Guide and / or I.M. Revision Notice

To: Cities, Counties, and Consultants **Date:** May 7, 2015

From: Office of Local Systems **Revision Notice Number:** 2015-01

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existing Project Development Information Packet (Packet) or County Engineers I.M. documents that have been replaced or superseded.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 May 7, 2015	The I.M. Table of Contents has been revised to reflect new or revised I.M.s, as indicated below.
I.M. 2.120 Bridge Inspections May 7, 2015	This I.M. has been updated. Substantive changes from the previous version include the following: • Under the Bridge Inspection Organization section, removed the requirement that the LPA is responsible for maintaining bridges that are not covered by the NBIS regulation but are still within the public right-of-way.
I.M. 3.005 Project Development Submittal Dates and Information May 7, 2015	This I.M. has been updated. The Submittal Dates for Local Public Agency Projects Let by the Iowa DOT was updated through the November 21, 2017, letting.
I.M. 3.305 Federal-aid Participation in Consultant Costs May 7, 2015	This I.M. has been updated. Substantive changes from the previous version include the following: • Revised the definition of Preliminary Engineering (PE) to include, rather than exclude, preparation of an Interchange Justification Report (IJR). • Under the Contract Administration, Reimbursements section, included the requirement to use Form 240007 on Federal grant program projects. • Standard Consultant Contract (Attachment D) • Revised Article 4.7 to indicate Iowa DOT concurrence is required for approval of extra work. • Revised Attachment C, Cost-Plus Fixed Fee, to indicate Iowa DOT concurrence is required to exceed the estimated costs. • Revised Attachment C, Specific Rates of Compensation, to indicate Iowa DOT concurrence is required for release of contingency. • Revised Attachment C, Unit Price, to indicate Iowa DOT concurrence is required for release of contingency. • Revised Attachment C, Fixed Overhead Rate, to indicate Iowa DOT concurrence is required to exceed the estimated costs.

Document Title or I.M Number	Summary of Significant Revision(s)
I.M. 3.410 Preliminary Bridge or Culvert Plans May 7, 2015	This I.M. has been updated. Substantive changes from the previous version include the following: • The criteria for when a hydraulic review by the Office of Bridges and Structures is required has been revised. The first criterion used to be whether the structure was located anywhere in a community that had a detailed Flood Insurance Study (FIS). Now the first criterion is whether the structure is located in an area where 100-year flood elevations have been determined by a detailed FIS. Structures not such areas do not need to be reviewed, so this should cut down the number of reviews and streamline the process for both Iowa DOT and local agencies. • Attachment A has also been completely re-written. Previously, it included a list of communities with detailed Flood Insurance Studies. Now it contains revised criteria for when a hydraulic review is required. • Attachments C and D had title and formatting updates.
I.M. 3.510 Check and Final Bridge or Culvert Plans May 7, 2015	This I.M. has been updated. Substantive changes from the previous version include the following: • The links to the Iowa DOT standard bridge and culvert plans have been updated. • The design guidance has been revised to simply reference the Iowa DOT LRFD Design Manual. The Iowa DOT manual uses the various other AASTO standards previously listed in this I.M., so it is not necessary to specify those in the I.M. • Attachment A has revisions to the Plan Notes for Existing Structures Notes and Other Notes.
I.M. 3.670 Work on Railroad Right-of-Way May 7, 2015	This I.M. has been completely re-written. Previously this I.M. and Attachment A and B were based on the requirements for the Union Pacific RR. Now the I.M. includes only general guidance and instructions that would be applicable when working with any railroad. To address the more detailed information specific to each railroad, such as notification requirements, specifications, and bid items, the I.M. references the Railroad Information Sheets for Local Public Agencies. Attachments A and B are deleted but hyperlinks to these documents are available on the Railroad Information Sheets for Local Public Agencies. The previous Attachment C will become Attachment A to I.M. 3.670 refers to a pre-letting notification of all railroads by the Office of Rail Transportation for all projects in upcoming lettings through the Iowa DOT. This process is not yet in place, but will be soon.
I.M. 3.680 Federal-aid Projects Involving Railroads May 7, 2015	This I.M. has been updated. Substantive changes from the previous version include the following: • On p. 3, the agreement requirements reference the language required by Appendix A to the DOT Standard Title VI Assurances. • On p. 3, Buy America requirements have been added. • On p. 5, the agreement review procedures were modified to clarify the respective roles of the Administering Office and the Office of Rail Transportation. • It's generally assumed that review documents will transmitted via e-mail instead of paper, so all references to multiple copies of review documents in the I.M. and the flowchart in Attachment A were dropped.
I.M. 3.910 **Attachment F** Final Forms Packet Checklist May 7, 2015	This I.M. has been updated. Substantive changes from the previous version include the following: • Corrected requirement for Interest Payment Information.

Instructional Memorandums to Local Public Agencies
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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
Section 2.1 -- Maintenance			
2.110	Maintenance of County Roads at Intersections, Interchanges, and Grade Separations with the Primary Highway System	May 12, 2014	Counties
	Attachment A – Iowa DOT PPM 630.01, Rural Intersection and Destination Lighting	March 16, 2004	Counties
	Attachment B – Iowa DOT PPM 630.03, Interchange and Freeway Lighting	March 16, 2004	Counties
2.120*	Bridge Inspections	May 7, 2015	Both
	Attachment A - Bridge Scour Stability Worksheet - Level A Evaluation (Word)	May 11, 2011	Both
	Attachment B - Intermediate Scour Assessment - Level B Evaluations	October 1, 2013	Both
	Attachment C - Scour Plan of Action (POA) (Word)	May 11, 2011	Both
	Attachment D - Scope of Services for NBI Bridge Inspection Services (Word)	July 18, 2013	Both
	Attachment E - Iowa Legal Trucks Diagrams	July 18, 2013	Both
	Attachment F - Routine Permit Trucks Diagrams	July 18, 2013	Both
	Attachment G - USGS Hydrologic Region Map with Region Descriptions	July 18, 2013	Both
	Attachment H - Unknown Foundations Guidance, Flowchart, Risk Assessment, Worksheet, and Plan of Action (POA) - Level A Evaluation (Word)	July 18, 2013	Both
	Attachment I - Unknown Foundations Flowchart - Level B Evaluation	July 18, 2013	Both
	Attachment J - Quality Assurance Field Review Worksheet (Word)	July 18, 2013	Both
	Attachment K - Fracture Critical Member Locations and Conditions for Trusses form (Word)	July 18, 2013	Both
	Attachment L - Fracture Critical Member Locations and Conditions for Thru/Two Girders form (Word)	July 18, 2013	Both
	Attachment M - Sample Fracture Critical Member Locations and Conditions for Trusses form	July 18, 2013	Both
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	May 12, 2014	Counties
	Attachment A - Area Service “B” Sample Ordinance (Word)	May 12, 2014	Counties
	Attachment B - Area Service “B” Sample Resolution (Word)	May 12, 2014	Counties
	Attachment C - Area Service “C” Sample Ordinance (Word)	May 12, 2014	Counties
	Attachment D - Area Service “C” Sample Resolution (Word)	May 12, 2014	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 4 – Systems Classification And Identification

Section 4.0 -- General

Section 4.1 -- (Reserved)

Section 4.2 -- Farm-to-Market System

INSTRUCTIONAL MEMORANDUMS
To Local Public Agencies

To:	Counties and Cities	Date: May 7, 2015
From:	Office of Local Systems	I.M. No. 2.120
Subject:	Bridge Inspections	

Contents: This Instructional Memorandum (I.M.) includes guidelines and procedures for a Local Public Agency (LPA) to assist them in complying with the National Bridge Inspection Standards (NBIS). This I.M. also includes the following attachments:

Attachment A - Bridge Scour Stability Worksheet – Level A Evaluation (Word)
Attachment B - Intermediate Scour Assessment Flowchart – Level B Evaluation
Attachment C - Scour Plan of Action (POA) (Word)
Attachment D - Scope of Services for NBI Bridge Inspection Services (Word)
Attachment E - Iowa Legal Trucks Diagrams
Attachment F - Routine Permit Trucks Diagrams
Attachment G - USGS Hydrologic Region Map with Region Descriptions
Attachment H - Unknown Foundations Guidance, Flowchart, Risk Assessment, Worksheet, and Plan of Action (POA) - Level A Evaluation (Word)
Attachment I - Unknown Foundations Flowchart - Level B Evaluation
Attachment J - Quality Assurance Field Review Worksheet (Word)
Attachment K - Fracture Critical Member Locations and Conditions for Trusses Form (Word)
Attachment L - Fracture Critical Member Locations and Conditions for Thru/Two Girders Form (Word)
Attachment M - Sample Fracture Critical Member Locations and Conditions for Trusses Form

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INTRODUCTION

According to Iowa Code Chapter 314.18, the counties, cities, and other public agencies are responsible for the safety inspection and evaluation of all highway bridges under their jurisdiction which are located on public roads, in accordance with the NBIS. These responsibilities include inspection policies and procedures, inspections, reports, load ratings, quality control (QC), quality assurance (QA), maintaining a bridge inventory, and other requirements of the NBIS.

The NBIS may be found in 23 CFR 650. The following are additions or clarifications to the indicated subsections of 23 CFR 650.

DEFINITIONS (23 CFR 650.305)

Armored Countermeasure (Armoring) - Material such as Class E Revetment, according to Section 4130 of the Standard Specifications, placed under and around a bridge structure for the purpose of protecting the embankment or berm from scour and/or erosion. Armoring is not a permanent countermeasure since the material is subject to displacement during a major flood event which is considered to be the lesser of the 500 year or roadway overtopping event.

Bridge Inspector Refresher Training Course – (FHWA-NHI-130053) – The major goals of this course are to refresh the skills of practicing bridge inspectors in fundamental visual inspection techniques, review the background knowledge necessary to understand how bridges function, communication issues of national significance relative to the nations' bridge infrastructures, re-establish proper condition and appraisal rating practices, and review the professional obligations of bridge inspectors.

Fracture Critical Inspection Techniques for Steel Bridges Training Course – (FHWA-NHI-130078) – The course curriculum for this training reflects current practices, while addressing new and emerging technologies available to bridge inspectors. In addition, the course features exemplary training, hands-on workshops for popular types of nondestructive evaluation (NDE) equipment, and a case study of an inspection plan for a fracture critical bridge.

Fracture Critical Member (FCM) - A steel member in tension, or with a tension element, whose failure would probably cause a portion of or the entire bridge to collapse. Floor beams are considered to be fracture critical members when the floor beam spacing is greater than 14 feet.

Extended Inspection Cycle - A period of time to allow for unforeseen circumstances such as severe weather, concern for bridge inspector safety, concern for inspection quality, the need to optimize scheduling with other bridges, or other unique situations may be cause to adjust the scheduled inspection date. The adjusted date should not extend more than 30 days beyond the scheduled inspection date.

Independent Party - An entity not influenced by or affiliated with the LPA or the LPA's Program Manager. An LPA or consulting firm with more than one Program Manager can utilize an alternate Program Manager from the same consulting firm or LPA to conduct the QA review.

Low Water - Water depth of less than 6 feet.

Monthly Notifications – automated notifications sent by e-mail to the LPA's by the Iowa DOT's Office of Bridges and Structures regarding inspections past due or bridges not in compliance with posting requirements on a monthly basis.

Permanent Countermeasure - Designed to account for all three major types of scour (i.e. long term degradation, general or contraction scour, and local pier or abutment scour). Properly designed and installed systems satisfy the requirements of a "Permanent" classification. Examples of permanent systems include:

- Fabric Formed Articulated Block Mattress (ABM)
- Stone Revetment
- Proprietary Articulated Concrete Block (ACB)
- Gabion Mattress

Stone revetment is subject to displacement during a major flood event which is considered to be the lesser of the 500 year or roadway overtopping event. Therefore, unless the revetment is designed in accordance with Hydraulic Engineering Circular (HEC) HEC 23 and contained, it cannot be considered to provide adequate protection to attain a "Permanent" classification. The following are some examples of permanent stone revetment:

- Burial below the contraction scour elevation.
- Installation of cut-off walls.
- Placing the revetment as launchable stone.

Safety Inspection of In-service Bridges Course – (FHWA-NHI-130055) – This course is based on the "Bridge Inspector's Reference Manual" and provides training on the safety inspection of in-service highway bridges. Satisfactory completion of this course will fulfill the training requirements of the National Bridge Inspection Standards (NBIS) for a comprehensive training course. This course does not address fracture critical, underwater, or complex structures.

Scour Plan of Action (POA) (see Attachment C to this IM) - A POA is a written procedure developed by the bridge owner or delegated Program Manager that outlines the monitoring plan for a specific bridge. The plan provides guidelines and practical information pertaining to each bridge for the purpose of monitoring foundation scour during flood events.

Standard bridge – a bridge constructed using the "Bridge Standards" developed by the Iowa DOT. See the Procedures for Rating Standard Bridges section below in this IM.

Structural Inventory and Inspection Management System (SIIMS)$^{(R)}$ - Bridge inspection data collection software.

Scour Evaluation - Scour evaluation is the process of determining the susceptibility of each bridge for scour. The depth, or level, of this process varies for each bridge. Some bridges may be determined scour safe after the first level of evaluation, Level A. Other bridges cannot be determined scour safe after Level A so they shall go to Level B using assessment procedures. Still others may need to go to the highest level of evaluation, Level C.

Level A - Bridge Scour Stability Worksheets (see Attachment A to this IM). Bridges that meet the required Stability Total of less than 35 points, do not need any further evaluation, and may be considered scour safe.

Bridges with a Stability Total of 35 points or greater need further evaluation using the Level B Intermediate Scour Assessment Procedures Flowchart (see Attachment B to this IM).

Level B - Intermediate Scour Assessment Procedures Flowchart (see Attachment B to this IM). From this assessment, bridges are determined to be either stable, limited risk needing monitoring, scour susceptible needing monitoring, or scour susceptible needing a Level C Evaluation.

Level C - This is the most in-depth level of the evaluation process needed for those bridges that do not satisfy guidelines in the Level B Evaluation. A full computational analysis is completed using the Federal Highway Administration's HEC 18 procedures and a determination is made concerning the stability of the bridge. Bridge owners may decide to develop a Plan of Action (POA) for these structures in lieu of the Level C Evaluation.

Thalweg - The lowest point in the stream channel along the cross section.

Unknown Foundation Plan of Action (POA) – A risk based POA developed by the bridge owner or Program Manager after completing the unknown foundation risk assessment worksheet to determine the level of risk to the traveling public.

USE OF CONSULTANT SERVICES

Use of consultant services for bridge inspection in accordance with this IM is acceptable. For consistency in inspections, it is strongly recommended that Attachment D to this I.M., Scope of Services for NBIS Bridge Inspection Services, be included in the Request for Proposal, if applicable, and the agreement. Use of Attachment D to this I.M., Scope of Service for NBIS Bridge Inspection Services, will ensure the NBIS requirements and activities are met.

OFFICIAL BRIDGE FILES

It is FHWA's expectations that the bridge owner will maintain a complete Bridge File for each individual bridge with all the required components documenting the bridge's inspection history. The various forms and documents required to be completed by the Iowa DOT in SIIMS qualify as "State Forms", which are required to be completed as part of the Official Bridge File.

The Iowa DOT as the Official Bridge Inspection Organization has the authority to establish requirements for the completion of State forms and other supporting documentation in a manner consistent with managing a bridge management system and quality assurance program. Therefore, the SIIMS records serve in this capacity as part of the Official Bridge File.

There are however, other documents that are not required to be included in SIIMS that should be maintained by the bridge owner as stated in the AASHTO Manual for Bridge Evaluation (MBE) Section 2.2, Components of Bridge Records. These also constitute part of the bridge file and the owner is free to keep such records in either hard copy or electronic format of their choosing. In conclusion, the Bridge File is a combination of SIIMS bridge records required to be maintained by the Iowa DOT and other documents maintained separately by the bridge owner as per the MBE.

BRIDGE INSPECTION ORGANIZATION (23 CFR 650.307, d)

According to Iowa Code 314.18, the counties, cities, and other public agencies are responsible for the safety inspection and evaluation of all highway bridges under their jurisdiction, which are located on public roads, in accordance with the NBIS. These responsibilities include inspection policies and procedures, inspection reports, load ratings, QC, QA, maintaining a bridge inventory, and other requirements of the NBIS.

The NBIS regulations apply to all publicly owned highway bridges longer than 20 feet located on public roads. Railroad and pedestrian structures that do not carry vehicular traffic are not covered by the NBIS regulations. Similarly, the NBIS does not apply to inspection of sign support structures, high mast lighting, retaining walls, noise barrier structures, and overhead traffic signs. Tunnels, since they are not bridges, are not covered by the

NBIS. Bridges within the public right-of-way but not on the roadway, such as entrances to fields and driveways to private properties, are not covered by the NBIS regulations.

