high water elevation will be increased due to raising the road grade or reducing the hydraulic opening of the structure.

Line 12 and 13 – Ice and debris:

Potential for ice or debris in the stream may result in stronger piers than would otherwise be needed. In general, P-10 pile bent piers may be used in most of the bridges below 100 square mile drainage area. If ice and debris is a problem, stronger piers may be needed on even a much smaller drainage area. Bridges draining more than 100 square miles will generally need a stronger pier than the P-10 type. That could be a fully-encased P-10 pier or a river tee pier.

Line 29 and 30 – Design high water & road grade overflow:

Do not confuse design high water and extreme high water. Design high water is determined by taking a calculated flood discharge such as a Q_{25} and then using hydraulic analysis software to develop the water

surface elevation. Extreme high water is an actual high water elevation obtained from sources such as maintenance records or residents who have lived near the bridge site for many years.

Less important roads can be designed to pass a smaller and more frequent flood by allowing road grade overflow. Where the structure is over a large stream or over a stream where drift or ice could be a problem, adequate clearance for the bridge should be provided even though the approaches are over-topped by a relatively small flood. Bridges over these large streams should have clearance above the 50-year flood and, in most cases, should be above the extreme high water. Overflow bridges can be set with the low superstructure one foot above the design high water.

Road grade overflow as a design means of allowing shorter bridges becomes more attractive as road funds dwindle. The practicality of road grade overflow is an option that the engineer must evaluate. If road grade overflow is used, the plans should be so noted. This will help guard against a future grade raise without reanalyzing the hydraulics of the crossing.

Line 32 – Wing dikes:

Use wing dikes on all bridges with significant overbank flows. It is much better to have the end of a wing dike erode away than have the bridge berm damaged. For more information about wing dikes, refer to the Iowa DOT [Guidelines for Preliminary Design of Bridges and Culverts](#).

Line 34 – Traffic count:

Use most recent and accurate traffic count available.

Back of Form I-E:

The "Valley Cross Section Data" on the back side of this form is very important and should be completed as accurately as possible. Always list the location of the valley section under the "Remarks" section. Read the instructions on taking a valley section. This information can also be provided from hydraulic analysis software printouts.



Iowa Department of Transportation

REQUEST FOR APPROVAL: LOCAL ROAD SYSTEM

LOCATION

1. County/City Appanoose Sec. 27, SW 1/4 Twp. 69N Range 28W
 2. Over (River, Cr., Dr., Ditch) Little Creek Civil Twp. Johns
 Farm to Market Sta. Pres. Struct. 103+80
 3. Road System Local Co. Proj. No. L-92761--73-04 Sta. Prop. Struct. 103+92.50
 City FHWA No. 042260

GENERAL DATA (FIELD)

4. Drainage area 23 sq. mi. Character Hilly Approx. length and width 4 mi. x 7 mi.
 5. Extreme highwater: Date of occurrence June 1947 Information from John Doe (landowner)
 (Elev. near site 994.0 Location 300 feet upstream) (Elev. Upstream 996.4
 Location 1/2 mile) (Elev. Downstream 992.0 Location 2000 feet)
 6. Ordinary highwater, Elev. 990.0 Ft. Occurs every 2 Years. Date of last occurrence 1992
 7. Average low water: (Elev. At site 980.5 Average streambed 980.0) (Water elev. 980.5 On date of survey 07-21-93)
 (Water elev. 981.7 Upstream 1320 ft.) (Water elev. 979.4 downstream 1250 ft.) Fall in stream 4.75 ft./mi.
 8. List buildings in flood plain Corn crib Location 300 feet upstream Floor elev. 996.5
 9. Is excessive local scour probable? No Probable max depth of scour below streambed N/A ft.
 10. Is stream deepening or filling? Neither Approx. amount per year N/A
 11. Is stream widening? No (Show direction, rate, and amount)
 12. Does stream carry appreciable amount of ice? No Elev. of high ice N/A
 13. Does stream carry appreciable amount of large driftwood? No
 14. Bench Mark No. 10 spike in 32" diameter Boxelder tree - Sta. 103+25, 60' Rt. Elev. 1001.37

PRESENT OR OLD STRUCTURE (FIELD)

15. Superstructure: Type 80' x 20' Pony Truss with approaches Skew angle 0
 16. Substructure: Type Wood abutments, concrete piers
 17. Span lengths 15' - 50' - 15' Roadway width 20' Type of floor Concrete
 18. Grade Elev. 996.0 Date built 1919 DOT Design No. N/A DOT File No. N/A
 19. Condition of superstructure Poor
 20. Condition of substructure Fair
 21. Remarks: Contractor to remove and dispose.

PROPOSED STRUCTURE (OFFICE)

22. Superstructure: Type Continuous concrete slab Skew Angle 0 RA LA
 23. Substructure: Type P10 piers, integral abutments List fill if RCB or Pipe _____ ft.
 Length of RCB or Pipe _____ ft.
 Flow Line Left _____
 Flow Line Right _____
 24. Span Lengths 30 feet Total bridge length 112'-6" ft.
 25. Bridge rdwy. width 30 ft. Approach rdwy.: Width sh to sh 30 ft. Type of surfacing PCC
 26. Type of railing concrete Type of floor concrete Type of curb concrete Class of loading HS20
 27. Grade elev. 997.4 Abuts. footing elev. 991.2 -991 Pier footing elev. 976.0 Request soundings by DOT? No
 28. Length and type of piling: Abuts. design after soundings Piers same
 29. Design highwater: Elev. 992.6 ft Discharge Q = 4200 cfs; Bridge Waterway Area 838 Sq. ft.; Frequency 50 Yrs.
 30. What provision is made for overflow? Non
 31. Can channel be cleared to provide more waterway? No
 32. Are wing dikes to be provided? Yes
 33. Disposition of existing structure Remove
 34. Traffic count By Iowa DOT VPD 275 Year of Count 1985
 35. Remarks: _____

Notes for Approval Checked _____
 County/City Appanoose
 Project No. L-92761--73-04

Notes and Recommendations By Ima N. Gineer, P.E. July 15, 2000
 City/County Engineer Date

VALLEY CROSS SECTION DATA

The submittal of a bridge type structure will include a right angle valley section. This section should be taken downstream from the crossing. It shall be noted whether it is an average section or a control section. Enough ground shots will be taken to outline the valley to an elevation well above extreme highwater. Special care will be taken to accurately outline the main channel including several streambed shots. Each shot should be identified; that is (FP) flood plain, (TB) top of bank, (ES) edge of stream, etc. Mannings equation roughness factors will be assigned each shot. Include site photos with this information.

REMARKS: Section taken 100' downstream from crossing. It is an average section. There is no control section downstream from the bridge that affects the bridge hydraulics.

Shot No.	Distance	Elevation	(N) Roughness	Remarks	Shot No.	Distance	Elevation	(N) Roughness	Remarks
1	0	997.0	0.07	FP	16	807	1000.9	0.07	FP
2	92	995.0			17	900	1003.0	0.07	FP
3	145	993.0			18				
4	275	991.0			19				
5	430	990.0	n=0.07 n=0.03	TB	20				
6	462	982.5		ES	21				
7	472	979.5		CL	22				
8	487	982.5		ES	23				
9	510	990.0	n=0.03 n=0.07	TB	24				
10	562	990.0		FP	25				
11	705	993.0		FP	26				
12	745	995.0		FP	27				
13					28				
14					29				
15					30				

PLAT OF DRAINAGE AREA

The drainage area is to be platted as completely and accurately as possible and to the largest practicable scale on a separate sheet. Use a definite scale, as 1" equals ¼, ½, 1, or 2 miles, and indicate what scale has been used. In addition to the outlines of the watershed, indicate the positions of the streams and, roughly, the character of the soil and the relative locations of the steep and flat portions. For most watersheds the information may be secured from the best existing data, soil maps, U.S.G.S. maps, and Bulletin No. 7-1.H.R.B. No plat is necessary if the area is listed in Bulletin Number 7.

REMARKS: _____

Give additional information by reference to marginal number on page 1 of this form.

Marginal No.	
5	Mr. Doe has been living in this area all of his life (62 years).

IMPORTANT NOTE

The information given on this form must in all cases be supplemented by complete plan and profile of the site, drawn to a convenient scale on a separate sheet.

The information as shown on this form is essential and must be supplied in detail before the plans can be approved. It may be necessary to return this form for correction unless the data supplied is complete

Instructions for Completing the Risk Assessment Form

The Risk Assessment for Bridges (Culverts) (Form 517002) is available on-line in both Adobe Acrobat [Portable Document Format \(PDF\)](#) format and [Microsoft Word](#) format. A sample Risk Assessment form is included after the instructions below.

1. Hydrologic Evaluation

- A. Check United States Geological Survey (USGS) Water Resources Data.
- B. Check Flood Insurance Studies, USGS reports, U.S. Army Corps of Engineer (Corps) projects, etc.
- C. Estimate backwater for each (method used is optional). The backwater estimates should be based on the recommended structure. Method used to compute discharge is normally USGS Report 00-4233 or gaging station data if a gaging station is near the site.
- D. List the other State or Federal permits or approvals that will be required, such as the Iowa DNR Floodplain Development Permit or Corps 404 Permit.

2. Property Related Evaluations

- A. Low damage potential - no buildings.
Moderate damage potential - outbuildings.
High damage potential - residential/industrial.
- B. For Flood Insurance Studies, all the information should be in the study. Contact the Iowa DNR for additional information.

3. Environmental Considerations

- A. Check the Concept Statement and / or the appropriate environmental documents.

4. Highway and Bridge (Culvert) Related Evaluations

- A. Check appropriate features if any.
- B. Identify recurrence interval at over-topping (proposed road grade) if less than 500 year.

5. Miscellaneous Comments

- A-E. Self explanatory.
- F. Sample comments: "Bank stabilization may be required in the future - not recommended at this time," or "Riprap on spur dikes not recommended on this project."