A bridge on a public highway where the bridge is privately owned is not subject to the NBIS and therefore, the FHWA has no legal authority to require private bridge owners to inspect or maintain their bridges. However, the FHWA strongly encourages private bridge owners to follow the NBIS as a standard for inspecting their structures or reroute the public road when a privately owned bridge carries a public road,

The Bridge Owner shall have a Program Manager who is assigned the above responsibilities. The Bridge Owner may retain a consultant to perform the duties of Program Manager.

QUALIFICATIONS OF PERSONNEL (23 CFR 650.309, b)

Bridge inspection experience is defined in the NBIS as active participation in bridge inspections in accordance with the NBIS, in either field inspections, or a supervisory or management role. A combination of bridge design, bridge maintenance, bridge construction, and bridge inspection experience, with the predominant amount in bridge inspection, is acceptable.

The Iowa DOT has developed the following criteria to determine if an individual with experience performing bridge inspections has the qualifications of a Team Leader in accordance with 23 CFR 650.309(b).

1. Licensed Professional Engineers are required to successfully complete the Safety Inspection of In-Service Bridges Course (FHWA-NHI-130055).
2. Technicians are required to have a minimum of 5 years of bridge inspection experience as defined in the NBIS to include the completion of a minimum of 500 field inspections under the supervision of a qualified Team Leader along with the successful completion of the Safety Inspection of In-Service Bridges Course (FHWA-NHI-130055).
3. Technicians that are National Institute for Certification in Engineering Technologies (NICET) certified as Level III or IV Bridge Safety Inspectors are required to successfully complete the Safety Inspection of In-Service Bridges Course (FHWA-NHI-130055).
4. Engineer Interns that have successfully completed the Fundamentals of Engineering Exam are required to have a minimum of 2 years of bridge inspection experience and have completed a minimum of 200 field inspections under the supervision of a qualified Team Leader along with the successful completion of the Safety Inspection of In-Service Bridges Course (FHWA-NHI-130055).
5. Individuals with an associate's degree in engineering or engineering technology are required to have a minimum of 4 years of bridge inspection experience and have completed a minimum of 400 field inspections under the supervision of a qualified Team Leader along with the successful completion of the Safety Inspection of In-Service Bridges Course (FHWA-NHI-13005).

Bridge inspectors not qualified as Team Leaders may assist the Team Leader but may not inspect bridges independently. Education and experience requirements for bridge inspectors who are not Team Leaders should be determined by the Program Manager or Bridge Owner.

Program Managers and Team Leaders who perform field inspections on FCM's shall complete the Fracture Critical (FC) Inspection Techniques for Steel Bridges Training Course, by December 31, 2012. Any individual that meets the qualifications of Program Manager or Team Leader after December 31, 2012, that will be performing field inspections on FCM's shall complete the Fracture Critical (FC) Inspection Techniques for Steel Bridges Training Course.

The NBIS requires periodic bridge inspection refresher training for Program Managers and Team Leaders as part of QC and QA. The Iowa DOT has defined periodic as being every 5 years. Therefore, all bridge inspection personnel are required to complete the Bridge Inspection Refresher Training Course every 5 years following the completion of the Safety inspection of In-Service Bridges Training Course.

Program Managers and Team Leaders whose qualifications have expired have 12 months from the expiration date to successfully complete the Bridge Inspection Refresher Training Course before they are disqualified. The Program Managers and Team Leaders can perform inspection duties during the 12 month "Grace Period"; however, if they have not completed the Bridge Inspection Refresher Training Course within the 12 months they will be disqualified as a Program Manager or Team Leader until they complete this required course.

The two week Safety Inspection of In-Service Bridges Course has been updated. As a result of the significant improvements made to this course, there are new requirements of the participants. All participants taking the two week course must have successfully completed **one** of the following prerequisite courses with a score of 70% or better:

- Prerequisite Assessment for Safety Inspection of In-Service Bridges Course (FHWA-NHI-130101A): a 1 hour web-based course at no cost. This is a test out course for those individuals with significant experience and/or a comprehensive background in bridge inspection or engineering.
- Introduction to Safety Inspection of In-Service Bridges Course (FHWA-NHI-130101): a 14 hour web-based course at no cost. This course is for individuals with limited experience with in-service bridge inspection.
- Engineering Concepts for Bridge Inspectors Course (FHWA-NHI-130054): a 5-day instructor led course for which there is an associated cost per person. This is an in-person course for those individuals with limited experience with in-service bridge inspection.

Upon successful completion of one of the prerequisite requirements, participants may enroll in the two week Safety Inspection of In-Service Bridges Course, for up to 2 years. After 2 years, participants will need to retake one of the prerequisites prior to enrolling. Participants must bring a certificate of completion from one of the prerequisite options to the first day of the Safety Inspection of In-Service Bridges Course.

Professional Engineers that have successfully completed the Safety Inspection of In-Service Bridges have met the qualifications to be bridge inspection Program Managers as per the NBIS. The Iowa DOT provides access to bridge records authorized by the bridge owners in SIIMS bridge inspection software to these individuals once they have submitted the Bridge Inspector form provided on the SIIMS website to the Iowa DOT for review and approval.

Approved Program Managers are provided access to all forms and records for each bridge in SIIMS authorized by the bridge owner. Individuals approving the Load Rating form are required to be Professional Engineers licensed in the state of Iowa. Therefore, each person that is required to approve the load rating information must submit the Bridge Load Rating form provided in SIIMS. The Bridge Load Rating form must be reviewed and approved by the DOT, or by an approved Program Manger who has submitted the Bridge Inspector form including Professional License information. Editing of the Bridge Load Rating form by other users with authorized access to the bridge forms is permitted but approval can only be completed by a qualified Load Rater.

INSPECTION FREQUENCY (23CFR 650.311)

Routine Inspections (23CFR 650.311, a)

The required inspection frequency for routine inspections may be extended by the extended inspection cycle to account for unforeseen circumstances as described in the definition of extended inspection cycle. Subsequent inspections should adhere to the previously established interval; that is the use of the extended inspection cycle should be an exception. The inspection date recorded for Item 90, Inspection Date, shall be the actual date the new inspection is initiated. The details of why the bridge inspection was late shall be documented in SIIMS.

A late inspection is defined as not being completed within or before the month of the previous inspection. If 10 or more bridges will be late for inspection in a given month for a local public agency, an e-mail submitted to the DOT explaining the delayed inspections is acceptable, in lieu of entering comments for each bridge individually.

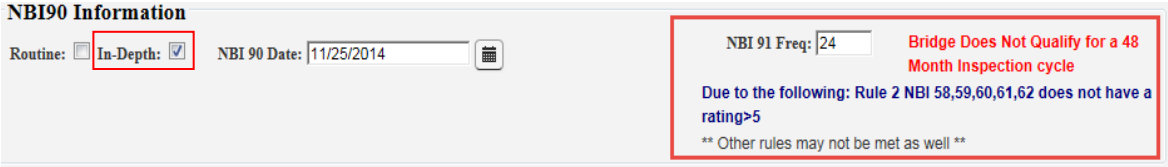
Bridges that have Item 58, Deck; Item 59, Superstructure; or Item 60, Substructure, with a condition rating of 3 or less, should have an inspection frequency less than 24 months, which may be an in-depth inspection on a more frequent basis or a special inspection in between routine inspections. Other factors that may impact frequency of inspections are Item 29, ADT; Item 70, Posting; Item 64, Operating Rating; and all items under Structure Type and Materials on the SI&A form.

Extended Inspection Frequency

The criteria for qualifying bridge structures for 48 month inspection frequency are listed in the Bridge Inspection Manual Section 1.4.4.

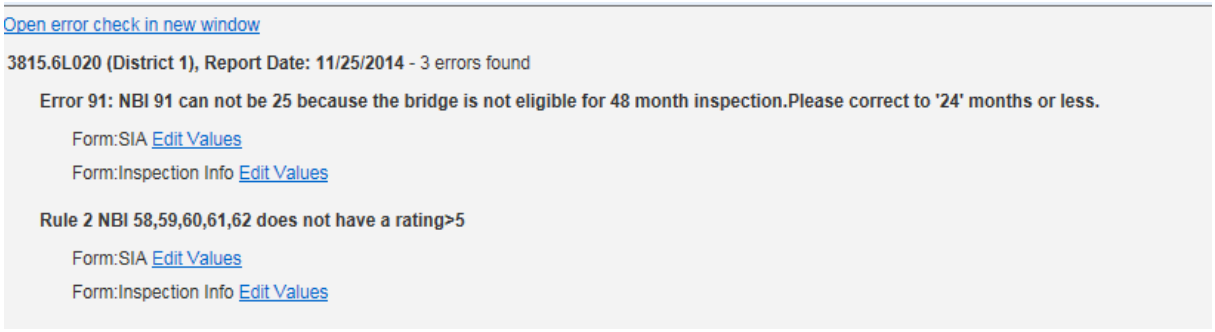
An in-depth inspection must be completed in order to go to an extended inspection frequency. Also all other rules set forth by the FHWA must be satisfied at the time of the inspection. These rules are detailed in the Bridge Inspection Manual.

When an inspection report is created, SIIMs will indicate on the Inspection Info form whether the bridge is eligible for 48 month inspection cycle based on the current edit asset values. If the bridge is not eligible, SIIMs will indicate the bridge is not eligible with the statement “Bridge Does Not Qualify for a 48 Month Inspection Cycle” and why after the “Due to the following:” as shown in the screen shot below.



As the bridge is inspected, criteria could change that make a bridge ineligible or eligible for an extended inspection. If this happens the Inspection Info will only be updated after going to the Error Check form or when trying to finalize an inspection report as shown below.

Error check form



A management report called Extended Inspection Frequency Report can be run and used to determine if a bridge is eligible or not eligible for an extended inspection frequency. If the bridge passes all the rules except rule 17 (An In-depth inspection was not done at the current inspection and the last value of NBI 91 was not 48) the bridge may be eligible for an extended inspection frequency of up to 48 months at the next inspection if an in-depth inspection is performed.

Underwater Inspections (23CFR 650.311, b)

Underwater inspection requirements covered in this article pertain to the inspection of the structural elements such as abutments or piers to determine the structural integrity. If at any time during the 60 month underwater inspection interval, the water level is less than 6 feet, inspections may be performed with a method appropriate for the element without the use of divers.

Structures that experience low water levels less than 6 feet have the structural elements inspected by means of wading and probing during the regular inspection cycles. The DOT is allowing the bridge owner the option of inspecting the underwater substructure elements on a 48 month inspection cycle when the low water level is more than 2 feet and less than 6 feet. If the 48 month inspection cycle is utilized, then Item 92B, Underwater Inspection (frequency), needs to reflect the 48 month cycle and Item 93B,Underwater Inspection (date), needs to have the date of the underwater inspection entered.

Bridges that have Item 60, Substructure, with a condition rating of 3 or less due to deficiencies below the waterline should have an underwater inspection frequency less than 60 months. Other factors that may impact frequency of inspections are Item 29, ADT; Item 70, Posting; Item 64, Operating Rating; all items under Structure Type and Materials; environment; age; and scour characteristics.

Fracture Critical Members (FCMs) (23CFR 650.311, c)

Criteria for Inspection Frequencies Less Than 24 Months

1. The alignment of FCMs or sub-elements has measurably changed from the as-built condition.
2. Deterioration in tension areas of a FCM has caused Item 59, Superstructure, to have a condition rating of 3 or less.
3. Item 59, Superstructure, with a condition rating of 4, should be considered for an inspection frequency less than 24 months.

Special Inspection Criteria

1. Deterioration is progressing at a rate that warrants inspection more frequently than 24 months or when there is a condition rating of 2 or less.
2. Channel degradation or channel movement is progressing at a rate that warrants inspection more frequently than 24 months or when there is a condition rating of 2 or less.
3. More frequent inspections should be considered when temporary supports are in place.
4. Fatigue cracks have been found in a redundant steel structure. Special Inspections can be stopped when repair has been performed to mitigate the cracks.
5. Fatigue cracks have been found in a FCM. Special Inspections should continue even after cracks have been mitigated. Only after the potential for any future fatigue cracks has been eliminated can Special Inspections be stopped on a Fracture Critical bridge.
6. Collision damage has severely affected the load capacity of the bridge and repairs cannot be done within a reasonable time period. Once repairs have been made, the Special Inspections can be stopped.
7. Section loss has severely affected the load capacity of the bridge. Once repairs or rehabilitation work have been completed, the Special Inspections can be stopped.

Upon completing the final Special Inspection, the check box must be marked in the Inspection Information section, to indicate that no additional Special Inspections are required. If the check box is not marked, the inspection frequency will continue and the Special Inspection will be due again according to the frequency specified.

INSPECTION PROCEDURES

Load Rating (23 CFR 650.313, c)

Bridges are to be load rated in accordance with the FHWA Policy Memorandum on Bridge Load Ratings for the National Bridge Inventory, dated November 5, 1993 and FHWA Policy Memorandum on Bridge Load Ratings for the National Bridge Inventory, dated October 30, 2006. Item 64, Operating Rating; and Item 66, Inventory Rating; will need to be updated accordingly upon completion of the new load rating capacity calculations. Computations shall be performed based on items found during the most recent field inspection. See the Load Rating Evaluation Form in SIIMS.

At the discretion of the Program Manager, Team Leader, or Load Rater, the bridge may be re-rated to reflect changes in condition, method of analysis used, or changes in acceptable load rating methodologies. The re-rating may be justified without changes in the condition codes of Item 58, Deck; Item 59, Superstructure; or Item 60, Substructure. A new Bridge Load Rating Report form will need to be generated in SIIMS and the form certified by a Professional Engineer, licensed in the State of Iowa, when the controlling member changes or the controlling capacity is reduced.

Procedures for Rating Standard Bridges

The following procedure should be utilized for determining the load ratings of standard bridges that have been rated by the Iowa Highway Research Board Project, HR-239. There are currently 4 phases of the report available for different standard bridge designs (Load Rating for Standard Bridges (1982), Load Rating for Secondary Bridges (1991), Load Rating for Standard Bridges, Phase III (1998), and Load Rating for Standard Bridges, Phase IV (2008)).

1. Identify the standard bridge used. Refer to project plans, if available, in the Bridge File to determine the version of the standard utilized. Some standards have multiple versions due to minor revisions.

2. Item 27, Year Built, is a good indicator of which standard version was used, if you are unable to locate the original plans. Some verification may be necessary in the field to determine exactly which version was utilized.

3. Review the applied dead load to determine if it matches the standard rating assumptions.

4. The operating and inventory ratings in the summary for each standard bridge are coded as an HS rating. This is NOT what should be coded on Items 64, Operating Rating, and Item 66, Inventory Rating, on the SI&A form. These numbers shall be converted to a tonnage based on a 36 ton truck.

   The HS number shall be multiplied by the ratio of 36 tons/20 tons = 1.8 and this number recorded on the SI&A in Items 64, Operating Rating, and Item 66, Inventory Rating. For example, if the operating and inventory ratings are listed as HS 32.0 and HS 23.3 respectively; then Item 64, Operating Rating, should be coded 57.6 (32.0 tons x 1.8 = 57.6 tons) and Item 66, Inventory Rating, should be coded 41.9 (23.3 tons x 1.8 = 41.9 tons).

5. Some of the HR-239 reports include detailed computations for review of the critical and non-critical elements. These computations can be adjusted when changes to the dead load conditions are encountered or section loss in structural elements are noted.

6. Some of the standard bridges have restrictions to the number of vehicles that may be on the bridge at one time even if the roadway will accommodate more than one vehicle. If bridges are rated using one lane loading these bridges shall be posted accordingly and Item 41, Posting Status, on the SI&A coded based on the restriction.

7. When standard ratings are used from any of the HR-239 reports, the Bridge Load Rating Report does not require a signature by a Professional Engineer, licensed in the State of Iowa. In the Comment section of the Bridge Load Rating Report identify which of the Iowa DOT Office of Bridges and Structures Bridge Standard was used.

The Federal Government instituted a policy to use only metric units for all measurement. Therefore, FHWA requires all National Bridge Inventory data to be in metric units. The Iowa DOT has chosen to use English units instead of metric. SIIMS was developed using English units for all measurements; including, but not exclusive to, vertical and horizontal clearances, deck widths, bridge length, and Inventory and Operating ratings. These English values will be converted to metric units by SIIMS for the annual National Bridge Inventory submittal.

The Inventory, Operating, and Posting ratings are typically governed by superstructure elements; and in some cases, deck elements. Further analysis may be necessary to determine the capacity if significant changes in condition or applied dead load are noted based on the current conditions. Substructures should be reviewed for deterioration and rated, if necessary. Section loss should be reviewed and losses considered in adjustments to the original ratings.

Load Factor Rating (LFR) Requirements

Bridges are to be load rated in accordance with the FHWA Policy Memorandum on Bridge Load Ratings for the National Bridge Inventory, dated November 5, 1993, for all bridges constructed, replaced, or rehabilitated since January 1, 1994. Bridges in this category shall be rated by load factor methods.

These ratings are required for the HS ratings Items 64, Operating Rating, and Item 66, Inventory Rating, on the SI&A. The bridge owner may elect to use Load Factor Rating (LFR), Allowable Stress Rating (ASR), or Load Resistance Factor Rating (LRFR) to establish load limits for purposes of load posting.