6. Traffic Related Evaluations

- A-C. Self explanatory.
- D. Detour: If the road (structure) washed out, specify the length of the posted detour route.

7. Present Facility

- A. Self explanatory.
- B. At what discharge and recurrence interval does the existing road overtop?
- C. Self explanatory. Most streams draining less than 500 square miles (1295 square km) are subject to flash flooding.

8. Alternatives

- A. Self explanatory.
- B. Discussion: If other alternatives were considered (e.g., longer bridge or shorter bridge or culvert), state in a general way and give reason for rejection. For example: "A culvert was considered but was rejected because of drift potential," or "A longer bridge was considered but was not necessary hydraulically and was too costly."
- C. For most sites, further analysis would not be necessary.



Iowa Department of Transportation

RISK ASSESSMENT FOR BRIDGES (CULVERTS) (For 20' Span and Longer Structures)

LOCATION

County Bremer Civil Twp. Jackson Sec. 35 Twp. 91N Range 14W
Over (River, Cr., Dr. Ditch) Cedar River Road No. US 218
Project No. F-218-8(20)--20-09 Design Number 189 FHWA No. ---
Assessment Prepared by B. Barrett Date 08-01-88

1. HYDROLOGIC EVALUATION

- A. Nearest Gaging Station available on this stream: At Janesville, 2000' downstream (None)
- B. Are flood studies available on this stream: Yes No
- C. Flood Data:

Q ₁₀ <u>20,000</u> cfs	Est. Bktr. <u>0</u> ft.	Q ₂₅ <u>27,000</u> cfs	Est. Bktr. <u>0</u> ft.
Q ₅₀ <u>36,200</u> cfs	Est. Bktr. <u>0.1</u> ft.	Q ₁₀₀ <u>41,000</u> cfs	Est. Bktr. <u>0.1</u> ft.

Q₅₀₀ 49,000 cfs or Overtopping _____ cfs (Whichever is lower)
 Drainage Area 1661 sq. mi. Method Used to compute Q gauge records
- D. Does the crossing require outside agency approval? Yes No
 List Agencies: Iowa DNR, U.S. Army Corps of Engineers

2. PROPERTY RELATED EVALUATIONS

- A. Damage potential: Low Moderate High
 List buildings in flood plain None Location _____
 Floor Elevation _____
 Upstream Land Use Timber
 Anticipate any Change? Yes No
 If yes, describe anticipated change: _____
- B. Any flood zoning? (Flood Insurance Studies (FIS), etc.) Yes No
 Type of Study Janesville Flood Insurance Study
 Base flood elevation 888.2 (100 year)
 Regulatory floodway width 700' (As noted in FIS Studies)
 Comments _____

3. ENVIRONMENTAL CONSIDERATIONS

- A. List commitments in environmental documents which affect hydraulic design (None)

4. HIGHWAY AND BRIDGE (CULVERT) RELATED EVALUATIONS

- A. Note any outside features which might affect Stage, Discharge, or Frequency.
 Levees Aggradation / Degradation Reservoirs Diversions
 Drainage Dist. Navigation Backwater from another source
 Other _____
 Explanation Levee on east bank downstream of proposed bridge.
- B. Proposed Roadway Overflow Section (None) Length _____ Elev. _____ Frequency (if < 500 yr.): _____ yr.
 Embankment: Soil Type _____ Type Slope Cover _____
 Comments: _____

5. MISCELLANEOUS COMMENTS

- A. Is there unusual scour potential? Yes No Protection Needed? Yes No
B. Are banks stable? Yes No Protection Needed? Yes No
C. Are spur dikes needed? Yes No
D. Does stream carry appreciable amount of ice? Yes No Elevation of high ice (unknown)
E. Does stream carry appreciable amount of large driftwood? Yes No
F. Comments _____

6. TRAFFIC RELATED EVALUATIONS

- A. Present Year 1992 Traffic Count 7100 VPD % Trucks 8%
B. Design Year 2012 Traffic Count 8650 VPD % Trucks 8%
C. Emergency Route Yes No School Bus Route Yes No Mail Route Yes No
D. Detour Available? Yes No Length of Detour 6.0 Miles
Comments _____

7. PRESENT FACILITY

- A. Low Roadway Elevation N/A (present roadway is 0.8 miles downstream)
B. Bridge Hydraulic Capacity at point of overtopping _____ cfs Frequency (if Less than Q₅₀₀) _____ yr
Roadway Overflow: Length _____ ft. Elevation _____ ft.
C. Is flash flooding likely? Yes No
Comments _____

8. ALTERNATIVES

- A. Recommended Design Dual 673'-10" x 40' PC beam bridges
Low Superstructure (Bridge) 896.0 Top Opening (culvert) _____
Low Roadway Grade 893.1
Bridge Waterway Opening 8,000 ft. Culvert Opening _____
B. Were other hydraulic alternates considered? Yes No
Discussion The recommended design is considered to be the minimum acceptable structure at this site.

- C. Is this assessment commensurate with the risks identified? Yes No
or is further analysis needed? Yes No

INSTRUCTIONAL MEMORANDUMS

To Local Public Agencies



To: Counties and Cities	Date: June 18, 2010
From: Office of Local Systems	I.M. No. 3.505
Subject: Check and Final Plans	

Contents: This Instructional Memorandum (I.M.) includes guidelines and procedures for preparation, submittal, and review of Local Public Agency (LPA) check and final plans for letting by the Iowa Department of Transportation (Iowa DOT). This I.M. also includes the following attachments:

- [Attachment A](#) – Check and Final Plan Guidelines
- [Attachment B](#) – Check and Final Plan Checklist
- [Attachment C](#) – Check and Final Plan Process Flowchart

Note: If the project involves a bridge or culvert, refer also to [I.M. 3.510](#), Check and Final Bridge or Culvert Plans.

Preparation

Content and Format

Check and final plans should be 100% complete and shall address all comments from the Preliminary Plan review. Plans shall be prepared in accordance with [Attachment A](#) - Check and Final Plan Guidelines. Attachment A provides general guidelines and instructions applicable for all types of projects. Check and final plans shall also be prepared in accordance with [Attachment B](#) - Check and Final Plan Checklist. Attachment B provides a checklist of specific items that will be reviewed by the Iowa DOT Administering Office. The Iowa DOT strongly recommends that the LPA or its consultant use both these attachments to perform an internal plan review prior to submitting the project plans to the Iowa DOT.

Design Guidelines

For new or complete reconstruction projects, refer to either [I.M. 3.205](#), Urban Design Guidelines for Federal-aid Projects, or [I.M. 3.210](#), Rural Design Guidelines for Federal-aid Projects. For Resurfacing, Restoration, or Rehabilitation (3R) projects, refer to [I.M. 3.214](#), 3R Guidelines.

Federal-aid projects that do not meet these guidelines will require a design exception. The project design criteria should have already been reviewed and approved by the Administering Office. However, if the need for a design exception has arisen after the preliminary plans were submitted for review, a design exception request shall be submitted with the check plans. For more information, refer to [I.M. 3.218](#), Design Exception Process.

Even though the Iowa DOT does not review design criteria for projects funded with only Farm-to-Market or local funds, the Iowa DOT strongly recommends that LPAs properly document any design features that do not meet the current applicable AASHTO design guidelines.

Submittal

The timely submission of check and final plans often becomes a critical point in the project development process. All submittals shall be made to the Administering Office in accordance with [I.M. 3.005](#), Project Development Submittal Dates and Information.

Electronic Plans

LPAs may submit plans electronically in Adobe Acrobat's Portable Document Format (PDF), provided the electronic file conforms to the [File Specifications for Electronic Plan Submittals to the Iowa DOT](#). Do not submit paper copies if plans are submitted electronically. If the electronic file submitted does not conform to these specifications, the LPA shall either revise the file to meet the specifications or submit paper copies of the plans instead.

Due to e-mail file size limitations, the Iowa DOT recommends that electronic plans, and all other electronic submittals, be transmitted to the Iowa DOT using the submittal tools provided in the Transportation Project Management System ([TPMS](#)). To obtain access to TPMS, contact the Iowa County Engineer's Service Bureau at 515-244-0779. However, electronic plans may also be submitted via e-mail directly to the appropriate contact person in the Administering Office. In either case, electronic submittals shall be accompanied by an e-mail which shall serve as the cover letter, and all other appropriate documentation shall be attached.

Review

Plans submitted in conformance with this I.M. should be returned by the Administering Office in a timely manner with relatively few comments. If the plans do not conform to these guidelines, the review process will require more time and effort by the LPA and the Iowa DOT, which could delay the project letting.

The process for submittal, distribution, and review of project plans is illustrated in [Attachment C](#) – Check and Final Plan Process Flowchart. As the flowchart shows, if the project involves bridge or culvert that requires a structural review, or the project requires work on an interstate or primary highway, the plans will need additional reviews by other Iowa DOT offices. Because these reviews may require additional time, early submittal of such plans is strongly encouraged.

Check and Final Plan Guidelines

For Local Public Agency (LPA) Projects Let by the Iowa Department of Transportation (Iowa DOT)

Plan Format

Use of the Iowa DOT plan format is strongly recommended; however, except where noted otherwise, use of the Iowa DOT standard plans and details is not required for LPA projects. Use of the Iowa DOT format promotes uniformity and consistency of project plans. This results in lower bid prices because most contractors that bid on projects let by the Iowa DOT are familiar with the Iowa DOT format. It also reduces the amount of effort, and consequently, the cost required to create a set of plans suitable for letting by the Iowa DOT.

Iowa DOT Standard Plans

The Iowa DOT strongly encourages use of its standard plans. When used, standard plans should not be included in the plan set, but instead shall be incorporated by reference.

All of the standard plans listed below may be used on any city or county project. These standard plans are available on-line in either MicroStation format or Adobe Acrobat's Portable Document Format (PDF). Where specific design problems require special solutions, the standard plans may be modified and included in the plans as a detail or detail sheet; however, the standard plan number and revision date shall be removed. Each type of standard plan is further described below.