Bridges built or rehabilitated since January 1, 1994, falling into the following categories shall be rated by load factor methods:

1. Bridges constructed or replaced with the following materials:

   a. Steel produced in 1936 (33 ksi or better) or after.
   b. Prestressed concrete.
   c. Reinforced concrete.

2. Bridges that undergo major rehabilitation or repairs.

3. Bridges designed with the Load Resistance Factor Design (LRFD) method prior to October 1, 2010, shall be rated with LRFR or LFR method. Bridges designed after October 1, 2010, shall be rated LRFR.

The following material types do not require LFR analysis and may be analyzed using ASR:

1. Masonry including stone, concrete block, or clay brick.

2. Bridges constructed with timber and designed prior to October 1, 2010.

3. Rolled steel produced prior to 1936 (30 ksi or less).

Bridge Load Rating Report

A Bridge Load Rating Report has been developed in SIIMS for each bridge to help identify the critical elements for the capacity rating of the structure and for certification of the ratings by a Professional Engineer, licensed in the State of Iowa.

1. All rating calculations shall be certified by a Professional Engineer, licensed in the State of Iowa, and summarized on the Bridge Load Rating Report in SIIMS.

2. The Bridge Load Rating Report shall be reviewed by the Program Manager or Team Leader to ensure that it indicates the critical element, the operating and inventory ratings and the method of analysis used to determine the rating capacity of the bridge.

3. Rating calculations for standard bridges shall be reviewed using the Load Rating Evaluation Form in SIIMS by a Professional Engineer, licensed in the State of Iowa, to verify the ratings are still applicable under the current condition ratings and applied loads of the bridge, and be summarized on the Bridge Load Rating Report. For standard bridges the Controlling Element and Location fields are not required to be completed.

4. The ratings for a standard bridge found in one of the HR-239 reports can be entered in the Load Rating Report when the bridge is still in a condition that warrants this rating. When this rating is entered, a licensed engineer must place there name, date, and license number at the bottom of the Load Rating Report form. The engineer must place the following comment in the comment box at the bottom of the Load Rating Report form when using ratings from HR-239: “The engineer’s name on this report is not certifying these ratings, but is only verifying they are the correct ratings from the HR-239 report published by the Iowa D.O.T. for this standard bridge.

5. If a Bridge Load Rating Report has been previously completed, existing ratings shall be reviewed with the critical elements being determined from available file information and accepted by a Professional Engineer, licensed in the State of Iowa. Recertification is not required for existing computations included in the file that are deemed reasonable based on the present condition of the structure.

6. Re-ratings needed due to reasons listed in the Load Rating Evaluation Form in SIIMS will need to be certified if the element re-rated becomes the critical element and controls the capacity of the structure.

7. Completing the Load Rating Table on the Bridge Load Rating Report is required for all bridges being rated for the first time or re-rated, even if posting is not required. Tonnage data are required in the table.

8. Bridges that are rated for both one lane and two lane traffic shall have the Load Rating Table completed for both one lane and two lane values to support the bridge posting or restriction.

Culverts

When a culvert has a fill depth greater than the length shown for Item 49, Structure Length, the live load is considered insignificant and the load capacity can be coded as 99.9 tons for Item 64, Operating Rating, and Item 66, Inventory Rating.

Posting

All bridges shall be rated for the following vehicles:

1. Type 4
2. 3S3
3. 3-3
4. Special Haul Vehicles (SHV's) are to be rated as per the Load Rating Manual Section 1.4.4 (hyperlink)

All bridges with continuous spans or simple span lengths of 100 feet or greater should also be rated for:

1. 3S3B
2. 4S3

Diagrams of the Iowa Legal Trucks are in Attachment E to this IM.

Posting signs should limit all vehicles as efficiently as possible. Posting for a single gross weight limit, maximum axle weight limit, or both are the most enforceable means of restricting vehicles. Any method described in the Manual for Uniform Traffic Control Devises (MUTCD) is appropriate. Using the signs in the MUTCD with pictorial images of vehicles is allowed as long as it is clearly understood that the number of axles shown on any one vehicle could be literally interpreted if/when a violation is taken to court.

Bridges that have adequate capacity of legal vehicles up to 40 tons, but do not have adequate capacity for legal vehicles over 40 tons should be posted for a maximum gross limit of 40 tons regardless of the allowable limit calculated. This eliminates confusion about any permit vehicles that are within the 40 to 48 ton range.

Bridges do not need to be posted for loads that are annual permit loads. Bridges that commonly carry vehicles that fall under the annual permit types should be documented in SIIMS so when a permit request is made these bridges can be included on the permit as embargoed for that vehicle.

Item 70, Posting, should be calculated using the most restrictive legal truck. The most restrictive truck will be the one with the lowest Rating Factor (RF). 1.0 – RF = % below legal load. Use this % to determine which coding, between 0 and 5, should be entered into Item 70, Posting. When Item 70, Posting, is equal to 4 or less, posting the bridge for the appropriate restriction is required. Item 41, Posting Status, shall be coded for the required restriction. The rating method for Item 70, Posting, does not have to be the same method used for Item 64, Operating Ratings, and Item 66, Inventory Rating. If a bridge is re-rated for Item 64, Operating Rating, and Item 66, Inventory Rating using the LFR or LRFR methods, the posting limits do not have to be re-calculated by these methods.

Bridge structures that have Item 41 coded (P) for Posted prior to an inspection, should remain coded (P) following the inspection, even if the posting limit changes. When a bridge requires posting for the first time, Item 41 can be coded (B) until the bridge posting is installed. Once posting signs are installed, Item 41 shall be changed to (P). Item 41 can be coded (B) for a maximum of six months.

Advanced Posting

Bridges shall have advance load postings at the last available location to avoid crossing an embargoed structure by using an alternative route or turning around. The signs shall be readily visible and installed in accordance with the MUTCD.

When bridges are clearly visible and signs legible from the advance intersection, both advanced warning signs and signing at the bridge site are not required. The signing located at the bridge site will be sufficient to warn oncoming traffic.

Advance warning signs that restrict the bridge to one lane or limits the number of vehicles on the structure at one time shall also be located far enough in advance of the structure to allow the traffic to slow down prior to crossing the bridge along with oncoming traffic.

Overload or Superload Permitting

The bridge owner shall review requests for overload crossings of their bridges to minimize damage, ensure public safety, and protect the integrity of the local infrastructure.

1. The bridge load carrying capacity shall be reviewed and computations completed as required to determine if the specific overload will cause overstress to the structure.

2. Permit requests and approvals shall be kept on record for documentation. Special requirements such as reduction of speed, centering on the roadway, elimination of braking, and other restrictions should be noted on the permit.

3. The bridge owner has the right to be compensated for costs associated with the review for the overload permit by the individual/company requesting the permit as per Iowa Code 321E.14, Fees for Permits. 761 Iowa Administrative Code (IAC) 511.5(8), Fair and Reasonable Costs, states that the permit-issuing authority may charge any permit applicant a fair and reasonable cost for measures necessary to avoid damage to public property including structures and bridges.

4. Any request can be denied if it is determined the overload will be detrimental to the public facility.

5. Bridges may be evaluated for Routine Permit Trucks (see Attachment F to this IM). If the bridge does not have the capacity to carry one or more of these trucks, when center-lined at 5 mph, the inadequacy can be recorded on the Load Rating Bridge Report form in SIIMS.

Records (23 CFR 650.313, d)

Bridge owners are required to maintain a complete, accurate, and current record of each bridge under their jurisdiction, either electronically or hard copy, as per the American Association of State Highway and Transportation Officials Manual for Bridge Evaluation (AASHTO Manual). The components of a complete bridge record are listed in the AASHTO Manual. Many of the items listed will be included in SIIMS for each bridge. Bridge owners are encouraged to include electronic copies of these items in SIIMS as soon as possible.

Uploading Bridge Records

Bridge records that are NOT associated with a specific bridge inspection, such as scour analysis, unknown foundation analysis, channel cross sections, etc., should be uploaded into SIIMS utilizing the FILES Tab. Uploading these general documents in conjunction with an inspection will conceal the documentation in that specific record, making it difficult to locate the documents for future reference.

The following list of items shall not to be considered in lieu of the requirements in the AASHTO Manual. All of the items in the AASHTO Manual will not be available for every bridge structure; therefore, the items listed below should be included in each Bridge File as a minimum. However, any and all items addressed in the AASHTO Manual should be included in the bridge file when available.

Bridge Plans

Plans for bridges are not required to be in the file folder; however, they are required to be readily available to the bridge owner, Program Manager, or Team Leader at all times. Plans for bridges let after January 1, 2011, shall be included in SIIMS. Bridge owners are encouraged to scan relevant plan sheets for bridges let prior to January 1, 2011, and include them in SIIMS.

Repair Plans

Plans for bridge repair are not required to be in the file folder; however, they are required to be readily available to the bridge owner, Program Manager, or Team Leader at all times. Plans for bridges let after January 1, 2011, shall be included in SIIMS. Bridge owners are encouraged to scan relevant plan sheets for bridges let prior to January 1, 2011, and include them in SIIMS.

Photographs

A road view and a side view of the bridge structure are the minimum requirement. Structures with Item 58, Deck; Item 59, Superstructure; Item 60, Substructure; Item 61, Channel / Channel Protection; and Item 62, Culvert, coding of 4 or less are required to have photographs of the deficiency. Structures that have had no changes from the previous inspection do not require updated photographs. All relevant photographs taken after January 1, 2012, will be required in SIIMS.

Scour Evaluation Data

All scour evaluation documentation is required to be in SIIMS, including the Bridge Scour Stability Worksheet, Level A Evaluation (see Attachment A to this IM); Intermediate Scour Assessment Procedures Flowchart, Level B Evaluation (see Attachment B to this IM); and/or Level C HEC 18 calculations. Bridge owners or Program Managers are required to indicate the level of scour analysis completed using the check boxes on the Channel/Channel Protection tab in SIIMS. POAs (see Attachment C to this IM) are required to be in SIIMS and indicated on the Channel & Channel Protection form. Scour analysis worksheets and POAs will be required in SIIMS.

Channel Cross Section

A channel cross section on the upstream side of the bridge is required to be a part of the bridge record. A standard Channel Cross Section form has been incorporated into SIIMS. Each bridge structure is required to have a data point at the top of bank, toe of bank, thalweg, and each substructure unit. The Channel Cross Sections are to be updated every 4 years for natural waterways and 10 years for drainage ditches controlled by a drainage district in SIIMS unless conditions at the bridge warrant more frequent monitoring. The Channel Cross Section will be required in SIIMS.

Local Agency Field Data Collection Form

The MBE specifies that the Bridge File should reflect the information in the current bridge inspection report and that each Bridge File should include a chronological record of all inspections performed. Therefore, the field notes are required to be included in the Bridge File. The Field Data Collection form in SIIMS was developed for the purpose of documenting field notes and shall be completed in SIIMS.

The two types of bridge inspections, In-Depth and Routine, are determined based on the condition and type of structure being inspected. In-Depth Inspections are recommended for structures that contain elements in less than satisfactory condition or structures that require arms length inspection of elements. In-Depth Inspections are required to have all the appropriate sub elements addressed with comments to support the condition rating of the primary element. It is recommended that all appropriate sub elements are addressed during Routine Inspections to adequately track the deterioration rate of each primary element.

An In-Depth Inspection is recommended for structures meeting the following criteria:

1. All fracture critical bridges.
2. Fatigue vulnerable bridges.
3. Structurally Deficient bridges.

4. Bridges with two or more condition ratings equal to 5 (Item 58, Deck; Item 59, Superstructure; Item 60, or Substructure).
5. Culverts with a condition rating equal to 5.

Item 58, Deck; Item 59, Superstructure; Item 60, Substructure; or Item 62, Culvert; ratings of 5 and below affect the Sufficiency Rating, which indicates that deterioration is beginning to become more apparent; therefore, the bridge is closer to becoming Structurally Deficient.

Structure Inventory and Appraisal Forms (SI&A)

The SI&A forms will be completed and stored in SIIMS.

Load Rating Calculations

The Bridge File is required to include a complete record of the calculations of the bridges load carrying capacity. A standard Bridge Load Rating Report has been incorporated into SIIMS and is required to be completed for each bridge structure. The load rating calculations or Bridge Load Rating Report is required to be signed by a Professional Engineer, licensed in the State of Iowa, for all non-standard bridge load ratings. Electronic signatures for the forms in SIIMS are not required, but a signed copy of the load rating calculations is required to be in the Bridge File. Bridge owners are encouraged to have an electronic scanned copy of the signed Bridge Load Rating form included in SIIMS.

Bridge structures that rate 2.7 Metric Tons or less for Item 64 Operating Rating shall be closed or; if the bridge can carry Legal Iowa truck loads of 3 tons, Item 64 should be re-evaluated to determine if a value above 2.7 Metric Tons should be entered in order to keep the bridge open.

FHWA requires all bridge structures be rated for its safe load carrying capacity as per 23 CFR 650.313(c). Therefore, the Iowa DOT is reviewing all bridge structures that have Item 63 or Item 65, Rating Method, coded as 5. A percentage of the structures Item 63 or Item 65, Rating Method, coded as 5 are culverts, for which there are no standardized method for rating.

Recognizing this, the Iowa DOT submitted a request to FHWA to provide the state with guidance in regards to acceptable method of rating culverts. In the interim, the Iowa DOT developed a Plan of Corrective Action (PCA) that utilizes a three phase process in completing the load ratings for culverts as follows:

1. Culverts that have Item 62, Culverts, with a condition rating of 4 or less, were required to be rated by January 1, 2013.

2. Culverts that have Item 62, Culverts, with a condition rating of 5 will be load rated by January 1, 2016.

3. Culverts that have Item 62, Culverts, with a condition rating >5 will be load rated by January 1, 2017.

Load Rating Evaluation Form

The Load Rating Evaluation Form, in SIIMS, is required to be completed for each in-depth or routine inspection. The Program Manager or Team Leader completing this form in SIIMS is not confirming that the load rating calculations are correct, only that the condition of the bridge has or has not changed. If any of the items on the form indicate that the condition of the bridge has changed since the most recent load rating calculations, then re-rating the structure for load carrying capacity is required.

When the Load Rating Evaluation Form requires the load ratings to be re-evaluated and the ratings do not change upon re-evaluation, the load rater must change the answer to the question “Does this bridge need to be re-rated” on the Load Rating Evaluation Form to “No” and insert their name and the date at the top of the Load Rating Evaluation Form. This will document that the load ratings have been reviewed and are still appropriate for the current conditions.

Critical Findings

A standard Critical Finding report form has been incorporated into SIIMS. The completed report is to be filed in SIIMS.

Critical Features

FC and scour critical elements are addressed in SIIMS.

Special Inspection Equipment

The list of specialized equipment and any additional requirements to complete the bridge inspection is included in SIIMS.

Master Lists (23 CFR 650.313, e)

A master list shall be kept which identifies an agency's FC bridges, the bridges requiring underwater inspection, scour critical bridges, unknown foundations, and bridges that are load posted. Additionally, it is recommended that a map be prepared showing each of these bridges for easy reference.

The master list can be generated by selecting the Manager side of SIIMS and running the report for FC bridges, underwater inspections, scour critical bridges, unknown foundations, and bridges that are load posted.

Fracture Critical (FC) Bridges

The following information shall be kept as part of the inspection records for each FC bridge as required by the NBIS.

1. A sketch of the bridge showing the location of all FCMs.

2. The inspection frequency and procedures that are necessary to inspect each FCM within arm's reach. The procedure may include equipment required (i.e. climbing equipment, ladder, snooper truck) or access methods (i.e. ground access, walk on lower chord) used to inspect the member.

The Fracture Critical Member Locations and Conditions for Trusses or for Thru/Two Girders forms (see Attachment K or L to this IM) shall be utilized to provide information described in items 1 and 2 above to comply with the NBIS. Bridge owners may elect to produce their own form in lieu of completing the Fracture Critical Member Locations and Conditions form; however, this will require review and approval by FHWA. The Iowa DOT has developed a Sample Fracture Critical Member Location and Conditions form as shown in Attachment M.

Utilize the drop down menu on the Supplementary Inspection Information page stating whether or not the bridge is fracture critical. Check the box by "Fracture Critical Member Sketch" after it has been uploaded into SIIMS.

Underwater Inspections

The following information shall be kept as part of the inspection records for each bridge requiring underwater inspection.

1. The location of all elements requiring an underwater inspection.

2. The inspection frequency and procedures necessary to inspect each element. The procedure may include equipment required or access methods used to inspect the member.

Scour Critical Bridges

The following information shall be kept as part of the inspection records for each bridge determined to be scour critical or with unknown foundations. Item 113, Scour Critical, shall be coded as 2 or 3.

1. POA

   The POA includes a specific plan for monitoring, inspecting, or closure of scour critical bridges during and after a significant flood event. The level of flooding that triggers the POA is determined and listed within the POA document. A Team Leader or a Professional Engineer, licensed in the State of Iowa, shall inspect a bridge before it may be reopened. (See Attachment C to this IM for an example)

2. Scour Analysis Procedures

   The analysis used to determine the Item 113, Scour Critical, coding shall be included in the inspection file for each bridge as applicable. This may include a Level A, B, or C scour evaluation (see Attachment A and Attachment B to this IM).