The [Standard Road Plans](#) have been developed by the Iowa DOT Office of Design to show standardized design features, construction methods, and approved materials to be used in highway construction in the State of Iowa.

The [Standard Culvert Plans](#) have been developed by the Iowa DOT Office of Bridge and Structures. These standard plans include complete details for a variety sizes and configurations of Reinforced Concrete Box (RCB) culverts.

The [Standard Bridge Plans](#) are also provided by the Iowa DOT Office of Bridges and Structures. The Standard Bridge Plans most applicable to local agency projects have been grouped together on the [County Bridge Standards Plans](#) web page. These standard plans include complete details for continuous concrete slab bridges and pretensioned prestressed concrete beam bridges, in a variety of widths, lengths, and spans.

Iowa DOT Road Design Details

The [Road Design Details](#) are available on-line in either MicroStation or PDF format. The Road Design Details contain standard design and tabulation forms, notations, details, and detail sheets. Similar to the standard plans described above, if a Road Design Detail is modified, the number and revision date shall be removed. The types of details included in the Road Design Details are further described below:

Standard Tabulations (100 series) include various tabulations for design data, bid items, and supplementary information. If used, these tabulations and forms shall be inserted on the plan sheets.

Standard Notations (200 series) are standardized notes that may be inserted on the plans as part of the General Notes. Using the Standard Notations saves time in writing the General Notes and promotes uniformity. The General Notes should contain general project information only. Information specific to bid items should be shown in the Estimate Reference Information.

Design Detail Sheets (500 series) are complete plan sheets. They provide details for common roadway items such as drainage appurtenances, fencing, certain pavement or shoulder construction details, traffic barriers and associated appurtenances, and more. If a Design Detail Sheet is used, it shall be included as a separate sheet in the plan set. It shall not be incorporated by reference.

Typical Details (1000 to 9000 series) are individual details. They include details for typical sections, curbs, shoulders, medians, etc. If a Typical Detail is used, it shall be placed on a plan sheet. It shall not be incorporated by reference.

Iowa DOT Specifications

All projects let at the Iowa DOT that involve highway related construction work shall utilize the current edition of the Iowa DOT Standard Specifications for Highway and Bridge Construction (Standard Specifications), including the most recent General Supplemental Specifications (GS) and any applicable Supplemental Specifications (SS), Developmental Specifications (DS), and Special Provisions (SP). The designer should become thoroughly familiar with these specifications.

For projects that do not involve highway related construction work (such as historical building restorations), alternative technical specifications may be included as an SP. However, in all cases, Division 11 of the Standard Specifications shall be used for projects let by the Iowa DOT.

Standard Specifications

The Standard Specifications are published periodically in book form. Plan notes that delete or modify parts of the Standard Specifications are strongly discouraged. If special conditions require this, written justification must be provided when the plans are submitted.

General Supplemental Specifications (GS)

The GS are revisions to the Standard Specifications that have not yet been incorporated into the printed book. The GS are published in hard copy twice each year, effective with the April and October lettings. However, the current GS are merged with the on-line Standard Specifications, which are provided as part of the [Electronic Reference Library](#) (ERL). The GS current at the time of project letting will always apply to the project, just as the Standard Specifications will.

Supplemental Specifications (SS)

Some SS are for particular bid items not contained in the Standard Specifications or GS, or for bid items which modify those contained in the Standard Specifications or GS. When an LPA project uses a bid item that requires an SS, the Iowa DOT will automatically apply that SS to the bid proposal. Other SS are not related to a specific bid item, but instead specify an alternate construction or testing procedure. Such SS shall be identified by the designer when the plans are submitted for review.

Like the GS, the SS are included as part of the ERL. New SS that have become available since the ERL was last published are also available on the Specification Section's [Newly Published Documents](#) web page.

Developmental Specifications (DS)

DS must be applied by the designer to a specific project by reference on the plans. However, after initial approval by the Iowa DOT, they can be re-used for multiple projects without being reviewed and approved each time. The Iowa DOT has developed many DS in response to commonly occurring SP and other special situations. If a DS is used on a LPA project, it shall be identified by the designer when plans are submitted for review.

The currently available DS are listed on the Specification Section's [Developmental Specifications](#) web page. Some DS have been developed for specific situations or experimental projects, and therefore may not be appropriate for use on any LPA project. These DS have a person identified as a "Controller," as listed on the DS web page. Before using any DS that has a Controller, contact the Administering Office for assistance. DS without a Controller are designed for general use and may be applied to any LPA project.

Special Provisions (SP)

SP are for bid items or areas of work that are not adequately addressed by the Standard Specifications, SS, DS, or on the project plans. SP are project-specific. They may be re-used on other projects, but a new SP number must be assigned each time. If required, the LPA's designer is responsible for preparing the necessary SP in the proper format. Each SP applicable to an LPA project must be included with the check plans submittal and reviewed and approved for use by the Administering Office. For guidance concerning the

format and content of an SP, refer to the [Requirements for Preparing and Submitting Special Provisions for State and Local Projects](#), published by the Iowa DOT Specifications Section.

SUDAS Specifications

The Statewide Urban Design and Specifications (SUDAS) may not be incorporated into the contract documents by reference, either in whole or in part. However, several sections of the SUDAS Specifications have been incorporated into the Iowa DOT Standard Specifications. Some other SUDAS Specification sections are available as DS. SUDAS Specifications not included in the Iowa DOT Standard Specifications or DS may be incorporated into an SP, however, the designer should carefully review and revise the cross-references as necessary to ensure compatibility with the Iowa DOT Standard Specifications.

Proprietary Products

Specifications using patented or proprietary (i.e., brand name) products or processes are strongly discouraged, either on the project plans or as part of an SP. Generic, end-result specifications are preferred. However, if a proprietary specification must be used, at least three acceptable products must also be listed, along with the phrase, "or approved equal." If only one proprietary product is allowed, a Public Interest Finding must be submitted to and approved by the Administering Office. For more information, refer to [I.M. 3.760](#), Public Interest Findings.

Salvaged Materials

Section 1104 of the Standard Specifications states that all items or materials to be removed by the contractor shall become the possession of the contractor, unless stated otherwise in the contract documents. In some cases, local agencies may wish to retain possession of certain items or materials by directing the contractor to transport and stockpile those items or materials to a specified location. If items or materials will be salvaged, credit to the project is not required. However, in order to comply with Federal requirements, neither Federal nor State funds may participate in the cost of transporting and stockpiling salvaged materials. Therefore, for any item or material that will be salvaged by the contractor, two bid items shall be used:

1. A standard bid item shall be used for the cost of removal, demolition, or milling of material, as appropriate, that is necessary to construct the project. If no standard bid item exists, a non-standard bid item may be used. Federal, State, Farm-to-Market (FM), or local funds may be used to pay for the costs associated with this item.
2. A lump sum bid item 2555-000010, "Deliver and Stockpile Salvaged Materials", shall be used for the cost of transporting and stockpiling the items or materials. Neither Federal nor State funds may participate in the cost of this bid item. However, local or FM funds may participate. A local agency may also elect to transport and stockpile the salvaged materials with its own forces. If so, use of this bid item is not required, but the contract documents must specify how and where local agency forces will pick up the salvaged materials.

In addition to the two bid items described above, in all cases the plans shall include a tabulation of the items or materials to be salvaged, including a description, quantity, and delivery location. The plans shall also specify the manner in which the materials must be stockpiled.

Provisions in the contract documents that permit optional salvage of certain items for use by the contracting authority are not allowed. Since some items may have some value, optional salvage provisions would make it difficult or impossible to accurately bid the project.

Special Procedures for HMA Millings:

If the contract documents for a project involving Recycled Asphalt Pavement (RAP) requires the contractor to deliver and stockpile less than 5,000 tons of excess HMA millings for the LPA's use, the LPA should use the Developmental Specification (DS), "Contractor Stockpiled Shoulder Material". This DS allows the contractor the option of substituting Class A shoulder stone for the excess HMA millings. This better accounts for the value of the RAP material and should result in better bids. If this DS is used, the "Contractor Stockpiled

Shoulder Material” bid item shall be used instead of the “Deliver and Stockpile Salvaged Materials” bid item. Likewise, the “Contractor Stockpiled Shoulder Material” bid item may not have Federal or State participation, but may have local or FM funding participation.

If the Contractor Stockpiled Shoulder Material DS is not used on a project that requires the contractor to salvage less than 5,000 tons of excess HMA millings, the “Deliver and Stockpile Salvaged Materials” bid item shall be used to pay for the cost of transporting and stockpiling the excess HMA millings from the project site or plant site to the LPA’s stockpile. In this case, this bid item shall not have Federal or State participation, but may have local or FM participation. If the LPA will transport and stockpile the excess HMA millings with its own forces, use of the Deliver and Stockpile Salvaged Materials bid item is not required.

Federal or State funded projects shall not require salvage of more than 5000 tons of excess HMA millings because this quantity of material may have a significant value and therefore could result in lower bid prices if the contractor were allowed to keep the excess material. Projects paid for with only local or FM funds may require some or all of the HMA millings to be delivered and stockpiled for use by the LPA.

Plan Divisions

Plan divisions provide a means of segregating certain bid items or quantities, based on the funding sources that will be used to pay for those bid items or quantities. In other words, a plan division is a group of bid items or quantities for which one or more types of funding may be used.

If all bid items and quantities shown on the plan can be paid for from the same funding source or sources, plan divisions should not be used*. If multiple funding sources are involved (not counting the local match, if any) specify the type and order in which those funding sources should be used in the cover letter that accompanies the plan submittal.

*Exception: If desired by the LPA, separate divisions may be used to separate roadway bid items from structure bid items, or items to be paid for by one jurisdiction vs. another. However, in such cases, the LPA shall indicate which funding source or sources are to be used for each division.

If all bid items or quantities shown on the plan cannot be paid for from the same funding source or sources, then plan divisions shall be used. A separate plan division shall be established for each group of bid items or quantities that may be paid for with the same funding source or sources. Use only the minimum number of plan divisions that are necessary.

If the bid items or quantities of bid items in one plan division will be paid for with more than one type of funds (not counting the local match, if any), specify the type and order in which those funding sources should be used in the cover letter that accompanies the plan submittal.

If plan divisions are used, provide a separate column on the estimated quantities tabulation for each division and label it with a division number (e.g., “Division 1,” “Division 2,” etc.). For each division, include quantities for all bid items that apply to that division. Show the sum of all bid item quantities for all divisions in the “Total” column of the estimated quantities tabulation.

In addition, provide a description for each division on the quantities sheet. This description should identify the purpose of the division. For example, divisions may be used to separate Federal-aid participating items from Federal-aid non-participating items. They may also be used to separate items paid for by one jurisdiction from another, or one funding source from another. Funding sources should be identified by the type of funds (e.g., STP) instead of a project number. Different project numbers should only be assigned to plan divisions if those plan divisions represent separate projects that are combined on one set of plans. In such cases, a separate entry in the Transportation Program Management System (TPMS) and a separate electronic bid item file will be required for each project.

Bid Items

Use Iowa DOT standard bid items as listed in the Bid Item Description Book published by the Iowa DOT Office of Contracts. The [standard bid item list](#) is also available on-line and is updated regularly (for more information, refer also to [I.M. 3.520](#), Electronic Bid Item Information). Each bid item listed in the estimated quantities tabulation must have a valid bid item code, description, units, and estimated quantity.

Standard bid items shall be used unless: 1) an item is not covered by the Standard Specifications (including the applicable GS, SS or DS), or 2) the LPA can justify that a non-standard item is necessary (i.e. to maintain system compatibility).

Non-standard items will have item code of 2599-9999XXX, where XXX is a number that is determined by the units used for that item. See the Bid Item Description Book for the appropriate 2599 item numbers to use for a variety of possible bid item units. The description for all 2599 items is entered by the designer. More than one 2599 item (even with the same units) may be listed on the plans, as long as the description for each 2599 item number is unique.

Note: Because 2599 items are not covered by the Standard Specifications, the designer must provide the necessary details and / or specifications to describe the materials and work covered by this item. In addition, the designer must supply the method of measurement and basis of payment information for all 2599 items. This information may be provided either on the project plans or in a SP, depending on the amount of information required.

Incidental Items

Keep incidental materials and work items to a minimum. Use of bid items for all measurable work and materials is recommended. As a general rule, if there is an item in the Bid Item Description Book that is applicable to any item of work shown on the plans, this bid item should be used. If an item of work is incidental, the bid item to which it is made incidental shall be identified. In addition, the nature of the incidental work shall be adequately described, including estimated quantities. Enough information shall be provided to allow the bidder to make a reasonable estimate of the cost of any work designated as incidental.

Method of Measurement and Basis of Payment

All bid items must have both method of measurement and basis of payment information specified. For items that use a Special Provision, this information should be shown in the Special Provision. For items that do not use a Special Provision, and the method of measurement and basis of payment information is not addressed by the Standard Specifications, GS, SS, or DS, this information should be shown in the estimate reference note on the plans.

For each bid item listed in the Bid Item Description Book, a code is listed under the MEAS/PAY column. This code directs the bidder to the appropriate location for the method of measurement and basis of payment information. If the code in the MEAS/PAY column is "PLAN, STD6, SP or SP2," the designer must supply the method of measurement and basis of payment information, either on the plans or in a Special Provision. See the instructions in the front of the Bid Item Description Book for more information.

If unfamiliar with writing method of measurement and basis of payment specification language, the designer should refer to the Standard Specifications for examples.

Estimate Reference Information

Estimate Reference Information should be clear, concise, and used to explain anything special about the item. The Estimate Reference Information should direct the bidder to the location of any additional information about that particular bid item in the plans, such as a plan sheet, detail, or tabulation.

Do NOT make reference to the applicable section of the Standard Specifications or restate what is contained in them. Generally, the first 4 digits of a standard item code directs the bidder to the appropriate section in the Standard Specifications. Citing Standard Specification sections or restating what is contained in them is not necessary and only increases the potential for conflicts within the contract documents. In addition, do not make reference to applicable SS, DS, or SP. Instead these shall be identified by the designer when the plans are turned in for review.

Use of the phrase, "As directed by the Engineer" should be avoided, both in the SP, Estimate Reference Information, and elsewhere on the plans. "As directed by the Engineer" shall not be used when the Engineer's direction may result in additional costs to the contractor. Any work to be bid a contractor should be adequately described in the contract documents. Use of this phrase makes it difficult, if not impossible, for the contractor to prepare an accurate bid. This adds risk to the contractor and may increase the project cost unnecessarily.

Check and Final Plan Checklist

For Local Public Agency (LPA) Projects Let by the Iowa Department of Transportation (Iowa DOT)

Project No.: _____ Date: _____ LPA or Consulting Firm: _____

Name of Designer: _____ Phone No.: _____ email: _____

Note: This checklist is not intended to cover all of the details, notes and information that may be necessary for acceptable check and final plans. However, this checklist addresses the items where most questions or problems generally arise. *This checklist is requested, but not required with the check plan submittal.* This checklist is not needed with the final plan submittal.

GENERAL

- Project Concept.** The proposed design criteria, improvements, and project limits are consistent with the scope and type of work shown in the approved Concept Statement for Local Systems Federal-aid Projects (Form 517001) and the approved Preliminary Plans. Any significant changes to the project concept (e.g., proposed design elements, project limits, potential environmental impacts, type of work, etc.) shall be explained in the cover letter that accompanies the plans. For more information, refer to [I.M. 3.105](#), Concept Statement Instructions.
- Environmental Document Requirements.** If the approved environmental document (e.g., Section 4(f) statement, Environmental Assessment, or Environmental Impact Statement) specifies that certain conditions shall be met, or certain sensitive areas shall be avoided, the plans shall be consistent with these requirements.
- Format.** Plans may be submitted in either electronic or paper format. If plans are submitted in electronic format, they shall conform to the [File Specifications for Electronic Plan Submittals to the Iowa DOT](#). If plans are submitted in paper format, they shall be black or grayscale print on plain white paper.
- Dimensions and Legibility.** Plans shall be submitted as single-sided, 11"x17" sheets. To ensure that all of the plan is printed accurately, the border widths (i.e., clear space between the edge of paper and printing on the plan) shall meet the following minimum dimensions: top and bottom = 1/4 in.; left and right = 5/8 in. All lettering and details on the 11"x17" plan sheets shall be legible when printed.
- Check and Final Bridge or Culvert Plans.** Bridge or culvert plans shall also conform to the guidelines provided in [I.M. 3.510](#), Check and Final Bridge or Culvert Plans.

TITLE SHEET

- Check Plans Stamp.** Check Plan submittals should be identified by using a red stamp, red pen, or other means, to mark the words "Check Plans" on the designer's certification block. Note: Original final plans shall not be stamped as "Final Plans." Final plans shall be indicated by the designer's signature as noted in the "Designer's Certification Block" item below.
- System Classification.** The roadway system classification shall be shown. The Systems Classification should be shown in large font near the center or upper middle part of the sheet. For county projects, use "Farm-to-Market System" for a project on a Farm-to-Market route or "Secondary Road System" for a project on a local route. For city projects, use "Urban Road System." For projects located on the corporation line, use the system classification that is under the jurisdiction of the lead governmental agency.
- Location Map.** A location map with a north arrow and major street names shall be shown. The location map should be located near the left or bottom left part of the sheet. The location map should also include a scale (or be noted as "Not to Scale") and identify the project limits including the beginning and ending stations. If project divisions are used, their limits shall also be indicated, either on the location map or in a plan note.

- Designer's Certification Block.** The plans shall include a certification block and seal that complies with the appropriate sections or chapters of the Code of Iowa and the Iowa Administrative Code (IAC). The designers certification block should be shown near the bottom right part of the sheet. The check plans should not be signed or sealed, as noted in the "Check Plans Stamp" item above. The final plans shall be signed, dated, and sealed by the professional engineer, land surveyor, architect, or landscape architect responsible for the plans or portions of the plans. An original signature in contrasting ink is required. Blue ink is recommended. Note: For electronic plans, refer to the [File Specifications for Electronic Plan Submittals to the Iowa DOT](#) for the applicable plan signature requirements.
- LPA's Signature Block.** The plans shall include a signature block that includes the title of the appropriate LPA official(s) with a space for each official(s) signature and date. The LPA's signature block should be shown near the bottom right part of the sheet. Check plans should not include signature(s). The final plans shall include the LPA official(s) signature(s), which do not have to be original.
- Index of Sheets.** An index listing all sheets included in the plans shall be shown. The index of sheets should be shown near the right or upper right part of the sheet. Sheets should generally be listed in the following order: Title sheet, typical sections, standard details, estimated quantities tabulation, estimate reference information, supplemental tabulations, plan and profile sheets, other detail sheets, and cross sections. Use of the Iowa DOT sheet numbering system as shown in the Iowa DOT Road Design Manual, [Section 1E-2](#), is recommended. If used, it shall be used consistently.
- Availability of Cross Sections.** If cross-sections will be included, they shall be submitted with the plans. Cross-sections will be available only through the Office of Contracts. They shall not be supplied directly to bidders by the LPA.
- Project Number.** The Iowa DOT project number shall be shown in at least one place on all plan sheets. Recommended placements for the title sheet and all other sheets include the middle left margin and the bottom right margin. For the title sheet, the project number should also be shown near the upper right corner or in the center (above or below the project title).