   If a bridge has been designed for scour, a computed scour depth notation shall be shown on the plans or included in the inspection file.

3. Scour Inspection Frequency

   All bridges should be monitored for changes that may affect the scour rating at the routine inspection interval.

   Review Level A Bridge Scour Stability Worksheets (see Attachment A to this IM) and upstream channel cross section to determine scour rating.

When Item 113, Scour, is coded 2 or less, Item 60, Substructure, shall be coded 2 or less as per HEC-18, Section 10.3.2 Bridge Inspection, FHWA Recording and Coding Guide.

New and reconstructed bridges shall be designed to resist scour in accordance with HEC 18, as required by AASHTO Bridge Design Specifications and FHWA Technical Advisory, Evaluating Bridges for Scour, dated October 28, 1991.

Unknown Foundations

The following information shall be kept as part of the inspection records for each bridge with unknown foundations.

1. A POA for monitoring bridges with unknown foundations should be developed and implemented to reduce the risk to users from a bridge failure during and immediately after a flood event (see HEC 23). Also, the use of risk assessment, standard design practices, and engineering judgment can be used to reduce the risk of scour induced failures.

2. Use Attachment H and Attachment I to this IM to evaluate the bridge according to the following procedures:

   a. Use the Unknown Foundations Flowchart - Level A Evaluation (see Attachment H to this IM) to determine if the foundation type and depth can be determined. If not, then go to step b below.
   b. Complete the Unknown Foundation Risk Assessment Worksheet - Level A Evaluation (see Attachment H to this IM) utilizing the USGS Hydrologic Region (see Attachment G to this IM) information provided and the SI&A form. Determined the risk category based on the point totals and go to step c below.
   c. Structures determined to have “Moderate” or “High” risk unknown foundations based on the Risk Assessment Worksheet - Level A Evaluation (Attachment H to this I.M.) may utilize the Unknown Foundations Assessment Flowchart - Level B Evaluation (Attachment I to this I.M.) to determine if the category of risk can be reduced.

d. Refer to Attachment H to this IM for guidance on developing the appropriate POA.
e. Check the appropriate boxes on the Channel/Channel Protection form in SIIMS that indicated the level of evaluation that was completed and the risk level of the POA that was developed and implemented.

The risk-based POAs developed for the unknown foundations are required to be in SIIMS.

Bridge owners are cautioned that simply developing a POA for each bridge with an unknown foundation without first making every effort to determine the foundation (by discovery or inference) may not be advisable. The personnel required to implement POA's for a large number of bridges during a widespread rainfall event may overwhelm staff.

Load Posting

Maintain a list of posted bridges with weight limits for each bridge. Additionally it is recommended that a map be prepared showing the locations of these bridges.

Quality Control (QC) and Quality Assurance (QA) (23 CFR 650.313, g)

Quality Control (QC) Program

It is the Program Manager's responsibility to ensure the following:

1. The "Monthly Notifications" are reviewed to identify any bridges that have not been inspected within the specified frequency or are not in compliance with load posting requirements.

2. SIIMS is used to document each inspection, including but not limited to the following:

   a. Local Agency Field Data Collection Forms in SIIMS are completed.
   b. The Supplemental Inspection Information tab is completed in SIIMS for each bridge.

3. Master lists are maintained as required in the Inspection Procedures-Master List section of this IM.

4. Team Leaders maintain the education/experience/training requirements contained in the Qualifications of Personnel section of this IM.

5. The individual charged with the overall responsibility for load rating bridges is a Professional Engineer, licensed in the State of Iowa.

Quality Assurance (QA) Program

Bridge Record Reviews

A review of the bridge records for LPA's to determine if they contain the minimum items listed in Inspection Procedures – Records section of this IM, will be conducted by the Office of Bridges and Structures utilizing SIIMS on an annual basis for randomly selected LPAs. Additional reviews of the bridge records will be conducted during on site reviews in conjunction with the DOT's annual oversight of the LPAs.

Team Leader Reviews

It is the Program Manager's responsibility to ensure the following:

1. Team Leader Reviews are conducted every 4 years, beginning January 1, 2012.

   a. Independent party review by a Professional Engineer qualified as a Team Leader.
   b. Field review of inspection data for 10 bridges inspected during the past 12 months. The bridges selected shall include, but not limited to, predominant bridge types inspected and bridges with lower sufficiency ratings. The bridges selected shall include some bridges with Item 58, Deck; Item 59, Superstructure; Item 60, Substructure; Item 62, Culvert; or Item 70, Posting; rated 4 or less (if available for the bridges inspected by the Team Leader).

c. Reviewer accompanies the Team Leader during the inspection of 2 of the 10 selected bridges.
d. Quality Assurance Field Review Worksheet (Attachment J of this IM) completed for each bridge inspected.
e. Verification of the validity of information provided by an individual to obtain approval to utilize SIIMS as a Team Leader.
f. Documentation that the Team Leader has completed the Bridge Inspector Refresher Training Course and, if needed, Fracture Critical Inspection Techniques for Steel Bridges Training Course.

The findings of the Team Leader Reviews shall be attached to an e-mail to eric.souhrada@dot.iowa.gov. The report shall be stamped and signed by the reviewer. If there are negative findings regarding the Team Leader, the report shall include corrective recommendations, or actions taken, to resolve those findings.

2. Disqualification and re-instatement of Team Leaders

The Program Manager shall disqualify a Team Leader if they have provided invalid information to obtain approval to utilize SIIMS as a Team Leader or have not completed the required training required by the Qualification of Personnel section of this IM. The disqualification shall be as follows:

a. Invalid information willfully provided to obtain approval to utilize SIIMS as a Team Leader: Permanent disqualification as a Team Leader.
b. Non Compliance with the Qualification of Personnel section of this IM: Disqualification as a Team Leader until they meet the requirements of Qualification of Personnel section of this IM.

Load Rating Engineer Reviews

Load Rating Engineer reviews will be conducted by the Office of Bridges and Structures utilizing SIIMS in conjunction with on-site field reviews as part of the Iowa DOT's annual oversight of the LPA's program.

Critical Findings (23 CFR 650.313, h)

Purpose

The purpose of the Critical Finding Bridge Report in SIIMS is to ensure that serious bridge damages or defects are reported, the necessary notifications are made to the bridge owner by the Program Manager or Team Leader, and that proper and timely action is taken to ensure the safety of the traveling public. This process alerts the bridge owner so damage or deterioration can be repaired in a proper and timely manner and that the damage and repairs are documented.

FHWA will query the Critical Finding Reports in SIIMS every quarter; therefore, it is imperative that the LPA's complete the Critical Finding Report in SIIMS as per this I.M.

Criteria

Conditions that require the filing of a critical finding report shall include, but are not limited to one of the following:

1. a partial or complete bridge collapse,

2. structural or other defects posing a definite and immediate public safety hazard,

3. a condition rating of 2 or less for any of the following bridge items:

a. Item 58, Deck,
b. Item 59, Superstructure,
c. Item 60, Substructure,

d. Item 61, Channel/Channel Protection,
e. Item 62, Culverts, or
f. Item 113, Scour Critical.

In cases where it is determined that the bridge could be used safely at a lower posted load limit, the bridge may remain open if it is immediately posted at the reduced limit.

Procedure for County/City Bridges

1. The individual discovering the critical finding shall:

   a. Immediately report the finding to the responsible local official, who may notify law enforcement or maintenance personnel to close the bridge.
   b. Complete Part I of the critical finding report within 48 hours of the finding.

2. The responsible local official shall

   a. Take action to ensure the safety of the traveling public.
   b. Complete Part II of the critical finding report within 5 days of the finding.

3. Before a closed bridge may be reopened to traffic, a Professional Engineer, licensed in State of Iowa, shall approve any structural repairs, the bridge shall be load rated, and the bridge shall be inspected by a Team Leader.

INVENTORY (23 CFR 650.315)

Iowa DOT maintains an inventory of all bridges subject to NBIS. This inventory is available for viewing and updating by local agencies in SIIMS. All local agencies shall enter their inventory data updates into the database using this access system. User names and passwords are available by request from the State of Iowa Enterprise A & A System. Access to SIIMS will be approved and granted by the Iowa DOT Office of Bridges and Structures, Bridge Maintenance and Inspection (BM&I) Unit.

New Bridge Data

Within 30 days of receiving the new FHWA number for a new bridge or bridge replacement, all of the required NBI data must be populated in SIIMS. If the bridge has not been built or is not open to traffic, Item 41, Posting Status, must be coded as G.

Modifications to a Bridge or Change in Load Restriction

Modification to a bridge that alters the geometry or changes to a bridge load restriction must be updated in the NBI within 180 days of the change.

For all types of bridge inspections, the inspection dates and condition codes shall be entered into SIIMS within the required month of the field inspection.

Final approval of inspection reports, including load ratings if necessary, shall be completed in SIIMS within 90 days of the field inspection.

INSTRUCTIONAL MEMORANDUMS
To Local Public Agencies

To:	Counties and Cities	Date: May 7, 2015
From:	Office of Local Systems	I.M. No. 3.005
Subject:	Project Development Submittal Dates and Information	

Contents: This Instructional Memorandum (I.M.) lists the submittal dates for some of the major milestone events for development for Local Public Agency (LPA) projects that will be let by the Iowa Department of Transportation (Iowa DOT). It also summarizes the information that should be included with each submittal.

Submittal Dates for Local Public Agency Projects Let by the Iowa DOT

Following are submittal dates for the July 21, 2015, through November 21, 2017, Iowa DOT lettings. All submittals should be *received* by the Iowa DOT Administering Office on the dates shown below. However, early submittals are always encouraged.

Concept Statement		Preliminary Plans		Check Plans		Final Plans and PDC (2 weeks)	Contracts Turn-in	Letting Date	Fiscal Year
Major (42 weeks)	Minor (16 weeks)	Major (16 weeks)	Minor (11 weeks)	Major (6 weeks)	Minor (5 weeks)				
07/15/14	01/13/15	01/13/15	02/17/15	03/24/15	03/31/15	04/21/15	05/05/15	07/21/15	
08/12/14	02/10/15	02/10/15	03/17/15	04/21/15	04/28/15	05/19/15	06/02/15	08/18/15	2015
09/16/14	03/17/15	03/17/15	04/21/15	05/26/15	06/02/15	06/23/15	07/07/15	09/15/15	
10/14/14	04/14/15	04/14/15	05/19/15	06/23/15	06/30/15	07/21/15	08/04/15	10/20/15	
11/11/14	05/12/15	05/12/15	06/16/15	07/21/15	07/28/15	08/18/15	09/01/15	11/17/15	
12/16/14	06/16/15	06/16/15	07/21/15	08/25/15	09/01/15	09/22/15	10/06/15	12/15/15	
01/13/15	07/14/15	07/14/15	08/18/15	09/22/15	09/29/15	10/20/15	11/03/15	01/20/16	
02/10/15	08/11/15	08/11/15	09/15/15	10/20/15	10/27/15	11/17/15	12/01/15	02/16/16	
03/17/15	09/15/15	09/15/15	10/20/15	11/24/15	12/01/15	12/22/15	01/05/16	03/15/16	
04/14/15	10/13/15	10/13/15	11/17/15	12/22/15	12/29/15	01/19/16	02/02/16	04/19/16	2016
05/12/15	11/10/15	11/10/15	12/15/15	01/19/16	01/26/16	02/16/16	03/01/16	05/17/16	
06/16/15	12/15/15	12/15/15	01/19/16	02/23/16	03/01/16	03/22/16	04/05/16	06/21/16	
07/14/15	01/12/16	01/12/16	02/16/16	03/22/16	03/29/16	04/19/16	05/03/16	07/19/16	
08/18/15	02/16/16	02/16/16	03/22/16	04/26/16	05/03/16	05/24/16	06/07/16	08/16/16	
09/15/15	03/15/16	03/15/16	04/19/16	05/24/16	05/31/16	06/21/16	07/05/16	09/20/16	
10/13/15	04/12/16	04/12/16	05/17/16	06/21/16	06/28/16	07/19/16	08/02/16	10/18/16	
11/17/15	05/17/16	05/17/16	06/21/16	07/26/16	08/02/16	08/23/16	09/06/16	11/15/16	
12/15/15	06/14/16	06/14/16	07/19/16	08/23/16	08/30/16	09/20/16	10/04/16	12/20/16	
01/12/16	07/12/16	07/12/16	08/16/16	09/20/16	09/27/16	10/18/16	11/01/16	01/18/17	
02/16/16	08/16/16	08/16/16	09/20/16	10/25/16	11/01/16	11/22/16	12/06/16	02/21/17	
03/15/16	09/13/16	09/13/16	10/18/16	11/22/16	11/29/16	12/20/16	01/03/17	03/21/17	
04/19/16	10/18/16	10/18/16	11/22/16	12/27/16	01/03/17	01/24/17	02/07/17	04/18/17	2017
05/17/16	11/15/16	11/15/16	12/20/16	01/24/17	01/31/17	02/21/17	03/07/17	05/16/17	
06/14/16	12/13/16	12/13/16	01/17/17	02/21/17	02/28/17	03/21/17	04/04/17	06/20/17	
07/12/16	01/10/17	01/10/17	02/14/17	03/21/17	03/28/17	04/18/17	05/02/17	07/18/17	
08/16/16	02/14/17	02/14/17	03/21/17	04/25/17	05/02/17	05/23/17	06/06/17	08/15/17	
09/13/16	03/14/17	03/14/17	04/18/17	05/23/17	05/30/17	06/20/17	**07/04/17**	09/19/17	
10/11/16	04/11/17	04/11/17	05/16/17	06/20/17	06/27/17	07/18/17	08/01/17	10/17/17	
11/15/16	05/16/17	05/16/17	06/20/17	07/25/17	08/01/17	08/22/17	09/05/17	11/21/17	2018

Important notes regarding submittal dates:

1) Projects using the "Major" submittal dates typically involve any of the following: wetlands, recreational areas, or wildlife refuges; railroad crossings; historical structures or historical districts; right-of-way or easement acquisitions; or Federal-aid for consultant work. Examples include relocating a road on new alignment, major reconstruction, a major bridge, or a historical structure. Note: All projects requiring a hydraulic or structural review should follow the schedule for "Major" type projects.
2) Projects using the "Minor" submittal dates typically do not involve any of the items listed above for the "Major" type projects. Examples include an asphalt resurfacing project or a bike trail surfacing project on an existing railroad bed.
3) Neither the Major nor the Minor project submittal dates are applicable to Federal-aid projects that require an Environmental Assessment (EA) or Environmental Impact Statement (EIS) document. The submittal dates shown above reflect the *minimum* amount of time required by the *Iowa DOT* to review the submittal. *These dates do not reflect the time that may be required by other agencies for the appropriate reviews and approvals*. The project schedule should be based on the specific circumstances of the project. Federal-aid projects that have significant impacts to environmental or historical resources, require large amounts of right-of-way, or involve adjustments to railroad or utility facilities, will likely require additional time to develop for letting. Therefore, in such cases, it will probably be necessary to submit the Concept Statement and Preliminary Plans earlier than the dates shown. For additional guidance and information, refer to I.M. 3.002, Federal-aid Project Scheduling.
4) The "Final Plans and PDC" date is when the LPA shall submit final plans and the Project Development Certification (PDC) to the Administering Office.
5) The "Letting Date" is the third Tuesday of every month, except January, which is the Wednesday after the third Tuesday of the month.
6) The "Contracts Turn-in" date is the first Tuesday, 2 months prior to letting. This date is when the Administering Office will deliver final plans to the Iowa DOT Office of Contracts.
7) All other submittal dates are calculated from the "Contracts Turn-in" date by subtracting the number of weeks shown. When a submittal date falls on a holiday (shown in **bold**), the submittal is due one working day prior to the holiday.
8) The "Fiscal Year" is the Federal fiscal year in which a project should be programmed in the Statewide Transportation Improvement Program (STIP) for the letting dates shown. Even though October 1 is the beginning of the Federal fiscal year, projects targeting an October letting should be programmed in the previous fiscal year. This is because projects in the October letting are authorized for letting in September.

Administering Office: When it occurs in this document, and elsewhere throughout the I.M.s, the term, "Administering Office," shall refer to the Iowa DOT Office of Systems Planning for projects funded by the Transportation Alternatives Program (TAP), Transportation Enhancement, Federal Recreational Trails, Scenic Byways, Safe Routes to School, or Revitalize Iowa's Sound Economy (RISE) programs; unless such projects are already being administered by one of the Iowa DOT District Offices. For all other projects, the term, "Administering Office," shall refer to the appropriate Iowa DOT District Office.