Note:

- Usually, only one project number should be shown on the plans. However, if the plans will include more than one project, additional project numbers should be shown, along with a description and limits of each project. In such cases, a separate entry in the Transportation Program Management System (TPMS) and a separate electronic bid item file will be required for each project.
 - If a single project spans more than one jurisdiction (e.g., across county or city boundaries), the project number used should correspond to jurisdiction in which the project stationing begins (i.e., the westerly or southerly end of the project).
 - If unsure about which project number or how many project numbers to use, contact the Administering Office for assistance.
- LPA Name and Project Location.** The name of the city or county shall be shown in at least one location on all plan sheets. Recommended placement is on the bottom left margin. On the title sheet, the name of the city or county and a brief description of the project location shall also be shown, preferably in the center part of the sheet. The description shall include the route or street name, plus the beginning and ending points of the project. Beginning and ending points shall be identified by a cross street, feature crossed, corporation limits, or some other feature that can be located on a map. If multiple routes or streets are included in the project, list each separately. For a Federal-aid project, the description on the plans shall be consistent with description for the project in the Statewide Transportation Improvement Program (STIP) and in TPMS Development.
 - Work Type Description.** A standard work type description, as listed in the Iowa DOT Bid Item Description book, shall be shown, preferably in the center part of the sheet. Use the work type description that best represents the largest portion of the estimated contract cost. More than one work type description may be used, but for advertising purposes, only one work type (that which represents the largest portion of the estimated contract cost) will be used.
 - Mileage Summary Tabulation.** For roadway or trail projects, a mileage summary tabulation that includes the total project mileage shall be shown. This tabulation should be shown near the center or bottom center part of the sheet. The tabulation shall also include the beginning and ending stations of the

project and any plan divisions (if used). Any station equations or exceptions present on the project shall also be identified in the tabulation.

- Tabulation of Standard Plans.** A tabulation shall be included that lists all of the applicable [Standard Road Plans](#), [Standard Bridge Plans](#), or [Standard Culvert Plans](#), including revision dates which are current for the targeted letting. For each standard plan listed, all of the standard plans referenced by that standard plan shall also be listed. These tabulations should be shown near the right or upper right part of the title sheet. If space does not allow, these tabulations may be shown on the C sheets; however, in such cases a cross-reference note shall be placed on the title sheet to direct the bidders to the appropriate location for the standard plan tabulations.

Note: Bidders should not be referred to the Office of Bridges and Structures or the Office of Local Systems to obtain hard copies of the Standard Bridge Plans or Standard Culvert Plans. These are available in electronic format at the web sites indicated above.

- Letting Date.** A space or a box for the project letting date shall be shown, preferably on upper left margin of sheet. If the letting date is known, the appropriate date may be shown in the box or space provided.
- U.S. Army Corps of Engineers 404 Permit.** If a permit is needed, include Standard Note [281-1](#) near the left or upper left part of the sheet. Complete the first blank with one of the following, as appropriate: "Nationwide Permit XX", where XX is the Nationwide Permit Number (14, 33, etc.); "Regional Permit 7", or "Individual Permit". Complete the second blank with the Corps' project-specific permit number, as shown in the subject line of the Corps' permit approval letter. The project-specific number may be omitted for projects that can be proceed under a Corps Nationwide Permit without notification to the Corps, because no such number is assigned.

Note:

- If a bridge, culvert, or grading project does not require this permit, this shall be noted in the cover letter with the check plans.
- General 404 permit requirements are included in [Article 1105.14](#) of the Standard Specifications. However, if the Corps added any special conditions to their approval of the permit, these shall be indicated on the plans.
- If the approved 404 Permit application indicated a temporary stream access will be allowed, Standard Road Plan [RL-16](#) shall be used. If the approved 404 Permit application indicated that temporary stream access will not be allowed, the plans shall note this condition. For more information, refer to [I.M. 3.130](#), 404 Permit Process.

- Iowa DNR Floodplain Construction Permit.** If a permit is needed, the following note shall be included: *"This project is covered by Iowa DNR Floodplain Construction Permit No. (insert Iowa DNR permit number)."* This note should be shown on the left or upper left part of the sheet. If a bridge, culvert, or grading project does not require this permit, this shall be noted in the cover letter with the check plans. Refer to [I.M. 3.410](#), Preliminary Bridge or Culvert Plans, for more information.
- Iowa DNR Storm Water Permit.** If the project disturbs one acre or more of land, the following note shall be included: *"This project is covered by the Iowa Department of Natural Resources NPDES General Permit No. 2. The Contractor shall carry out the terms and conditions of General Permit No. 2 and the storm water pollution prevention plan which is a part of these contract documents. Refer to Section 2602 of the Iowa DOT Standard Specifications for additional information."* This note should be shown near the left or upper left part of the sheet. If an individual permit is required, the individual permit number shall be used instead of the general permit number. Any area where soil is exposed to erosive forces, such as wind or water, shall be considered disturbed. The LPA shall be responsible for obtaining the appropriate National Pollutant Discharge Elimination System (NPDES) permit. The contract documents shall not shift this responsibility to the Contractor. For more information, refer to [I.M. 3.140](#), Storm Water Permits.
- Standard Specification Note.** The following standard note shall be included near the center of the sheet: *"The Iowa Department of Transportation Standard Specifications for Highway and Bridge Construction, series 2009, plus General Supplemental Specifications; and applicable Supplemental Specifications, Developmental Specifications, and Special Provisions, shall apply to construction on this project."*

- FHWA Structure Number.** If the project involves a bridge, the FHWA structure number shall be shown, preferably on or near the location map that shows the location of the bridge. Bridges are defined as any structure with a clear opening greater than 20 feet, as measured along the centerline of the roadway.
- Utility Contacts.** If any utility facilities are within or immediately adjacent to the proposed limits of construction, utility contact information (company name and a contact person's name, address, and phone number) shall be shown for each utility company. The Iowa One-Call symbol and phone number should also be displayed. These should be shown near the bottom center part of the sheet.

TYPICAL SECTION SHEETS

- Dimensions and Slopes.** Proposed cross section elements shall be detailed with adequate horizontal and vertical dimensions. Pavement slopes, cut slopes, and fill slopes shall also be specified.
- Materials Specified.** The type and thickness of surface, base and subbase materials for pavements, shoulders, sidewalks, or trails shall be shown. Materials should be identified using the appropriate bid item description for that material.
- Number of Typical Sections.** Separate typical sections for each significantly different type of cross section found on the project shall be shown. Use separate typical sections to show differences in the number of lanes, pavement types, pavement thicknesses, curb and gutter, sidewalk, or recreational trails.
- Station Ranges.** If more than one typical section is used, the applicable stationing ranges shall be labeled for each. If the project contains more than one plan division, the applicable division(s) for each typical section should be noted.
- Existing Features.** For projects that involve widening, milling, resurfacing, or other modifications to the existing pavement and / or shoulder; the type, thickness, and width of existing pavement and / or shoulder structure should be shown on the typical cross section.

QUANTITY, ESTIMATE REFERENCE, GENERAL NOTE, AND TABULATION SHEETS

- Estimated Quantities Tabulation.** All plans shall include an estimated quantities tabulation. Use of the Iowa DOT Standard Tabulations ([100 Series](#)) is recommended. If a non-standard tabulation is used instead, it shall include, as a minimum, the Iowa DOT bid item code, item description, unit, and total bid item quantity. If plan divisions are used, the estimated quantities tabulation shall also indicate the bid items or quantities of items that apply to each division. A label or description of each division shall also be included. For additional information, refer to the "Plan Divisions" section in [Attachment A](#) to I.M. 3.505.
- Supplementary Tabulations.** Supplementary tabulations should also be used to provide additional information or a breakdown of bid item quantities. When possible, include a total quantity for each bid item shown in a supplemental tabulation. The bid item quantity listed in a supplemental tabulation should match the total bid item quantity as listed in the estimated quantities tabulation. If the bid item quantity contains additional quantities that are not shown in the supplemental tabulation, note these additional quantities in the Estimate Reference Information. Use of the Iowa DOT Standard Tabulations ([100 Series](#)), is recommended. If included, the most current version shall be used. For additional information, refer to the "Iowa DOT Road Design Details" section in [Attachment A](#) to I.M. 3.505.
- Bid Item Codes, Description, and Units.** The bid item codes, descriptions, and units listed on the plans shall match the current list of standard bid items, as shown in the Bid Item Description Book, published annually by the Iowa DOT Office of Contracts. Only valid bid items shall be used. The [standard bid item list](#) is also available on-line and is updated regularly. For additional guidance, refer to the "Bid Items" section in [Attachment A](#) to I.M. 3.505.
- Method of Measurement and Basis of Payment.** Check the MEAS/PAY code given for each item in the Bid Item Description Book. If this code indicates that the method of measurement and basis of payment information must be supplied by the designer, it shall be included in the plans (preferably in the Estimate Reference Information) or the applicable Special Provision. For additional guidance, refer to the "Method of Measurement and Basis of Payment" section in [Attachment A](#) to I.M. 3.505.

- Estimate Reference Information.** Estimate Reference Information shall be provided. Estimate Reference Information should explain what is included in a bid item and where additional information about that item can be found in the plans. For additional guidance, refer to the “Estimate Reference Information” section in [Attachment A](#) to I.M. 3.505.
- Non-Participating Items or Quantities.** If any bid items or quantities are excluded from participation by one or more of the project funding sources, those bid items or quantities shall be separated by means of plan divisions. Some bid items or quantities may be non-participating based on the Federal or State eligibility rules or regulations for a particular funding program. For example, some utility relocations are not eligible for Federal participation, as described in [I.M. 3.650](#), Federal-aid Participation in Utility Relocations. Other bid items or quantities may be non-participating if associated with work that extends beyond the approved project limits. For additional guidance, refer to the “Plan Divisions” section in [Attachment A](#) to I.M. 3.505. If uncertain about whether any bid items or quantities should be designated as non-participating, contact the Administering Office for assistance.
- Salvaged Items.** If the contractor is required deliver and stockpile any salvaged items that will become the property of the contracting authority, the bid item, 2555-000010, Deliver and Stockpile Salvaged Materials, shall be used. This bid item shall be placed in a non-participating plan division in the plans and in the BIAS bid item file. If the contracting authority will deliver and stockpile the salvaged materials with its own forces, this bid item shall not be used. For more information, refer to the “Salvaged Materials” section in [Attachment A](#) to I.M. 3.505.
- Earthwork Quantities.** A breakdown of earthwork quantities should be shown in a separate tabulation or in the Estimate Reference Information. Quantities should be shown for cut, fill, the assumed shrinkage percentage, and any waste or borrow requirements. Notes: (1) Topsoil shall not be included in the pay quantity for the various excavation bid items. Topsoil is a separate pay item. (2) Overhaul should be paid for if it is in excess of the free-haul limits specified by the contract documents. If the plans do not specify a free-haul distance, the free-haul distance will be 1000 feet, as per [Article 2108.04.E](#) of the Standard Specifications.
- Roadway Pipe Culverts.** If roadway pipe culverts are part of the project work, the bid item, “2402-2720100, Excavation, Class 20, For Roadway Pipe Culvert,” shall be included as per the [Standard Road Plans](#).
- Earth Shoulders / Fill.** If the work involves construction of earth shoulders or earth shoulder fill above the subgrade elevation adjacent to a paved surface or curb and gutter, one of the following bid items shall be included: if the volume of earth shoulder is included in the Class 10 Excavation quantity, use the bid item “2123-7450020, Shoulder Finishing, Earth”; if the volume of earth shoulder is not included in the Class 10 Excavation quantity, use the bid item “2123-7450000, Shoulder Construction, Earth.” Each side of a trail or roadway is measured separately.
- Lump Sum Item Split.** For each lump sum item on a project with more than one plan division, a decimal fraction quantity shall be included for each plan division, if the lump sum item applies to that division. For each lump sum item, the sum of the quantities shown for all the applicable plan divisions shall equal 1.0.
- Guardrail Items.** If the construction includes guardrail, all of the bid items as listed on the applicable BA series of Standard Road Plans shall be included. The applicable Standard Tabulations in the [108 series](#) shall be used.
- Trail Paving.** Portland Cement Concrete (PCC) or Hot Mix Asphalt (HMA) bicycle or pedestrian trails shall be paid for with the bid items specified by [Section 2511](#) of the Standard Specifications. HMA Commercial Mix is also acceptable for trails (see item below).
- HMA Commercial Mix for Trail Paving.** If HMA Commercial Mix (bid item 2303-0000100) is used for trail paving, the following note shall be included in the Estimate Reference Information, unless an alternative specification has been approved: *“All work shall be completed in accordance with Iowa DOT Standard Specifications, except that Article 2303.02 Materials, shall not apply. The Contractor shall furnish and place a commercial asphalt mix with a three-eighths (3/8) maximum aggregate size and a minimum asphalt content of 6.25 %. Class II compaction shall be required. Payment for asphalt cement shall not be made separately but shall be included in the unit price bid for this item.”*

- Bridge Approach Paving.** If bridge approach paving is included in the work, all of the bid items as listed on the applicable RK series of Standard Road Plans shall be included. Standard Tabulation [112-6](#) shall be used.
- Bridge Removals.** If the project involves removal of a bridge, the bid item, “2401-6745625, Removal of Existing Bridge,” shall be used. Use of this bid item for bridge removals is required to automatically generate the “Notification of Demolition” form that the Office of Contracts will send to the Contractor. This form is required to comply with the State and Federal asbestos regulations. For more information, refer to [I.M. 3.160](#), Asbestos Inspection, Removal, and Notification Requirements.
- Construction Survey.** The bid item, “2526-8285000, Construction Survey,” shall be included if the Contractor is providing the construction survey for the project.
- Flaggers.** The bid item, “2528-8445113, Flaggers,” shall be included if reference is made to roadway flaggers in a Standard Road Plan, or if flaggers are called for by the traffic control details or notes. The bid quantity for Flaggers should be left blank on the plans. If desired, the designer may estimate a quantity and show it on the plans. However, the Office of Contracts will determine the actual bid quantity based on the number of working days assigned for the project. If the Office of Contracts does not agree with the estimated quantity provided by the designer, the plans will be changed to show the actual bid quantity as determined by the Office of Contracts.
- Safety Closures.** The bid item, “2518-6910000, Safety Closure,” shall be included if road closures or hazard closures are shown on a referenced Standard Road Plan or traffic control detail, or if they are required by a plan note. Use of Standard Tabulation [108-13A](#) for Safety Closures is recommended.
- Pavement Smoothness.** If the Pavement Smoothness ([Section 2316](#)) specification is desired for HMA or PCC paving, this shall be indicated in the Estimate Reference Information for the appropriate paving bid items. If called for, this specification shall be added in its entirety. Parts of the specification shall not be written out.
- Certified Plant Inspection.** If the Certified Plant Inspection ([Section 2521](#)) specifications are desired for a specific bid item (e.g., HMA or PCC paving, structural concrete, or flowable mortar), this shall be indicated in the Estimate Reference Information of the bid item(s) for which Certified Plant Inspection will apply. If Certified Plant Inspection is called for, it may be appropriate to also include the bid item, “2520-3350010, Field Laboratory.”
- Subdrains.** If a drainable base is used, a subdrain system should be included. If subdrains are used, all the associated bid items shall be included, as indicated on the appropriate Standard Road Plan.
- Pavement Removal and Patching.** If pavement removal, driveway removal or patching is required for the project, the type and thickness of the existing pavement shall be shown on the plans. This information may be shown in the tabulations for the removal or patching items, in the Estimate Reference Information, or in separate tabulation for existing pavement (use of Standard Tabulation [102-5](#) is recommended).
- Mobilization.** The bid item, “2533-4980005, Mobilization” shall be included for all contracts, except maintenance aggregate, materials only, granular surfacing, or other minor contracts.
- Traffic Control.** The bid item, “2528-8445110, Traffic Control” shall be included, unless the plans indicate the LPA will provide and maintain all the necessary traffic control devices. If the LPA does provide the traffic control devices, the plans shall specify where they will be provided to the Contractor.
- Clearing and Grubbing.** When large areas densely covered by trees and other vegetation must be cleared, this item should be bid by the acre. If this item is bid by the acre, the plans should specifically indicate the extent of the area to be cleared and grubbed. When the area to be cleared is not densely covered by trees or other vegetation, this item shall be bid by the Unit. In either case, the Estimate Reference Information for these items should include a reference to plan sheet or tabulation where the quantities are shown.
- Scrape Test Note.** If the project involves either removal or painting of an existing painted steel bridge or railing, the following note shall be included: “*Scrape samples of this bridge were taken to get an*”

indication of the existence of and level of total chromium and total lead. The analysis of total chromium in the sample was ___ppm. The analysis of total lead in the sample was ___ppm. The analysis shows the existence of these two toxic constituents. The levels indicated by these tests could create conditions above regulatory limits for health safety requirements. No other substances were analyzed. The bidder should not rely on the LPA's testing and analysis for any purpose other than an indication of the existence of these two constituents."

- Pollution Prevention Plan (PPP).** If a National Pollutant Discharge Elimination System (NPDES) permit is required for the project, the PPP and the appropriate erosion control bid items associated with the PPP shall be included, as listed in [Section 2602](#) of the Iowa DOT Standard Specifications, unless the LPA will be providing and maintaining all of the erosion control measures. If the LPA will provide these, this shall be clearly stated on the plans. For more information on the NPDES permit procedures, refer to [I.M. 3.140](#), Storm Water Permits.

PLAN AND/OR PROFILE SHEETS

- Existing Features.** The plans should show the location of existing topographical features (e.g., existing pavement, structures, buildings, etc.).
- North Arrow.** A North arrow shall be shown on all plan sheets.
- Scale.** All plan and profile sheets shall show a horizontal scale. Profile sheets shall also show a vertical scale.
- Proposed Right-of-Way (ROW).** If the project involves ROW acquisitions, permanent easements, or temporary easements, the proposed right-of-way lines, easement lines, property lines, parcel numbers, and property owners shall be shown. For projects involving several ROW acquisitions or easements, use of separate ROW sheets is recommended.
- Existing ROW.** Existing ROW lines shall be shown.
- Storm Sewers.** The station and offset information for all new intakes and utility accesses shall be shown on the plan sheets or in a tabulation. If needed, storm sewer profiles should be shown on separate sheets.
- Culverts.** The station, skew, length, and flow line elevations of all roadway and entrance culverts shall be identified.
- Profiles.** The vertical profile data shall be shown, including the percent grade, vertical curve length, K factor, stopping sight distance (SSD), and design speed. The point of vertical curvature (P.V.C.), point of vertical tangency (P.V.T.), and point of vertical intersection (P.V.I.) stations and elevations shall be labeled.
- Alignments.** The horizontal curve data shall be shown, including the point of intersection (P.I.) station, curve length, radius or degree of curvature, tangent length, and delta angle. The point of curvature (P.C.), and point of tangency (P.T.) stations should also be shown.
- Construction Survey Information.** If the Contractor will be responsible for the construction staking, the following information shall be shown:
- **Benchmarks.** List the type, location, and elevation of each benchmark. This information may be listed on a separate sheet if necessary.
 - **Reference Point Information.** List the type, station, offset, and coordinates of each reference point (sometimes called control points). Reference points should also be tied to other existing fixed objects if they are likely to be disturbed by construction activities. Reference tie information should be included by using either a sketch showing the distances to the tie points, or a verbal description of the same. At least 3 reference ties should be given for each reference point. This information may be listed on a separate sheet if necessary.
 - **Horizontal Alignment Information.** List the horizontal coordinates of all P.I.s. The bearing of all tangent lines should also be shown.