Electronic Submittals: Plans shall be submitted electronically and conform to the requirements of Specifications for Electronic Plan Submittals to the Iowa DOT. All other submittals listed below shall also be submitted in electronic format, provided the means of transmission and file format is acceptable to the Administering Office. Due to e-mail file size limitations, the Iowa DOT recommends that electronic plans and all other electronic submittals be transmitted using the submittal tools provided in the Transportation Program Management System (TPMS). To obtain access to TPMS, contact the Iowa County Engineer's Service Bureau at 515-244-0779. If sent by e-mail, contact the Administering Office for the appropriate e-mail address. The preferred file format for other electronic documents is Adobe Acrobat's Portable Document Format (PDF). Other acceptable file formats include: Microsoft Word (*.doc), Joint Photographs Expert Group (*.jpg), Graphic Interchange Format (*.gif), and Tag Image File Format (*.tif).

Concept Statement: Include the following items in a Federal-aid project "Concept Statement for Local Systems Federal-aid Projects" (Form 517001) submittal (non-Federal-aid projects do not require a Concept Statement):

- ❑ A transmittal letter, memo, or e-mail. Include a description of any unique aspects of the project or other information that cannot be adequately explained on the Concept Statement form.
- ❑ A completed Concept Statement. Include a location map and any applicable environmental documents. For more information, refer to I.M. 3.105, Concept Statement Instructions.
- ❑ Design exception documentation, if required as per Section 5.3.1 of the Federal-aid Project Development Guide for Local Public Agencies (Guide) for urban design guidelines, or I.M. 3.210, Rural Design Guidelines. If the need for a design exception cannot be determined when the Concept Statement is submitted, submit the design exception request as soon as possible, but no later than the Check Plan submittal date.

- ❑ If required by the Concept Statement, include the Environmental Data Sheet (Form 517006). If the information required by this form is not known at the time of the Concept Statement submittal, submit the Environmental Data Sheet as soon as possible, but no later than the Preliminary Plan submittal date. For more information, refer to I.M. 3.110, Environmental Data Sheet Instructions.

Incomplete Concept Statement submittals will delay project reviews. All submittals shall include the Iowa DOT project number. Users of the TPMS may request project numbers using this system; otherwise, contact the Administering Office to obtain a project number.

Preliminary Plans: Submit in accordance with I.M. 3.405, Preliminary Plans and I.M. 3.410, Preliminary Bridge and Culvert Plans.

Please note: Design activities for Federal-aid projects may not progress past the preliminary plan stage until after FHWA Environmental Concurrence has been received.

Check and Final Plans: Submit in accordance with I.M. 3.505, Check and Final Plans and I.M. 3.510, Check and Final Bridge or Culvert Plans.

INSTRUCTIONAL MEMORANDUMS
To Local Public Agencies

To:	Counties and Cities	Date: May 7, 2015
From:	Office of Local Systems	I.M. No. 3.305
Subject:	Federal-aid Participation in Consultant Costs	

Contents: This Instructional Memorandum (I.M.) includes guidelines and procedures for a Local Public Agency (LPA) to select a consultant; request Iowa Department of Transportation (Iowa DOT) approval and Federal Highway Administration (FHWA) authorization for Federal participation in consultant costs; and prepare, negotiate, and administer a consultant contract. This I.M. also includes the following attachments:

Attachment A – Federal-aid Consultant Checklist
Attachment B – Requirements for Federal-aid Consultant Contracts
Attachment C – Payment Methods
Attachment D – Standard Consultant Contract (Word)
Attachment E – Errors and Omissions

Definitions

Construction Engineering (CE) – Work that includes materials testing, construction inspection, and other work directly related to the administration of the construction contract (e.g., processing contractor payment requests, or preparing Change Orders, a final punch list, or project close-out paperwork). Any additional design work that occurs after the construction letting is also considered CE work.

Extra Work – Any additional activity or activities, level of effort, or deliverables that exceed the previously approved scope of work, but are minor changes to the consultant contract.

Planning Work – Work that involves planning or studies, but is not part of the development of the plans, specifications, and estimate (PS&E) necessary for a construction project. Examples include planning studies, feasibility studies, and conceptual studies. Planning work *should not* be authorized as PE. Feasibility or conceptual studies may include some engineering work, but only to the extent needed to determine if it is feasible to build the proposed project or determine what type of structure or facility should be designed. Any engineering or design work beyond the planning stage is considered PE.

Phase of Work – A clearly distinguishable stage in the project development process. For planning work, typical phases consist of planning studies, feasibility studies, and conceptual studies. For PE work, typical phases include preparation of environmental studies or documents, preliminary design, final design, and preparation of bid documents. CE work is usually not phased, unless the approved CE work is for multiple construction contracts. In this case, the CE work associated with each construction contract would be considered a separate phase.

Preliminary Engineering (PE) – Work that is part of the development of the plans, specifications, and estimate (PS&E) for a construction project. This includes environmental studies and documents, Interchange Justification Reports, preliminary design, and final design up through and including the preparation of bidding documents. PE does not include planning or other activities that are not intended to lead to a construction project. Examples of work not considered PE include planning, conceptual, and feasibility studies.

Scope of Work – The statement of services to be provided, as written in the contract between the local agency and the consultant. This includes the specific work activities, deliverables, and timeframes to perform the work for the specified price.

General Considerations

All consultant contracts which will be reimbursed with Federal funds shall comply with the Title 23 of the Code of Federal Regulations (CFR), Part 172 (23 CFR 172). Among other things, these regulations stipulate when consultant services must be acquired through a qualifications-based selection process. When using a

qualifications-based process, price may not be considered when determining which consultant is most qualified. Price is negotiated only after the most qualified consultant has been identified.

Conflicts of Interest

The LPA and the consultant shall comply with the conflict of interest requirements in Iowa Code Chapter 68B, 193C Iowa Administrative Code (IAC), Chapter 8, and 23 CFR 1.33. Situations that create conflicts of interest include, but may not be limited to, the following:

1. An LPA employee who participates in the procurement, management, or administration of the consultant contract has a direct or indirect financial or other personal interest in the contract or related subcontracts. For example, a city engineer may not participate in the selection of a consulting firm that employs a close relative.
2. The consultant has a direct or indirect financial or other personal interest, other than employment or retention by the LPA, in any contract or related subcontracts in connection with the project. For example, when a consultant is acting as the project engineer for a construction project, that consultant's firm may not also provide construction staking services to the contractor for the same project. Another example is if the consultant is serving as city engineer, the consultant may not participate in any aspect of the selection process if his or her own firm is being considered to perform those services.
3. The consultant has a direct or indirect financial or other personal interest in any real property acquired for the project, unless such interest is openly disclosed in public records, and the consultant has not participated in such acquisition for and in behalf of the LPA. For example, a consultant may not participate or assist in the acquisition of property owned by the consultant or a close relative.

Person in Responsible Charge

If the LPA uses a consultant to perform construction inspection services, 23 CFR 635.105 requires the LPA to have a full time employee who is in responsible charge of the project. For counties and larger cities, this person is typically the county or city engineer; however, they need not be a licensed engineer or architect to be the person in responsible charge. For smaller cities that do not have any full time employees, the mayor or city clerk may perform this function, with assistance from the Iowa DOT Administering Office. A consultant may not serve as the person in responsible charge for a Federal-aid project.

Duties and functions of the person in responsible charge include:

1. administering inherently governmental project activities, including those dealing with cost, time, adherence to contract requirements, construction quality and scope of Federal-aid projects;
2. maintaining familiarity with day to day project operations, including project safety issues;
3. making or participating in decisions about changed conditions or scope changes that require change orders or supplemental contracts;
4. visiting and reviewing the project on a frequency that is commensurate with the magnitude and complexity of the project;
5. reviewing financial processes, transactions and documentation to ensure that safeguards are in place to minimize fraud, waste, and abuse; and
6. directing project staff, agency or consultant, to carry out project administration and contract oversight, including proper documentation; and
7. is aware of the qualifications, assignments and on-the-job performance of the agency and consultant staff at all stages of the project.

These duties may be shared by several people. A single person may also serve as the person in responsible charge for multiple projects.

Consultants Acting in a Management Role

In accordance with 23 CFR 172.9(d), Federal funds may not be used to for a consultant to act in a management role for the LPA, unless this has been approved in advance by FHWA. A consultant is acting in a management role when the firm or individual representatives of the firm act on the LPA's behalf to perform inherently governmental functions, or fulfill a program or project administrative role typically performed by an LPA employee.

Examples of consultants acting in management roles include: being responsible for managing a major project or series of projects; being responsible for overseeing the work of other consultants; and being responsible for reviewing or approving permits or applications on the LPA's behalf. To request approval for a consultant acting in a management role, contact the Administering Office for assistance.

PE 10-Year Rule

When Federal funds are authorized for PE services, 23 CFR 630.112(c)(2) requires that either right-of-way acquisition or actual construction begin by the close of the tenth fiscal year following the fiscal year in which the PE services were authorized. Otherwise, the LPA will be required to repay all the Federal funds expended for the PE services.

The LPA may request an extension to the 10-year rule if the project has been delayed by factors beyond the ability of the LPA to control, and the LPA can provide a reasonable plan of action for proceeding with the project in the near future. Requests should be submitted to the Administering Office well in advance of the 10-year deadline. The Administering Office will review with the Office of Local Systems. If acceptable, the Office of Local Systems will forward the request to FHWA for approval.

Errors and Omissions

In accordance with 23 CFR 172.9(a)(6), the written procedures for Federal-aid consultant contracts shall include procedures to address errors and omissions. These procedures are provided in Attachment E to this I.M.

Final Design Activities and the NEPA process

The National Environmental Policy Act (NEPA) and its implementing regulations require that certain procedures be followed in the process of selecting the location of Federal-aid project. Until this process has been completed and accepted by the Iowa DOT and the FHWA, final design activities may not begin, as required by 23 CFR 771.113.

Environmental and related engineering studies, agency coordination, public involvement activities, and preliminary design work are not considered final design. Therefore, if FHWA authorization for these costs has been obtained, these activities may proceed prior to completing the NEPA process. However, work directly associated with preparation of construction documents is considered final design. For Federal-aid projects let at the Iowa DOT, work associated with preparation, review, or submittal of Check Plans or Final Plans is considered final design.

The event that marks the completion of the NEPA process depends on the type of NEPA document that is required for the project:

- For projects that are classified as a Categorical Exclusion (CE), the NEPA process is complete as of the effective date of FHWA Environmental Concurrence. This date is specified in the written notice the LPA will receive from the Iowa DOT Office of Location and Environment.
- For projects that require an Environmental Assessment (EA) or Environmental Impact Statement (EIS) document, the NEPA process is considered complete as of the date that the FHWA signs these documents, referred to respectively as a Finding of No Significant Impact (FONSI) and Record of Decision (ROD).

Estimate of Consultant Costs

Prior to beginning the consultant selection process, the LPA shall prepare its own estimate of consultant costs. This estimate should include all phases of work that the consultant will be expected to perform, even if the initial contract will not encompass all phases of work. In other words, the estimate should reflect the total anticipated cost of all services that will eventually be provided by the consultant.

The LPA should prepare a detailed estimate based on the estimated number of hours and hourly rates for each type of employee, direct expenses, and typical overhead and profit margins. However, if the LPA is unable to prepare a detailed estimate, the LPA may prepare a simplified estimate based on typical consultant fees as a percentage of the total construction costs. Typical design costs for road, bridge, and trail construction range from 8 to 10 percent of the total construction cost. Typical construction inspection services for road, bridge, and trail construction range from 12 to 15 percent of the total construction cost.

However the cost estimate is prepared, the primary responsibility for determining the reasonableness of the proposed consultant costs rests with the LPA. The purpose of the LPA's estimate is to assist in negotiating a consultant contract at a fair and reasonable cost. For estimating very complex or unusual consultant services, the Iowa DOT will provide assistance to the LPA upon request.

The LPA's estimate shall identify the type of services included, such as PE, CE, planning studies, etc., and provide a subtotal for each. The estimate shall also be documented so that a third party such as the Iowa DOT or FHWA can determine what services were included and how the LPA determined the estimated cost of those services.

Consultant Selection

Attachment A, Federal-aid Consultant Checklist, outlines the steps for selecting a consultant, requesting FHWA authorization, and requesting reimbursement of consultant costs. The LPA should be careful to follow the steps outlined in this Attachment. If the selection process used does not comply with these procedures, the consultant costs may not be eligible for Federal reimbursement. In addition, the cost of any consultant work done prior to FHWA authorization will not be eligible for Federal reimbursement.

Pre-qualification

Prime consultants and subconsultants must be on the Iowa DOT pre-qualified list at the time of selection, by the LPA and the prime consultant, respectively. Consultants removed from the pre-qualified list may finish contracts currently underway, but will not be allowed to participate in future Federal-aid contracts until pre-qualified status is regained.

Scope of selection

The basis of selection must be based on the complete scope of services the consultant will be expected to provide; even if the initial contract will not include all those services. If an LPA desires to select a consultant for services not included in the original scope of selection, another selection process must be used.

Abbreviated Process

The abbreviated process may be used if the cost of all phases of the proposed consultant work is estimated to be less than $150,000. The abbreviated process does not require use of a selection committee, distribution of a Request for Proposal (RFP), or use of written evaluation criteria and a scoring matrix. However, the LPA must consider at least 3 firms and document their selection process.

If the estimated cost of all phases of the proposed consultant work is close to the $150,000 threshold, the LPA should use the full process. The full amount of any contract modifications that exceed this threshold will not be eligible for Federal participation. If the abbreviated process is used to select a consultant for multiple phases of work and the same consultant is chosen for more than one phase of work on the same project, the $150,000 threshold applies to the total amount of work performed on the different phases of work. In addition, if it appears the full selection process was intentionally circumvented, the entire cost of the consultant services may be ineligible for Federal participation.

Full Process

If the cost of all phases of the proposed consultant work is estimated to be $150,000 or more, the full selection process shall be used. In summary, the full process includes forming a selection committee, preparation and distribution of an RFP, and evaluation of proposals received based on established criteria.

A key aspect of the full selection process is preparing a well written RFP. The Iowa DOT does not require a standard format; however, the RFP prepared by the LPA shall contain the following as a minimum:

1. A scope of services for the proposed work.
2. The evaluation criteria used and the relative weight for each factor.
    - The criteria shall **not** include a factor for estimated contract cost.

- The criteria may include a factor for DBE involvement.* Scoring of this criterion should be based on a firm's proposed DBE involvement. Proposals that meet or exceed the goal should get full credit for this criterion. If the proposed DBE involvement is less than the DBE goal, the scoring should be based on the firm's documented good faith efforts to involve DBE firms.
- Geographic location may be included in the evaluation criteria, unless application of this criterion would result in less than 3 qualified firms.*

  Note: LPAs may not use this criterion to disqualify firms that are not within a particular State or local jurisdiction. Firms that propose to establish a temporary local office shall be considered to have met this criterion.

* The combined weight of the DBE and geographic location criteria, if used, may not exceed 10% of the total.

3. The preferred method of payment (see Attachment C, Payment Methods, for acceptable methods).
4. The proposed DBE goal. If no DBE goal is proposed for contracts estimated to be greater than $100,000, the LPA must document the reasons why no DBE goal is proposed. Regardless of whether a goal is set or not, the RFP should encourage use of DBE firms and include a reference and link to the Iowa Directory of Certified Disadvantaged Business Enterprises, which is available on the Iowa DOT Office of Employee Services, Civil Rights Team (OES-CRT) DBE Program website. For guidance in setting DBE goals, refer to I.M. 3.710, DBE Guidelines.
5. The deadline date for receiving proposals.

If inexperienced in preparing RFPs, the LPA should review the Iowa DOT current list of RFPs for examples of typical format and content. These are available on the Iowa DOT Consultant Utilization web site, as shown on the Open Requests for Proposals page. (Note: most of the Iowa DOT consultant contracts are not Federally funded, so they do not typically include a statement about a DBE goal.)

For additional guidance in conducting the full selection process using qualifications-based procedures, refer to the Qualifications-Based Selection: A Guide for Selecting an Architect, Engineer, or Land Surveyor for Public Owners, published by the American Council of Engineering Companies of Iowa.

Noncompetitive selections

If less than 3 firms were considered under the abbreviated process, or if less than 3 proposals were received under the full process, then the selection process is not considered competitive. Noncompetitive selections may be approved, but only if at least one of the following criteria is met:

1. The desired services are available from only one firm.
2. There is an emergency situation which does not allow sufficient time for a regular selection process.
3. After soliciting a number of sources, less than 3 proposals were received, but additional solicitations are unlikely to generate any additional proposals.

Requests for approval of a noncompetitive selection shall be submitted with appropriate justification and / or documentation to the Administering Office. The Administering Office will review the request and confer with the Office of Local Systems. The Administering Office will then notify the LPA of the decision.

Suspended or Debarred Firms

Firms that are presently suspended or debarred by the Federal government are prohibited from providing services that exceed $25,000 on any Federal-aid contract. The Standard Consultant Contract contains provisions requiring the consultant to certify the suspension or debarment status of his or her firm. Even so, the Iowa DOT strongly recommends the LPA verify the firm is not presently suspended or debarred using the System for Award Management (SAM) web site before proceeding with contract negotiations. The status of a firm can be determined using the SAMS web site search page.