- Utilities.** All known utility facilities within or immediately adjacent to the project limits shall be shown, including the approximate location of such facilities and the name of the utility company. For more information, refer to [I.M. 3.640](#), Utility Accommodation and Coordination.
- Railroad (RR) Crossings.** All RR crossings within or immediately adjacent to the project limits shall be shown, including the RR property lines and the name of railroad company. This information shall be included anytime the Contractor will be required to gain access or perform work on the RR right-of-way or within 25 feet of the centerline of the outermost RR track, even if the RR facilities are not directly impacted by the project. For more information, refer to [I.M. 3.670](#), Work on Railroad Right-of-Way.
- Intersection Details.** For new construction or reconstruction projects, intersection detail drawings shall be included. Dimensions of channelization islands, curve radii, taper ratios, and taper lengths shall be shown. Intersection details shall be at a scale sufficient to show the necessary geometric details. A 1"=20' scale is recommended.
- Jointing Details.** For PCC paving projects, the spacing and type of joints shall be shown. Use of the Standard Road Plans ([PV-1](#)) and / or special jointing details is recommended. Joint types shall be specified using the standard types shown on the Standard Road Plans.
- Curb Ramps.** If the roadway or sidewalks are being altered by the project, Americans with Disabilities Act (ADA) compliant curb ramps shall be constructed at all intersections of sidewalks and roadways within the scope of the project. If ramps already exist at these locations, but are not fully compliant (e.g., they do not include detectable warnings), those ramps shall either be replaced or retrofitted to meet current ADA requirements. To ensure compliance with these requirements, use of Standard Road Plan [MI-220](#) is strongly recommended. For more information, refer to [I.M. 1.080](#), ADA Requirements.
- Non-Participation Limits.** If any portion of the contract work is outside the approved or eligible project limits for one or more of the project's funding sources, the limits of the participating work shall be indicated on the plan sheets, including the beginning and ending stations.

TRAFFIC CONTROL

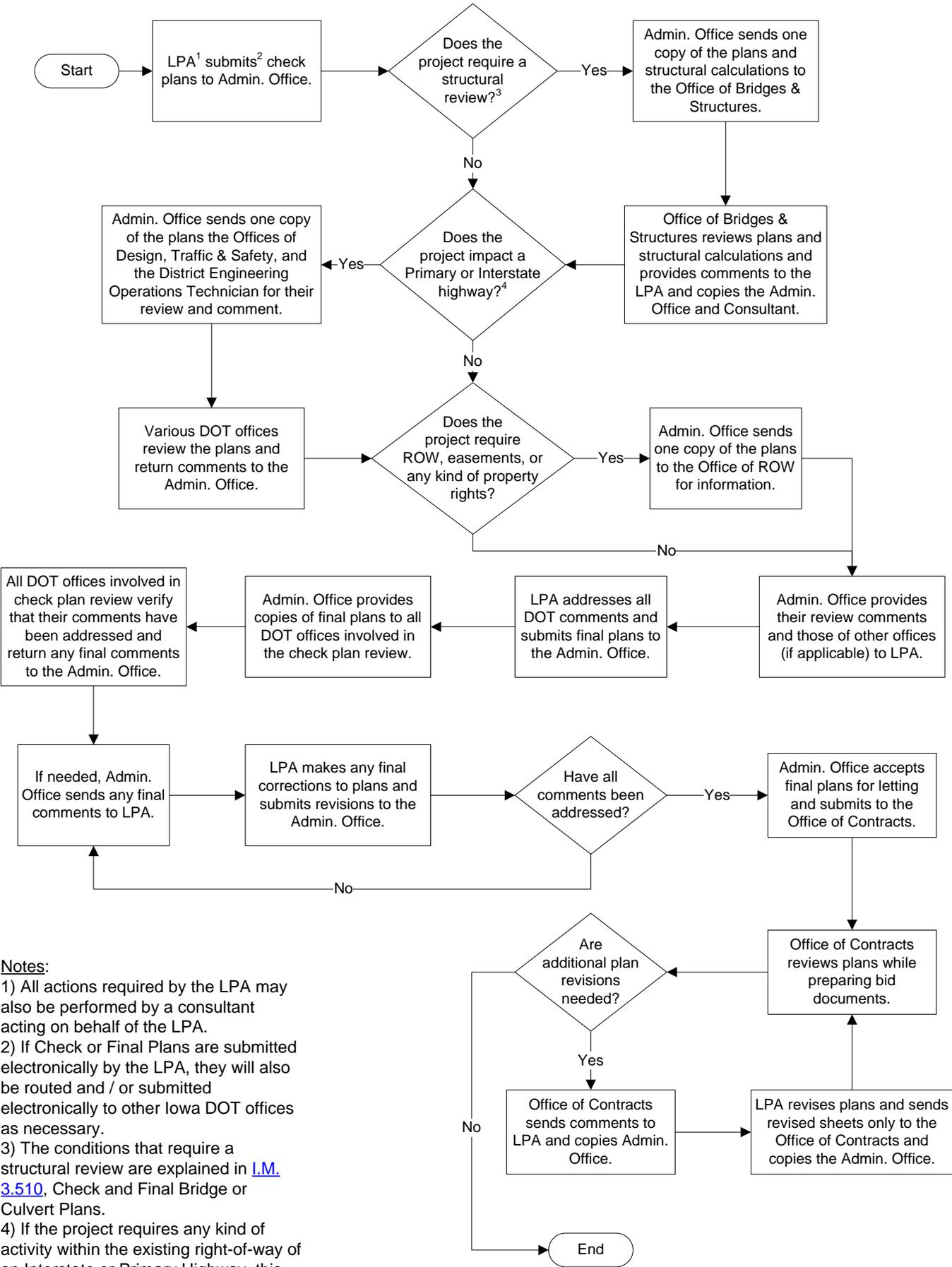
- Status of Vehicular Traffic.** The plans shall state whether traffic will be maintained or detoured during construction. This may be accomplished via special traffic control notes, details, Standard Traffic Control Plans, or some combination thereof. If part or all of the traffic control devices will be provided, installed, and/or maintained by the LPA, this shall also be stated.
- Status of Pedestrian Traffic.** The plans shall indicate how pedestrian traffic will be addressed during construction. Pedestrian paths may be maintained, closed or detoured during construction. This may be accomplished via special traffic control notes, details or some combination thereof. In all cases, pedestrian paths and / or detours shall comply with ADA and MUTCD requirements. For more information, refer to [Section 2528](#) of the Standard Specifications and the [Section 9A-5](#) of the Iowa DOT [Design Manual](#).
- Standard Traffic Control Plans.** Use of applicable Standard Road Plans, [TC Series](#), is strongly recommended. If used, the traffic control notes should explain under what conditions or which locations each Standard Road plan applies.
- Phased Traffic Control.** If the project involves phased construction, project-specific traffic control plans or details shall be included, unless the Standard Road Plans can adequately describe the necessary traffic control for each phase. The traffic control plans or details shall show the appropriate traffic control devices for each phase. Staging notes shall also be included that describe which items of work must be completed as part of each phase.
- Detour Routes.** If a detour will be required, the detour route and the appropriate temporary traffic control devices shall be specified, unless all of the traffic control devices will be provided, installed, and maintained by the LPA. Use of a schematic or "to-scale" detour plan sheet is recommended. **Note:** If the detour route and / or signing involves a Primary Highway in any way, contact the appropriate [Iowa DOT District Office](#) to obtain approval of the proposed detour route and / or signs.

- References to the MUTCD.** It is not necessary to reference the MUTCD with respect to temporary or permanent traffic control devices shown on the plans. The Standard Specifications require that all traffic control devices comply with the MUTCD, as adopted by the Iowa DOT. If reference is made to the MUTCD on the plans, it shall be referred to as the *“Manual on Uniform Traffic Control Devices for Streets and Highways, as adopted by the Department per 761 of the Iowa Administrative Code (IAC), Chapter 130.”*

TRAFFIC SIGNAL SHEETS

- Scale.** Drawings shall be of sufficient scale to show the necessary details. A 1”=20’ scale is recommended.
- Pavement Markings Details.** Pavement markings, including lane lines, stop bars, crosswalks, symbols, and legends should be shown.
- Signal Details.** Signal pole, signal head, mast arm, and detector loops locations should be shown.
- Roadway Details.** Edges of pavement, curbs, sidewalks, and pedestrian curb ramps should be shown.
- Tabulations.** Tabulation(s) shall be provided that list all of the items and quantities that are included in the lump sum Traffic Signalization bid item.

Check and Final Plan Process Flowchart



Notes:
 1) All actions required by the LPA may also be performed by a consultant acting on behalf of the LPA.
 2) If Check or Final Plans are submitted electronically by the LPA, they will also be routed and / or submitted electronically to other Iowa DOT offices as necessary.
 3) The conditions that require a structural review are explained in [I.M. 3.510](#), Check and Final Bridge or Culvert Plans.
 4) If the project requires any kind of activity within the existing right-of-way of an Interstate or Primary Highway, this constitutes an "impact."

INSTRUCTIONAL MEMORANDUMS

To Local Public Agencies



To: Counties and Cities	Date: June 18, 2010
From: Office of Local Systems	I.M. No. 3.510
Subject: Check and Final Bridge or Culvert Plans	

Contents: This Instructional Memorandum (I.M.) includes guidelines and procedures for preparation and review of Local Public Agency (LPA) Check and Final bridge or culvert plans for letting by the Iowa Department of Transportation (Iowa DOT). This I.M. also includes the following attachments:

[Attachment A](#) – Bridge or Culvert Plan Supplementary Checklist

Note: This I.M. provides guidance specific to check and final bridge or culvert plans. The guidance provided in [I.M. 3.505](#), Check and Final Plans also applies. However, because of the differences between structural plans and roadway plans, the guidance provided in this I.M. shall govern in case of a conflict.

Definitions

Standard Designs – Those structures that use the Iowa DOT [Standard Culvert Plans](#) or Standard Bridge Plans, including those shown on the [County Bridge Standards Plans web page](#).

Non-standard Designs – Those structures that do not utilize the Iowa DOT Standard Bridge or Culvert Plans or use a modified version of these standards.

National Highway System (NHS) – A roadway system that includes all Interstate and certain other Principal Arterial highways, as shown on the [NHS map](#).

Preparation

Content and Format

The Iowa DOT recommends that LPA bridge or culvert projects follow the same format used for Iowa DOT bridge or culvert plans. [Attachment A](#) – Bridge or Culvert Plan Supplementary Checklist, provides basic guidance for preparing a satisfactory bridge or culvert plan for letting by the Iowa DOT. This checklist assumes the structure will use a standard design, and therefore it does not address many of the details and information that are already included on the standard bridge or culvert plans.

For structures with non-standard designs, designers may also wish to consult the Office of Bridges and Structures (OBS) [Culvert Plan Review Checklist](#), [Bridge Plan Review Checklist](#), and [Plan Review Checklist Notes](#). These checklists are much more detailed and may provide additional assistance to designers who are unfamiliar with the additional details required to prepare plans for a non-standard design.

Design Guidelines

All new or completely reconstructed Federal-aid bridge and culvert structures shall be designed in accordance with the most current edition of the *AASHTO Load and Resistance Factor Design (LRFD) Bridge Design Specifications*. Repair or rehabilitation of bridge and culvert structures may be designed in accordance with either the *American Association of State Highway Transportation Officials (AASHTO) Standard Specifications for Highway Bridges* or the *AASHTO LRFD Bridge Design Specifications*.

The Iowa DOT also recommends that LPA designers use the Iowa DOT [Office of Bridges and Structures Design Manual](#) as a guide for structural design of bridges and culverts.

Structural Reviews

Submittal Criteria

Bridge projects that meet either of the following criteria will require a structural review by the Iowa DOT Office of Bridges and Structures:

1. all structures on the National Highway System (NHS); or
2. all Federally funded structures that use non-standard designs and are not on the NHS.

For projects that meet either of the criteria listed above, submit 2 copies of the structural plans and calculations (if an in-depth review is required) to the Administering Office with the Check Plans. The submittal shall also include an email address or fax number for both the design engineer and the LPA contact person. Projects that require a structural review should be submitted in accordance with the submittal dates for major projects, as shown on [I.M. 3.005](#), Project Development Submittal Dates and Information.

The LPA may also request a structural review, even if not required by the criteria shown above. However, such reviews will be conducted at the discretion of the Office of Bridges and Structures, and only as time permits.

Content

The degree of structural review will be either “in-depth” or “ cursory” depending on the roadway classification of the structure. If the structure is on the NHS, the structural review will be “in-depth.” If the structure is not on the NHS, the structural review will be “ cursory.” These two types of review are further defined below.

In-depth Review

This review will include a detailed review of all plan notes, quantities, and structural details including possible review of structural calculations such as allowable pile bearings and design stresses. This review usually takes several days to complete. Upon completion of the review, the Office of Bridges and Structures will return one set of marked-up plans to the LPA with their comments and provide copies of the cover letter to the Administering Office and the consultant.

Cursory Review

This review will be general in nature. It will consist of a review of the design concepts and overall scope of the project. It will not include review of any structural calculations, details, quantities, or plan notes. This review will usually take less than one hour, and as a result, the scope of the review will usually be limited to general comments. The Office of Bridges and Structures will return written comments to the LPA via email or fax, and provide copies to the Administering Office and the consultant. No marked-up plans will be returned.

Bridge or Culvert Plan Supplementary Checklist

For Local Public Agency (LPA) Projects Let by the Iowa Department of Transportation (Iowa DOT)

Project No.: _____ Date: _____ LPA or Consulting Firm: _____

Name of Designer: _____ Phone No.: _____ email: _____

Note: This checklist shall be used in *addition* to the Check and Final Plans Checklist, which is included in I.M. 3.505 as [Attachment B](#). These checklists are not intended to cover all of the details, notes and information that may be necessary for acceptable Check and Final bridge or culvert plans. However, these checklists address the items where most questions or problems generally arise. *These checklists are requested, but not required with the Check Plan submittal.* These checklists are not needed with the final plan submittal.

GENERAL

- Highway Bridge Program (HBP) Eligibility.** If the project involves HBP funding, the bridge shall be shown on the FHWA Qualifying Bridge List, or if not on the list, shall be reviewed and approved for HBP funding eligibility by FHWA. For more information, refer to [I.M. 2.020](#), Federal and State Bridge Programs.

TITLE SHEET

- Shop Drawings / False Work Drawings Note.** If the plans specify that shop drawings are required, this note shall state the name, mailing address, phone number, and fax number of the agency responsible for checking the fabricator's shop drawings and the contractor's false work drawings. The agency may be a consulting engineering firm, the LPA, or a combination of the two. Note: The Iowa DOT no longer provides this service for LPA projects. The Iowa DOT shall not be listed as the agency responsible for checking shop drawings or false work drawings.

QUANTITY AND ESTIMATE REFERENCE SHEET(S)

- Non-participating Quantities.** If there are non-participating items, such as work items beyond the limits of the HBP participation, these quantities shall be shown in a separate column labeled "Non-Participating" on the estimated quantities tabulation. Note: Work outside the limits of the HBP participation, or otherwise ineligible for HBP funds, may be eligible for other types Federal funding. If other Federal funds are used, the quantities associated with these funds shall be shown in a separate column and labeled as appropriate.
- Epoxy Coated Steel.** All Federal-aid bridge projects shall use epoxy coated reinforcing steel in the following locations: deck slab (top and bottom mats), concrete diaphragms adjacent to deck expansion joints, barrier rail, median barriers, integral abutments, or any other area where exposure to de-icing salt is likely. However, this requirement may be waived if either of the following conditions are met: a) the LPA can show that either the extra cost of epoxy coated steel is not cost effective in extending the service life of the structure; or b) the bridge is located on an unpaved road that will not be paved anytime in the foreseeable future. Any such waiver requests shall be submitted to the Iowa DOT Administering Office for review and approval.

SITUATION PLAN or PLAN AND PROFILE SHEET(S)

- Centerline Section.** The following information shall be shown:
1. Centerline stationing at piers and abutments.
 2. Elevations, including profile grade, bridge seat, bottom of footing or cap, bottom of backing plank, bottom of wing plank, bottom of deadman, and top of berm.
 3. Include "H" dimension of abutments if high abutments are used.
 4. Specify the type, size, and length of pile.
 5. Show channel excavation.
 6. Note the type of bearings and whether they are fixed or expansion.
- Sounding Data.** The sounding data or soil information shall be plotted or shown, including the depth of each layer and a description of the layer. Include the blow counts if they are available. If the soil borings

use an elevation datum that is different than the plan elevation datum, the soil boring and plan elevations shall be related to one another by means of an elevation equation. If soils information is scanned and inserted on the plans, it shall be legible when printed on 11x17 size plan sheets.

- Guard Rail.** If guard rail is used, the layout and connections to the bridge shall be detailed. The appropriate Standard Road Plans [BA Series](#) should be referenced for more information.
- Plan View.** The following information shall be shown:
 1. Out-to-out of slab or paving notch.
 2. Length between centerline abutment bearings.
 3. Length of individual spans between centerline of supports.
 4. Skew angle of the bridge, if any.
 5. Width of the berm.
 6. Limits of Class 10 Channel Excavation.
 7. Soils test holes.
 8. Grid of bridge deck elevations
- HBP Participation Limits.** If the project limits extend beyond the limits of HBP funding participation, the participation limits shall be shown on the plan sheets, including beginning and ending stations. For guidance on determining HBP participation limits, refer to [I.M. 2.020](#), Federal and State Bridge Programs.
- HBP Participation in Deck Overlays.** If an HBP project involves a deck overlay, the plans shall indicate the specific areas of removal of deteriorated concrete. These removals shall be supported by chloride testing results, which shall be submitted to the Administering Office with the project plans. If chloride testing was not conducted, the plans shall require milling the entire deck down to the top mat of reinforcing steel to ensure that all chloride contaminated concrete is removed.

PLAN NOTES (can be on the situation plan, plan and profile, or general notes sheets)

- Existing Structure Notes.** The following shall be included in the notes:
 1. The dimensions of the structure.
 2. The type of superstructure, floor, and substructure.
 3. The location, including its centerline stationing.
 4. Specify the LPA, the bridge contractor, or other specifically identified party as responsible for removing the existing structure.
 5. Specify how the existing structure will be disposed of. Possibilities include: a) salvage (salvage value not needed on plans, but needed by Office of Contracts if federal funds are involved), b) scrapped, or c) to become the property of the contractor.
- Piling Information.** The following information shall be shown for the pilings:
 1. Driving instructions (if different than standard).
 2. Specify the bearing required for abutment piles.
 3. Specify the bearing required for pier piles.
 4. Note if oversized piles are required. If required, give the minimum diameter 3 feet from the butt end of the pile.
- Other Notes.** The following miscellaneous information shall be identified:
 1. If Class 24 Excavation is used, describe where it is to be obtained.
 2. Specify whether a monolithic or non-monolithic pier cap is to be used and if "cap steel" is required. See Standard Bridge Plan [P10A](#) (or [P10L](#) for LRFD designs).
 3. If berms are required, specify who is to build them.
 4. State who is to build the approaches.

MODIFIED STANDARD PLANS OR SPECIAL DETAIL SHEETS

- Drawings.** Modifications to existing standards should provide sufficient detail and notes to clarify the changes made to the standard plan. Any special details should provide the contractor enough information to accurately bid and construct the detailed item. Modified standard plans or special detail sheets shall be included in the plans. If a standard plan is modified, references to the standard plan number and revision date shall be removed.

- Bar Lists.** A reinforcing bar list shall be provided for any special details or modified standard plans.
- Concrete Placement Quantities.** For each detailed item, the quantity of concrete placement required for that item shall be shown.