Contract Negotiation

After receiving Iowa DOT approval, the LPA shall initiate negotiations with the consultant deemed to be the most qualified. The LPA shall provide the consultant with necessary information and request the consultant to submit its proposal with supporting cost and pricing data. Negotiations are intended to lead to the development of a contract mutually satisfactory to the LPA and the selected consultant. The goals of the negotiation process are to:

- Make certain that the consultant has a clear understanding of the scope of services.
- Determine that the consultant will make available the necessary personnel and facilities to accomplish the scope of services within the required time.
- Reach agreement with the consultant on the provisions of the contract, including equitable compensation for the required services and the most suitable and appropriate method of payment. This should include review of an itemized estimate of consulting fees, including tasks, estimated hours, hourly rates, and expenses (both direct and indirect, such as overhead).
- Determine, where applicable, whether the consultant can provide a design that will permit construction within established project costs.
- Verify that the project manager and the project team are the same as those in the proposal submitted to the selection committee (applicable only if the full process was used).

If a mutually satisfactory contract cannot be negotiated upon receiving a best and final offer in writing, the LPA shall formally terminate the negotiations and notify the consultant in writing. Termination of negotiations shall be made without prejudice. The substance of terminated negotiations is confidential. The LPA shall then initiate negotiations with the consultant given second preference, and this procedure shall be continued until a mutually satisfactory contract has been negotiated.

Contract Preparation

The following attachments to this I.M. are provided to assist the LPA and consultant in preparing an acceptable contract:

Attachment B – Requirements for Federal-aid Consultant Contracts, provides guidance for preparing a consultant contract. The Iowa DOT requires that certain provisions be included in all contracts which will be reimbursed with Federal-aid. The Iowa DOT also recommends that certain other contract provisions be included for the mutual benefit of both the LPA and the consultant. This Attachment identifies both the required and recommended contract provisions.

Attachment C – Payment Methods, outlines several types of payment options that are acceptable for consultant contracts with Federal-aid participation. The method of payment used shall conform to one or more of the options described in this Attachment.

Attachment D – Standard Consultant Contract, provides a model contract for the LPA and its consultant. Use of this document is required for contracts with Federal participation.

The Standard Consultant Contract indicates the areas that are intended for modification by using blue text with grey highlighting. Explanatory text is shown with yellow highlighting and is for information only. The explanatory text shall be removed when drafting of the agreement is complete. If additional modifications to the text of the Standard Consultant Contract are made, the LPA shall advise the Iowa DOT Administering Office when the draft contract is submitted for review and specifically identify those parts of the Standard Consultant Contract that have been modified. All additional changes shall be shown using red underline and strikeout, highlighting, or other similar formatting so that any changes to the standard text are clearly visible.

> Note: The Iowa DOT requires use of the Standard Consultant Contract because it contains all the required Federal contract provisions. This helps ensure compliance with the Federal regulations and considerably reduces the time required for review by the Iowa DOT.

FHWA Authorization

FHWA authorization must be obtained before incurring any costs for which Federal reimbursement will be requested. The LPA shall submit a written request for authorization to the Administering Office along with a draft consultant contract and other supporting documentation, as described in Attachment A. The LPA shall not give the consultant notice to proceed until after receiving written notification from the Iowa DOT that the requested consultant services have received FHWA authorization.

The process for requesting FHWA authorization for PE costs is different than CE costs, as described below:

PE Costs

When requesting FHWA authorization for PE costs, the estimated cost shall include all phases of PE work, even if the scope of the initial consultant contract does not include all phases. If the initial contract does not include all phases of PE work, the LPA shall provide the best estimate available for all phases of PE work. This amount can be adjusted later as supplemental contracts for additional PE work are reviewed and approved. Requesting authorization for all phases of work up-front is an important safeguard that helps avoiding incurring costs prior to FHWA authorization.

CE Costs

Unlike PE costs, FHWA authorization of CE costs may not be requested well in advance of authorizing construction costs. Ordinarily, authorization for CE costs will be requested at the same time authorization for construction is requested.

However, authorization of CE may be requested 1-2 months prior to requesting authorization for construction, if it includes work that must be done prior to beginning construction, such as construction survey or conducting a pre-construction meeting.

LPAs should use the following guidelines to determine when to submit their request for FHWA authorization of CE costs to the Administering Office:

1. If the CE services are being added as a supplemental contract to an existing Federal-aid consultant contract which has already been reviewed and approved by the Iowa DOT, including a pre-audit if necessary, submit a detailed scope of services and a corresponding estimate of CE costs to the Iowa DOT Administering Office with the final letting plans, as per I.M. 3.005, Project Development Submittal Dates and Information.

2. If the consultant contract has not yet been approved by the Iowa DOT, contact the Administering Office to determine the appropriate amount of lead time required for their review and approval of the consultant selection process, consultant contract, and FHWA authorization.

Following the above guidelines should allow enough time for the CE authorization request to be reviewed by the Iowa DOT and authorized by FHWA at the same time construction is authorized. If some CE work needs to begin before construction is authorized, the above timeframes should be adjusted accordingly. The LPA is responsible for notifying the Iowa DOT Administering Office of any CE work that needs to occur prior to authorization of construction.

Pre-audit Procedures

If the estimated total consultant cost (including any planned supplemental contracts) is $100,000 or more, the Administering Office will forward 1 copy of the draft contract(s) to the Office of Finance, External Audits, and request a pre-audit. If the estimated cost is less than $100,000, a pre-audit is usually not required, unless:

- there is insufficient knowledge of the consultant's accounting system;
- there is previous unfavorable experience regarding the reliability of the consultant's accounting system;
- the contract involves procurement of new equipment or supplies for which cost experience is lacking; or
- the Administering Office has concerns about any item in the proposed cost estimate; or
- the Administering Office has any other concerns about the proposed contract.

External Audits may waive the need for a pre-audit based on its knowledge of the consultant and its past audit history. A pre-audit typically includes:

- an analysis of the consultant's cost proposal and financial records for the method of accounting in place to assure that the consultant has the ability to adequately segregate and accumulate reasonable and allowable costs to be charged against the contract; and
- an analysis of the consultant's proposed direct costing rates and indirect overhead factors to assure their propriety and eligibility for Federal reimbursement.

If there are any questions about the pre-audit procedures, the LPA or Administering Office may contact External Audits for assistance.

Contract Administration

Contract officials

The LPA shall appoint one of its officials to act as the Contract Administrator and be responsible for administration of the consultant contract. The Contract Administrator shall not be employed by the selected consultant. An Iowa DOT Administering Office staff person shall serve as the Contract Monitor.

Contract modifications

The Contract Administrator's approval and the Contract Monitor's concurrence are required on all matters regarding contract administration, including any contact modifications, such as adjustments to the contract price, approval of extra work, release of contingency, or execution of supplemental contracts. Before proceeding with work covered by a contract modification, the Contract Administrator's approval and the Contract Monitor's concurrence must be obtained in writing.

Contract modifications may not expand the scope of services beyond what was considered during the original selection process. For example, if the proposed scope of services for the original consultant selection only included PE services, then CE services cannot be added to the contract. In this scenario, a separate selection process would be needed for the CE services.

Adjustments to the FHWA authorization

If a contract modification changes the estimated cost of planning, PE, or CE services previously authorized, the Administering Office will initiate an adjustment to the FHWA authorization upon receipt of the contract modification request.

Some contract modifications may require a corresponding adjustment to FHWA authorization prior to beginning the work, others may not. In general, if the proposed work is within the same phase(s) of work included in a previous FHWA authorization for the contract, then the adjustment to the FHWA authorization may occur after the work begins. However, if the proposed work involves a new phase of work, FHWA authorization must be obtained first. *In either case, the Contract Administrator shall contact the Contract Monitor to verify whether the FHWA authorization must be adjusted in advance of proceeding with the work*.

> Note**:** Proceeding with a new phase of work without an adjustment to the FHWA authorization will make such work ineligible for Federal participation.

Pre-audits of Contract Modifications

If a pre-audit was conducted for the original contract, an additional pre-audit is not required for a contract modification, except in the following circumstances:

1. The contract modification changes or adds to the previously approved payment method(s).
2. The estimated costs are increased by $100,000 or more.

If a pre-audit was not conducted for the original contract, a pre-audit of the contract modification will be required if the new estimated total cost of the proposed services is $100,000 or more, or if otherwise requested by the Administering Office.

Reimbursements

The LPA may request reimbursement for approved and authorized consultant costs anytime after payments have been made to the consultant. Each request for reimbursement shall include:

- 1 cover letter; or for projects administered by the Office of Systems Planning, a Claim for Reimbursement of Federal Grant Program Project Costs (Form 240007) or for all other projects, a Claim for Reimbursement of Project Costs (Form 517050); that identifies the project number, the type of services for which reimbursement is being requested, and the total amount claimed for reimbursement;
- 1 copy each of the prime consultant and any applicable subconsultant invoices; and
- 1 copy of the canceled check or warrant to verify that the LPA has made payment to the consultant.

Invoices shall include as a minimum: the Iowa DOT project number, a description of the work performed, and the dates the work was performed. If the invoice includes both PE and CE services, a separate breakdown of each shall be provided. Use the invoice format as shown in Attachment D, Standard Consultant Contract.

For contracts that extend more than one year, reimbursement requests should be submitted every 6 months, but in no case less than every 12 months.

Contract Close-out

Final payment to the consultant

For contracts that do not include CE services and are not fixed fee with a variable overhead rate, the LPA shall make final payment to the consultant as soon as all the deliverables required by the contract have been provided.

For contracts that include CE services, the LPA shall not make final payment to the consultant until after receiving approval from the Administering Office to do so. Before authorizing final payment to the consultant for CE services, the Administering Office will verify that all construction documentation that must be supplied by the consultant for final reimbursement of construction costs has been received. Until such documentation is provided, the Administering Office will not grant approval to the LPA for final payment to the consultant. If final payment is made to the consultant without the Administering Office's approval, such payment will be ineligible for Federal-aid reimbursement. The LPA shall not withhold retainage on CE services if the remaining documentation is not the responsibility of the consultant.

For cost plus fixed-fee contracts with variable overhead rates, the LPA shall submit the consultant's final invoice to the Administering Office. The Administering Office will forward the final invoice to the Office of Finance, External Audits, for final review and approval. External Audits will notify the consultant and LPA if any adjustments to the final invoice are required. After the consultant has adjusted its final invoice accordingly, the LPA shall pay the final invoice.

Final reimbursement

After all the consultant's work is complete, all deliverables have been received, and the consultant has been paid in full, the LPA shall submit a request for final reimbursement for consulting services to the Iowa DOT Administering Office. Upon receipt of the final reimbursement request, the Administering Office will process the final Federal reimbursement for consultant services.

Final audit

Upon receipt of a request for final reimbursement of consultant costs, the Administering Office will also forward a request for a final audit or final review to the Iowa DOT Office of Finance, External Audits. Lump sum contracts do not need a final audit, but may have a final review. External Audits may waive final audit requirements on contracts less than $100,000.

If a final audit is conducted, External Audits will review all invoiced charges to assure that the charges are adequately supported and are eligible for reimbursement. After the final audit is complete, External Audits will return the audit report to the Administering Office, which in turn will pass the report on to the LPA and the consultant.

- If the audit report finds that a balance is due to the consultant, the consultant may invoice the LPA for the balance due and the LPA may request reimbursement for the additional payment. Upon receipt of such a request, the Iowa DOT will reimburse the LPA for the appropriate Federal share.
- If the audit report finds that the consultant has been overpaid, the Iowa DOT will invoice the LPA for the appropriate Federal share or deduct this amount from the balance of reimbursement that is due to the LPA for other project costs. Likewise, the LPA may request reimbursement from the consultant for the amount of overpayment.

Consultant evaluations

Upon completion of the contract work, the LPA shall complete the LPA Consultant Evaluation (Form 517024). After completing the form, the LPA shall send the evaluation to the consultant, the Administering Office, and the Office of Local Systems.

Records retention

Upon FHWA approval of the final closure document, the Administering Office will notify the LPA and the consultant of the record retention date. The LPA and consultant shall keep all records associated with the project for at least 3 years from the record retention date. During this time, the records shall be available to Iowa DOT and FHWA staff upon request.

Contract No. **[XXXXX]**
Owner Project No. **[XXXXX]**
Iowa DOT Project No. **[XXXXX]**

Standard Consultant Contract

For Local Public Agency Consultant Contracts with Federal-aid Participation

(Areas intended for modification are shown in [bracketed blue text with grey highlight]*. Drafting instructions are shown with yellow highlight and should be removed when drafting. The header information should also be removed or modified when drafting.)*

This **AGREEMENT,** made as of the date of the last party's signature below, is by and

BETWEEN [name of Local Public Agency], the ***Owner***, located at:

[street address]
[city, state, zip]
Phone: (xxx) xxx-xxxx
FAX: (xxx) xxx-xxxx

and [Insert Company Name], the ***Consultant***, located at:

[street address]
[city, state, zip]
Phone: (xxx) xxx-xxxx
FAX: (xxx) xxx-xxxx

For the following Project: [insert a description of the Federal-aid project here, consistent with the description in the Statewide Transportation Improvement Program]

The ***Owner*** has decided to proceed with the Project, subject to the concurrence and approval of the Iowa Department of Transportation (Iowa DOT), and the Federal Highway Administration (FHWA), U.S. Department of Transportation (when applicable).

The ***Owner*** desires to employ the ***Consultant*** to provide [insert general description of services to be provided here] services to assist with the development and completion of the Project. The ***Consultant*** is willing to perform these services in accordance with the terms of this Agreement.

TABLE OF CONTENTS

Article Number And Description

ARTICLE 1 INITIAL INFORMATION

This Agreement is based on the following information and assumptions.

1.1 Project Parameters

The objective or use is: [Identify, if appropriate, proposed use or goals and insert here]

1.2 Financial Parameters

1.2.1 Amount of the ***Owner's*** budget for the ***Consultant's*** compensation is:
[Insert amount here]

1.2.2 Amount of the ***Consultant's*** budget for the subconsultants' compensation is:
[Insert amount here]

1.3 Project Team

1.3.1 The ***Owner's*** Designated Representative, identified as the ***Contract Administrator*** is:
[insert name here]

The ***Contract Administrator*** is the authorized representative, acting as liaison officer for the ***Owner*** for purpose of coordinating and administering the work under the Agreement. The work under this Agreement shall at all times be subject to the general supervision and direction of the ***Contract Administrator*** and shall be subject to the ***Contract Administrator's*** approval.

1.3.2 The ***Consultant's*** Designated Representative is:
[insert name here]

1.3.3 The subconsultants retained at the ***Consultant's*** expense are identified in the following table:

Subconsultant	Amount Authorized	Maximum Amount Payable	Method of Payment
[Insert first subconsultant]	[Insert amount]	[Insert amount]	[Insert type (from 3.1.2)]
[Insert 2nd subconsultant]	[Insert amount]	[Insert amount]	[Insert type (from 3.1.2)]
[Insert 3rd subconsultant]	[Insert amount]	[Insert amount]	[Insert type (from 3.1.2)]

1.4 Time Parameters

1.4.1 The ***Consultant*** shall begin work under this Agreement upon receipt of a written notice to proceed from the ***Owner***.

1.4.2 Milestones for completion of the work under this Agreement as follows:

1. Preliminary design plans including type/size/location for all structures (preliminary design) and detail elements for a design public hearing and construction right-of-way needs shall be completed and accepted on or before [Insert date here] or [Insert days] calendar days after receiving the notice to proceed (whichever is greater).
2. Final design, contract plans and specifications and estimates shall be completed and in a form acceptable to the ***Owner*** on or before [Insert date here].
3. Completion of all work under this agreement shall be on or before [Insert date here] unless extended by written approval of the ***Contract Administrator*** or adjusted by supplemental agreement.

(the above examples may be edited to fit the needs of the project)

1.4.3 The ***Consultant*** shall not begin final design activities until after the ***Owner*** has been notified by the Iowa DOT that FHWA Environmental Concurrence has been obtained. Upon receipt of such notice, the ***Owner*** will provide the ***Consultant*** notice to proceed with final design activities.

1.5 Prequalification

1.5.1 The ***Consultant*** shall remain prequalified in work category [Insert all applicable work categories here], as defined in Iowa Department of Transportation Policy and Procedure No. 300.04. Failure to do so will exclude the ***Consultant*** from consideration for future Federal-aid contracts, until the ***Consultant*** regains pre-qualification status.

1.5.2 All services within this agreement shall be performed by the ***Consultant*** or subconsultant prequalified by the Iowa DOT in that particular category of work. If no work category exists for a particular service, normal methods of acceptance shall be used, such as experience, typical licensure, certification or registration, or seals of approval by others.

ARTICLE 2 ENTIRE AGREEMENT, REQUIRED GUIDANCE ANDAPPLICABLE LAW

2.1 Entire Agreement of the Parties. This Agreement, including its attachments, represents the entire and integrated agreement between the ***Owner*** and the ***Consultant*** and supersedes all prior negotiations, representations or agreements, either written or oral. This Agreement may be amended only by written instrument signed by both ***Owner*** and ***Consultant***. This Agreement comprises the documents listed as attachments in the Table of Contents. The work to be performed by the ***Consultant*** under this Agreement shall encompass and include all detail work, services, materials, equipment and supplies necessary to prepare and deliver the scope of services provided in Attachment A.

2.2 Required Guidance. All services shall be in conformity with the Specifications outlined in Attachment B, the Iowa Department of Transportation Federal-aid Project Development Guide, Instructional Memorandums to Local Public Agencies (I.M.s), and other standards, guides or policies referenced therein. In addition, applicable sections of the U.S. Department of Transportation Federal Aid Policy Guide (FAPG) shall be used as a guide in preparation of plans, specifications and estimates.

2.3 Applicable Law. The laws of the State of Iowa shall govern and determine all matters arising out of or in connection with this Agreement without regard to the choice of law provisions of Iowa law. In the event any proceeding of a quasi-judicial or judicial nature is commenced in connection with this Agreement, the exclusive jurisdiction for the proceeding shall be brought in the [county name] County District Court of Iowa, [city name], Iowa. This provision shall not be construed as waiving any immunity to suit or liability including without limitation sovereign immunity in State or Federal court, which may be available to the ***Owner***. The ***Consultant*** shall comply with all Federal, State and local laws and ordinances applicable to the work performed under this Agreement.

ARTICLE 3 FORM OF COMPENSATION

3.1 Method of Reimbursement for the Consultant.

3.1.1 Compensation for the ***Consultant*** shall be computed in accordance with one of the following compensation methods, as defined in Attachment C: *(mark method selected with an **[X]**)*

.1 [ ] Cost Plus Fixed Fee - Attachment C
.2 [ ] Lump Sum - Attachment C
.3 [ ] Specific Rate of Compensation - Attachment C
.4 [ ] Unit Price - Attachment C
.5 [ ] Fixed Overhead Rate - Attachment C
.

3.1.2 When applicable, compensation for the subconsultant(s) shall be computed in accordance with one of the payment methods listed in section 3.1.1. Refer to section 1.3.3 for identification of the method of payment utilized in the subconsultant(s) contract. The compensation method utilized for each subconsultant shall be defined within the subconsultant contract to the ***Consultant***.

3.2 Subconsultant's Responsibilities for Reimbursement. The ***Consultant*** shall require the subconsultants (if applicable) to notify them if they at any time determine that their costs will exceed their estimated actual costs. The ***Consultant*** shall not allow the subconsultants to exceed their

estimated actual costs without prior written approval of the ***Contract Administrator***. The prime ***Consultant*** is cautioned that cost under-runs associated with any subconsultant's contract are not available for use by the prime ***Consultant*** or other subconsultant unless the ***Contract Administrator***, Iowa DOT, and FHWA (when applicable) have given prior written approval.

ARTICLE 4 TERMS AND CONDITIONS

4.1 Ownership of Engineering Documents

4.1.1 All sketches, tracings, plans, specifications, reports on special studies and other data prepared under this Agreement shall become the property of the ***Owner*** and shall be delivered to the ***Contract Administrator*** upon completion of the plans or termination of the services of the ***Consultant***. There shall be no restriction or limitation on their future use by the ***Owner***, except any use on extensions of the project or on any other project without written verification or adaptation by the ***Consultant*** for the specific purpose intended will be the ***Owner's*** sole risk and without liability or legal exposure to the ***Consultant***.

4.1.2 The ***Owner*** acknowledges the ***Consultant's*** plans and specifications, including all documents on electronic media, as instruments of professional service. Nevertheless, the plans and specifications prepared under this Agreement shall become the property of the ***Owner*** upon completion of the services and payment in full of all moneys due to the ***Consultant***.

4.1.3 The ***Owner*** and the ***Consultant*** agree that any electronic files prepared by either party shall conform to the specifications listed in Attachment B. Any change to these specifications by either the ***Owner*** or the ***Consultant*** is subject to review and acceptance by the other party. Additional efforts by the ***Consultant*** made necessary by a change to the CADD software specifications shall be compensated for as Additional Services.

4.1.4 The ***Owner*** is aware that significant differences may exist between the electronic files delivered and the respective construction documents due to addenda, change orders or other revisions. In the event of a conflict between the signed construction documents prepared by the ***Consultant*** and electronic files, the signed construction documents shall govern.

4.1.5 The ***Owner*** may reuse or make modifications to the plans and specifications, or electronic files while agreeing to take responsibility for any claims arising from any modification or unauthorized reuse of the plans and specifications.

4.2 Subconsultant Contract Provisions and Flow Down

4.2.1 All provisions of this Agreement between the ***Owner*** and ***Consultant*** shall also apply to all subconsultants hired by the ***Consultant*** to perform work pursuant to this Agreement. It is the ***Consultant's*** responsibility to ensure all contracts between ***Consultant*** and its subconsultants contain all provisions required of Consultant in this Agreement. The only recognized exceptions to this requirement are under provision 1.5.2 when the subconsultant is required to be prequalified in a different work category than the ***Consultant*** and under provision 3.1.2 when the subconsultant has a different method of reimbursement than the ***Consultant***.

4.2.2 The ***Consultant*** may not restrict communications between the ***Owner*** and any of the subconsultants. The ***Consultant*** will encourage open communication among the ***Owner***, the ***Consultant*** and the subconsultants.

4.3 *Consultant's* Endorsement on Plans. The ***Consultant*** and its subconsultants shall endorse and certify the completed project deliverables prepared under this Agreement, and shall affix thereto the seal of a professional engineer or architect (as applicable), licensed to practice in the State of Iowa, in accordance with the current Code of Iowa and Iowa Administrative Code.

4.4 Progress Meetings. From time to time as the work progresses, conferences will be held at mutually convenient locations at the request of the ***Contract Administrator*** to discuss details of the design and progress of the work. The ***Consultant*** shall prepare and present such information and studies as may

be pertinent and necessary or as may be requested by the ***Contract Administrator***, to enable the ***Contract Administrator*** to pass judgment on the features and progress of the work.

4.5 Additional Documents. At the request of the ***Contract Administrator***, the ***Consultant*** shall furnish sufficient documents, or other data, in such detail as may be required for the purpose of review.

4.6 Revision of Work Product

4.6.1 Drafts of work products shall be reviewed by the ***Consultant*** for quality control and then be submitted to the ***Contract Administrator*** by the ***Consultant*** for review and comment. The comments received from the ***Contract Administrator*** and the reviewing agencies shall be incorporated by the ***Consultant*** prior to submission of the final work product by the ***Consultant***. Work products revised in accordance with review comments shall constitute "satisfactorily completed and accepted work." Requests for changes on work products by the ***Contract Administrator*** shall be in writing. In the event there are no comments from the ***Contract Administrator*** or reviewing agencies to be incorporated by the ***Consultant*** into the final work product, the ***Contract Administrator*** shall immediately notify the ***Consultant***, in writing, that the work product shall constitute "satisfactorily completed and accepted work."

4.6.2 In the event that the work product prepared by the ***Consultant*** is found to be in error and revision or reworking of the work product is necessary, the ***Consultant*** agrees that it shall do such revisions without expense to the ***Owner***, even though final payment may have been received. The ***Consultant*** must give immediate attention to these changes so there will be a minimum of delay to the project schedule. The above and foregoing is not to be construed as a limitation of the ***Owner's*** right to seek recovery of damages for negligence on the part of the ***Consultant*** herein.

4.6.3 Should the ***Contract Administrator*** find it desirable to have previously satisfactorily completed and accepted work product or parts thereof revised, the ***Consultant*** shall make such revisions if requested and directed by the ***Contract Administrator*** in writing. This work will be paid for as provided in Article 4.7.

4.7 Extra Work. If the ***Consultant*** is of the opinion that any work it has been directed to perform is beyond the scope of this Agreement, and constitutes "Extra Work," it shall promptly notify the ***Contract Administrator*** in writing to that effect. In the event that the ***Contract Administrator*** determines that such work does constitute "Extra Work", the ***Consultant*** shall promptly develop a scope and budget for the extra work and submit it to the ***Contract Administrator***. The ***Owner*** will provide extra compensation to the ***Consultant*** upon the basis of actual costs plus a fixed fee amount, or at a negotiated lump sum. The ***Consultant*** shall not proceed with “Extra Work” without prior written approval from the ***Owner*** and concurrence from the Iowa DOT. Prior to receipt of a fully executed Supplemental Agreement and written Notice to Proceed, any cost incurred that exceeds individual task costs, or estimated actual cost, or the maximum amount payable is at the ***Consultant’s*** risk. The ***Owner*** has the right, at its discretion, to disallow those costs. However, the ***Owner*** shall have benefit of the service rendered.

4.8 Extension of Time. The time for completion of each phase of this Agreement shall not be extended because of any delay attributed to the ***Consultant***, but may be extended by the ***Contract Administrator*** in the event of a delay attributed to the ***Owner*** or the ***Contract Administrator***, or because of unavoidable delays beyond the reasonable control of the ***Consultant.***

4.9 Responsibility For Claims And Liability

4.9.1 The ***Consultant*** agrees to defend, indemnify, and hold the ***Owner***, the State of Iowa, the Iowa DOT, their agents, employees, representatives, assigns and successors harmless for any and all liabilities, costs, demands, losses, claims, damages, expenses, or attorneys' fees, including any stipulated damages or penalties, which may be suffered by the ***Owner*** as the result of, arising out of, or related to, the negligence, negligent errors or omissions, gross negligence, willfully wrongful misconduct, or breach of any covenant or warranty in this Agreement of or by the ***Consultant*** or

any of its employees, agents, directors, officers, subcontractors or subconsultants, in connection with this Agreement.

4.9.2 The ***Consultant*** shall obtain and keep in force insurance coverage for professional liability (errors and omissions) with a minimum limit of $1,000,000 per claim and in the aggregate, and all such other insurance required by law. Proof of ***Consultant's*** insurance for professional liability coverage and all such other insurance required by law will be provided to the ***Owner*** at the time the contract is executed and upon each insurance coverage renewal.

4.10 Current and Former Agency Employees

The ***Consultant*** shall not engage the services of any current employee of the ***Owner*** or the Iowa DOT unless it obtains the approval of the ***Owner*** or the Iowa DOT, as applicable, and it does not create a conflict of interest under the provisions of Iowa Code section 68B.2A. The ***Consultant*** shall not engage the services of a former employee of the ***Owner*** or the Iowa DOT, as applicable, unless it conforms to the two-year ban outlined in Iowa Code section 68B.7. Similarly, the ***Consultant*** shall not engage the services of current or former FHWA employee without prior written consent of the FHWA, and the relationship meets the same requirements for State and local agency employees set forth in the above-referenced Iowa Code sections and the applicable Federal laws, regulations, and policies.

4.11 Suspension of Work under this Agreement

4.11.1 The right is reserved by the ***Owner*** to suspend the work being performed pursuant to this Agreement at any time. The ***Contract Administrator*** may effect such suspension by giving the ***Consultant*** written notice, and it will be effective as of the date established in the suspension notice. Payment for the ***Consultant's*** services will be made by the ***Owner*** to the date of such suspension, in accordance with the applicable provisions in Article **4.12.2** or Article **4.12.3** below.

4.11.2 Should the ***Owner*** wish to reinstate the work after notice of suspension, such reinstatement may be accomplished by thirty (30) days' written notice within a period of one year after such suspension, unless this period is extended by written consent of the ***Consultant***.

4.11.3 In the event the ***Owner*** suspends the work being performed pursuant to this Agreement the ***Consultant*** with approval from the ***Contract Administrator***, has the option, after 180 days to terminate the contract.

4.12 Termination of Agreement

4.12.1 The right is reserved by the ***Owner*** to terminate this Agreement at any time and for any reason upon not less than thirty (30) days written notice to the ***Consultant***.

4.12.2 In the event the Agreement is terminated by the ***Owner*** without fault on the part of the ***Consultant***, the ***Consultant*** shall be paid for the reasonable and necessary work performed or services rendered and delivered up to the effective date or time of termination. The value of the work performed and services rendered and delivered, and the amount to be paid shall be mutually satisfactory to the ***Contract Administrator*** and to the ***Consultant***. The ***Consultant*** shall be paid a portion of the fixed fee, plus actual costs, as identified in Attachment C. Actual costs to be reimbursed shall be determined by audit of such costs to the date established by the ***Contract Administrator*** in the termination notice, except that actual costs to be reimbursed shall not exceed the Maximum Amount Payable.

4.12.3 In the event the Agreement is terminated by the ***Owner*** for fault on the part of the ***Consultant***, the ***Consultant*** shall be paid only for work satisfactorily performed and delivered to the ***Contract Administrator*** up to the date established by the termination notice. After audit of the ***Consultant's*** actual costs to the date established by the ***Contract Administrator*** in the termination notice and after determination by the ***Contract Administrator*** of the amount of work satisfactorily performed, the ***Contract Administrator*** shall determine the amount to be paid to the ***Consultant***.

4.12.4 This Agreement will be considered completed when the scope of the project has progressed sufficiently to make it clear that [insert controling milestone -- for example "construction"] can be completed without further revisions in that work, or if the ***Consultant*** is released prior to such time by written notice from the ***Contract Administrator***.

4.13 Right to Set-off. In the event that the ***Consultant*** owes the ***Owner*** any sum under the terms of this Contract, the ***Owner*** may set off the sum owed to the ***Owner*** against any sum owed by the ***Owner*** to the ***Consultant*** under any other contract or matter in the ***Owner's*** sole discretion, unless otherwise required by law. The ***Consultant*** agrees that this provision constitutes proper and timely notice of the ***Owner's*** intent to utilize any right of set-off.

4.14 Assignment or Transfer. The ***Consultant*** is prohibited from assigning or transferring all or a part of its interest in this Agreement, unless written consent is obtained from the ***Contract Administrator*** and concurrence is received from the Iowa DOT and FHWA, if applicable.

4.15 Access to Records. The ***Consultant*** is to maintain all books, documents, papers, accounting records and other evidence pertaining to this Agreement and to make such materials available at their respective offices at all reasonable times during the agreement period, and for three years from the date of final closure of the Federal-aid project with FHWA, for inspection and audit by the ***Owner***, the Iowa DOT, the FHWA, or any authorized representatives of the Federal Government; and copies thereof shall be furnished, if requested.

4.16 Iowa DOT and FHWA Participation. The work under this Agreement is contingent upon and subject to the approval of the Iowa DOT and FHWA, when applicable. The Iowa DOT and FHWA shall have the right to participate in the conferences between the ***Consultant*** and the ***Owner***, and to participate in the review or examination of the work in progress as well as any final deliverable.

4.17 Nondiscrimination Requirements.

4.17.1 During the performance of this Agreement, the ***Consultant*** agrees to comply with the regulations of the U.S. Department of Transportation, contained in Title 49, Code of Federal Regulations, Part 21, and the Code of Iowa. The ***Consultant*** will not discriminate on the grounds of race, religion, age, physical disability, color, sex, sexual orientation, or national origin in its employment practices, in the selection and retention of subconsultants, and in its procurement of materials and leases of equipment.

4.17.2 In all solicitations, either by competitive bidding or negotiation made by the ***Consultant*** for work to be performed under a subcontract, including procurement of materials or equipment, each potential subconsultant or supplier shall be notified by the ***Consultant*** of the ***Consultant's*** obligation under this contract and the regulations relative to nondiscrimination on the grounds of race, religion, age, physical disability, color, sex, sexual orientation, or national origin.

4.17.3 In the event of the ***Consultant's*** noncompliance with the nondiscrimination provisions of this Agreement, the ***Owner*** shall impose such contract sanctions as it, the Iowa DOT, or the FHWA may determine to be appropriate, including, but not limited to withholding of payments to the ***Consultant*** under the Agreement until the ***Consultant*** complies, or the Agreement is otherwise suspended or terminated.

4.17.4 The ***Consultant*** shall comply with the following provisions of Appendix A of the U.S. DOT Standard Assurances:

During the performance of this contract, the ***Consultant***, for itself, its assignees and successors in interest (hereinafter referred to as the "***Consultant***") agrees as follows:

1. Compliance with Regulations: The ***Consultant*** shall comply with the Regulations relative to non-discrimination in Federally assisted programs of the Department of Transportation (hereinafter, "DOT') Title 49, Code of Federal Regulations, Part 21, as they may be amended from time to time, (hereinafter referred to as the Regulations), which are herein incorporated by

reference and made a part of this contract.

2. Nondiscrimination: The ***Consultant***, with regard to the work performed by it during the contract, shall not discriminate on the grounds of race, color, national origin, sex, age, or disability in the selection and retention of subconsultants, including procurement of materials and leases of equipment. The ***Consultant*** shall not participate either directly or indirectly in the discrimination prohibited by section 21.5 of the Regulations, including employment practices when the contract covers a program set forth in Appendix B of the Regulations.

3. Solicitations for Subcontracts, Including Procurement of Materials and Equipment: In all solicitations either by competitive bidding or negotiation made by the ***Consultant*** for work to be performed under a subcontract, including procurement of materials or leases of equipment, each potential subconsultant or supplier shall be notified by the ***Consultant*** of the ***Consultant***'s obligations under this contract and the Regulations relative to non-discrimination on the grounds of race, color, national origin, sex, age, or disability.

4. Information and Reports: The ***Consultant*** shall provide all information and reports required by the Regulations or directives issued pursuant there to, and shall permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the ***Owner***, the Iowa Department of Transportation or Federal Highway Administration to be pertinent to ascertain compliance with such Regulations, orders and instructions. Where any information required of a ***Consultant*** is in the exclusive possession of another who fails or refuses to furnish this information the ***Consultant*** shall so certify to the ***Owner***, the Iowa Department of Transportation or the Federal Highway Administration as appropriate, and shall set forth what efforts it has made to obtain the information.

5. Sanctions for Noncompliance: In the event of the ***Consultant***'s noncompliance with the nondiscrimination provisions of this contract, the ***Owner*** shall impose such contract sanctions as it, the Iowa Department of Transportation or the Federal Highway Administration may determine to be appropriate, including, but not limited to:

a. withholding of payments to the ***Consultant*** under the contract until the ***Consultant*** complies, and/or
b. cancellation, termination or suspension of the contract, in whole or in part.

6. Incorporation of Provisions: The ***Consultant*** shall include the provisions of paragraphs (1) through (6) in every subcontract, including procurement of materials and leases of equipment, unless exempt by the Regulations, or directives issued pursuant thereto. The ***Consultant*** shall take such action with respect to any subcontract or procurement as the ***Owner***, the Iowa Department of Transportation or the Federal Highway Administration may direct as a means of enforcing such provisions including sanctions for non-compliance: provided, however, that, in the event a ***Consultant*** becomes involved in, or is threatened with, litigation with a subconsultant or supplier as a result of such direction, the ***Consultant*** may request the ***Owner*** or the Iowa Department of Transportation to enter into such litigation to protect the interests of the ***Owner*** or the Iowa Department of Transportation; and, in addition, the ***Consultant*** may request the United States to enter into such litigation to protect the interests of the United States.

4.18 Compliance with Tile 49, Code of Federal Regulations, Part 26

4.18.1 The ***Consultant*** agrees to ensure that disadvantaged business enterprises (DBEs) as defined in 49 CFR Part 26 have the maximum opportunity to participate in the performance of contracts and subcontracts financed in whole or in part with Federal funds provided under this Agreement. In this regard the ***Consultant*** and all of its subconsultants shall take all necessary and reasonable steps in compliance with the Iowa DOT DBE Program to ensure disadvantaged business enterprises have the maximum opportunity to compete for and perform contracts.

4.18.2 Upon notification to the ***Consultant*** of its failure to carry out the requirements of this Article, the ***Owner***, the Iowa DOT, or the FHWA may impose sanctions which may include termination of the Agreement or other measures that may affect the ability of the ***Consultant*** to obtain future U.S. DOT financial assistance. The ***Consultant*** is hereby advised that failure to fully comply

with the requirements of this Article shall constitute a breach of contract and may result in termination of this Agreement by the ***Owner*** or such remedy as the ***Owner***, Iowa DOT or the FHWA deems appropriate.

4.19 Severability. If any section, provision or part of this Agreement shall be adjudged invalid or unconstitutional, such adjudication shall not affect the validity of the Agreement as a whole or any section, provision, or part thereof not adjudged invalid or unconstitutional.

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be executed by their proper officials thereunto duly authorized as of the dates below.

[INSERT CONSULTANT NAME]

By _____ Date: _____

[Name of Person Signing for Consultant]
[Position of Person Signing for Consultant]

ATTEST:

By _____ Date: _____

[INSERT OWNER NAME]

By _____ Date: _____

[Name of Person Signing for the Owner]
[Position of Person Signing for the Owner]

IOWA DEPARTMENT OF TRANSPORTATION
Accepted for FHWA Authorization*

By _____ Date: _____

Name _____

Title _____

* The Iowa DOT is not a party to this agreement. However, by signing this agreement, the Iowa DOT is indicating the work proposed under this Agreement is acceptable for FHWA authorization of Federal funds.

ATTACHMENT A
Scope of Services

*Insert scope of services here, as developed and agreed upon jointly by the **Owner** and the **Consultant.***

Consider including within the project administration portion of the scope of services something similar to the following for progress reporting and 85% budget notification requirements:

It is understood by the ***Owner*** and the ***Consultant*** that the level and frequency of Progress Reporting shall be mutually established for each project, taking into account the complexity and duration of the work to be performed. For this specific project it is agreed that progress reporting will be [Choose: waived / provided on a monthly basis].

It is understood by the ***Owner*** and the ***Consultant*** that the task detail associated with the 85% budget notification shall be mutually established for each project in relation to the complexity and duration of the work to be performed. For this specific project it is agreed that all work contemplated in the agreement will be considered as [Choose: one / or insert number] task(s). It is further agreed that the 85% budget notification requirements will be [Choose: waived / required] for this Agreement based on the volume of work assigned, duration, complexity, and rate of progress anticipated on the project.

Also, for those projects involving road, engineering survey, or geotechnical design tasks, consider including something similar to the following within the project administrative portion of the scope of services:

The ***Consultant*** will monitor and review updates to the Iowa DOT's Instructional Memorandums (I.M.s), Road Design Manual, Standard Road Plans, Road Design Details. Updates requiring no additional effort on the part of the ***Consultant*** will be incorporated into the work by the ***Consultant***. If the ***Consultant*** is of the opinion additional effort will be required, the ***Consultant*** will so notify the ***Contract Administrator***, in accordance with Paragraph 4.7. The ***Contract Administrator*** will provide written approval or disapproval for the ***Consultant*** to incorporate said update into the work and indicate how payment for such work will be addressed.

ATTACHMENT B
Specifications

Insert appropriate project specifications here. These should include specific standards or specifications that will govern the production of work products or other deliverables to be provided by the consultant under the contract. Examples may include electronic file specifications, plan formatting, report requirements, etc.

ATTACHMENT C (referenced from 3.1)
Cost Plus Fixed Fee

3.1.1 FEES AND PAYMENTS

3.1.1.1 Fees. For full and complete compensation of all work, materials, and services furnished under the terms of this Agreement, the ***Consultant*** shall be paid fees in the amount of the ***Consultant's*** actual cost plus applicable fixed fee amount. The ***Consultant's*** actual costs shall include payments to any subconsultants. The estimated actual costs and fixed fee are shown below and are itemized in Attachment C-1. Subconsultant costs are not available for use by the prime ***Consultant*** or other subconsultants. A contingency amount has [has / has not] been established to provide for actual costs that exceed those estimated.

Estimated Actual Costs (Prime only)	$ [Insert Costs]
Fixed Fee (Prime only)	$ [Insert Fee]
Contingency (Prime only)	$ [Insert Contingency, if applicable]
Total Prime Consultant Costs	$ [Insert Costs]
Subconsultant (1)	$ [Insert Costs]
Subconsultant (2)	$ [Insert Costs]
Subconsultant (3)	$ [Insert Costs]
Total Subconsultant Costs	$ [Insert Costs]
Maximum Amount Payable	$ [Insert Amount]

The nature of engineering services is such that actual costs are not completely determinate. Therefore, the ***Consultant*** shall establish a procedure for comparing the actual costs incurred during the performance of the work to the estimated actual costs listed above. The procedure will itemize prime consultant and subconsultant costs in association with each scoped task. The purpose is to monitor these two elements and thus provide for early identification of any potential for the actual costs exceeding the estimated actual costs. The procedure shall be used in a way that will allow enough lead time to execute the paragraphs below without interrupting the work schedule. Therefore once the accrued labor costs for a scoped task reach 85% of the estimated value for the prime or subconsultant, then the ***Consultant*** shall notify the ***Owner*** in writing.

It is possible that the ***Consultant's*** costs for the scoped tasks may need to exceed those shown in Attachment [Insert Attachment Number]. The ***Consultant's*** and subconsultants' costs for scoped tasks shall not be exceeded without prior written authorization from the ***Contract Administrator*** and concurrence from the Iowa DOT. Costs for scoped tasks that exceed estimated costs, if approved by the ***Contract Administrator***, may be compensated via Supplemental Agreement, Work Order, Amendment, or Contingency as detailed in the paragraphs below. If the ***Consultant*** exceeds the estimated costs for scoped tasks for any reason (other than that covered in Section 3.1.1.2) before the ***Contract Administrator*** is notified in writing, the ***Owner*** will have the right, at its discretion, to deny compensation for that amount.

The fixed fee amount will not be changed unless there is a substantial reduction or increase in scope, character, or complexity of the services covered by this Agreement or the time schedule is changed by the ***Owner***. The adjustment to fixed fee will consider both cumulative and aggregate changes in scope, character, or complexity of the services. Any change in the fixed fee amount will be made by a Supplemental Agreement, Work Order, or Amendment.

If a contingency amount has been established and at any time during the work the ***Consultant*** determines that its actual costs will exceed the estimated actual costs, thus necessitating the use of a contingency amount, it will promptly so notify the ***Contract Administrator*** in writing and describe what costs are causing the overrun and the reason. The ***Consultant*** shall not exceed the estimated actual costs without the prior written approval of the ***Contract Administrator*** and concurrence of the Iowa DOT. The ***Owner*** or Iowa DOT may audit the ***Consultant's*** cost records prior to authorizing the use of a contingency amount.

The maximum amount payable will not be changed except for a change in the scope. Changes due to

an overhead adjustment are identified in Section 3.1.1.2. If at any time it is determined that a maximum amount payable will be or has been exceeded, the ***Consultant*** shall immediately so notify the ***Contract Administrator*** in writing. The maximum amount payable shall be changed by a Supplemental Agreement, Work Order, or Amendment or this Agreement will be terminated as identified in Article 4.12.3. The ***Owner*** may audit the ***Consultant's*** cost records prior to making a decision whether or not to increase the maximum amount payable.

3.1.1.2 Reimbursable Costs. Reimbursable costs are the actual costs incurred by the ***Consultant*** which are attributable to the specific work covered by this Agreement and allowable under the provisions of the Code of Federal Regulations (CFR), Title 48, Federal Acquisition Regulations Systems, Subchapter E., Part 30 (when applicable), and Part 31, Section 31.105 and Subpart 31.2. In addition to Title 48 requirements, for meals to be eligible for reimbursement, an overnight stay will be required. The Title 48 requirements include the following:

1. Salaries of the employees for time directly chargeable to work covered by the Agreement, and salaries of principals for time they are productively engaged in work necessary to fulfill the terms of the Agreement.

2. Direct non-salary costs incurred in fulfilling the terms of this Agreement. The ***Consultant*** will be required to submit a detailed listing of direct non-salary costs incurred and certify that such costs are not included in overhead expense pool. These costs may include travel and subsistence, reproductions, computer charges and materials and supplies.

3. The indirect costs (salary related expenses and general overhead costs) to the extent that they are properly allowable to the work covered by this Agreement. The ***Consultant*** has submitted to the ***Owner*** the following indirect costs as percentages of direct salary costs to be used provisionally for progress payments for work accomplished during the ***Consultant's*** current fiscal year: Salary related expenses are [Insert Amount]% of direct salary costs and general overhead costs are [Insert Amount]]% of direct salary costs.

   Use of updated overhead percentage rates shall be requested by the ***Consultant*** after the close of each fiscal year and the updated overhead rate shall be used to update previous year invoices and subsequent years as a provisional rate for invoicing in order to more accurately reflect the cost of work during the previous and subsequent years.

   Any actual fiscal year or fiscal year's audited or unaudited indirect costs rates known by the ***Consultant*** shall be used in computing the final invoice statement. All unverified overhead rates shall have a schedule of computation supporting the proposed rate attached to the final bill. Prior to final payment for work completed under this Agreement all indirect cost rates shall be audited and adjusted to actual rates through the most recently completed fiscal year during which the work was actually accomplished. In the event that the work is completed in the current fiscal year, audited indirect cost rates for the most recently completed fiscal year may be applied also to work accomplished in the current fiscal year. If these new rates cause the actual costs to be exceeded, the contingency amount will be used.

3.1.1.3 Premium Overtime Pay. Premium overtime pay (pay over normal hourly pay) will not be allowed without written authorization from the ***Contract Administrator***. If allowed, premium overtime pay shall not shall not exceed 2 percent of the total direct salary cost without written authorization from the ***Contract Administrator***.

3.1.1.4 Payments. Monthly payments shall be made based on the work completed and substantiated by monthly progress reports. The report shall indicate the direct and indirect costs associated with the work completed during the month. The ***Contract Administrator*** will check such progress reports and payment will be made for the direct non-salary costs and salary and indirect costs during said month, plus a portion of the fixed fee. The ***Owner*** shall retain from each monthly payment for construction inspection or construction administration services [Insert Amount]% of the amount due.* Fixed fee will be calculated and progressively invoiced based on actual costs incurred for the current billing cycle. Each invoice shall be accompanied with a monthly progress report which details the tasks invoiced, estimated tasks to be billed on the next invoice, and any other contract tracking information.

** Retainage is required only if the contract includes construction inspection and / or administration services. If the LPA elects to withhold retainage on other types of services, or if the contract does not include construction inspection and / or administration services, this sentence should be modified accordingly.*

Invoices shall clearly identify the beginning and ending dates of the prime's and subconsultant's billing cycles. All direct and indirect costs incurred during the billing cycle shall be invoiced. Costs incurred from prior billing cycles and previously not billed, will not be allowed for reimbursement unless approved by the ***Contract Administrator***.

Upon delivery and acceptance of all work contemplated under this Agreement, the ***Consultant*** shall submit one complete invoice statement of costs incurred and amounts earned. Payment of 100% of the total cost claimed, inclusive of retainage, if applicable, will be made upon receipt and review of such claim. Final audit will determine correctness of all invoiced costs and final payment will be based upon this audit. The ***Consultant*** agrees to reimburse the ***Owner*** for possible overpayment determined by final audit.

ATTACHMENT C (referenced from 3.1)
Lump Sum

3.1.1 FEES AND PAYMENTS

3.1.1.1 Fees. For full and complete compensation for all work, materials, and services furnished under the terms of this Agreement, the ***Consultant*** shall be paid fees on a lump sum basis and payment of this amount shall be considered as full and complete compensation for all work, materials and services furnished under the terms of this Agreement. The lump sum amount shall be $ [Insert Amount]. The estimated staff hours and fees are shown in Attachment C-1*

** Use of Attachment C-1, Cost Analysis Worksheet, is recommended, but not required for lump sum contracts. However, if not included in the contract, the consultant must still provide similar documentation to the LPA to justify the lump sum fee as part of the contract negotiations.*

The lump sum amount will not be changed unless there is a substantial change in the magnitude, scope, character, or complexity of the services from those covered in this Agreement. Any change in the lump sum amount will be by Supplemental Agreement.

3.1.1.2 Reimbursable Costs. Reimbursement of costs is limited to those that are attributable to the specific work covered by this Agreement and allowable under the provisions of the Code of Federal Regulations (CFR), Title 48, Federal Acquisition Regulation System, Subchapter E., Part 30 (when applicable), and Part 31, Section 31.105 and Subpart 31.2. In addition to Title 48 requirements, for meals to be eligible for reimbursement, an overnight stay will be required.

3.1.1.3 Premium Overtime Pay. Not applicable.

3.1.1.4 Payments. Monthly payments for work completed shall be based on the percentage of work completed and substantiated by monthly progress reports. The ***Contract Administrator*** will check such progress reports and payment will be made for the proportional amount of the lump sum fee. The ***Owner*** shall retain from each monthly payment for construction inspection or construction administration services (Insert Amount)% of the amount due.**

*** Retainage is required only if the contract includes construction inspection and / or administration services. If the LPA elects to withhold retainage on other types of services, or if the contract does not include construction inspection and / or administration services, this sentence should be modified accordingly.*

Invoices shall clearly identify the beginning and ending dates of the prime's and subconsultant's billing cycles. All direct and indirect costs incurred during the billing cycle shall be invoiced. Costs incurred from prior billing cycles and previously not billed, will not be allowed for reimbursement unless approved by the ***Contract Administrator***.

Upon completion, delivery, and acceptance of all work contemplated under this Agreement, the ***Consultant*** shall submit one complete invoice statement for the balance of the lump sum fee. Payment of 100% of the total cost claimed, inclusive of retainage, if applicable, will be made upon receipt and review of such claim. The ***Consultant*** agrees to reimburse the ***Owner*** for possible overpayment determined by final audit.

ATTACHMENT C (referenced from 3.1)
Specific Rate of Compensation

3.1.1 FEES AND PAYMENTS

3.1.1.1 Fees. For full and complete compensation for all work, materials, and services furnished under the terms of this Agreement, the ***Consultant*** shall be paid fees not to exceed the maximum amount payable under this Agreement of $ [Insert Amount].

The maximum amount payable will not be changed unless there is a substantial change in the magnitude, scope, character, or complexity of the services from those covered in this Agreement. Any change in the maximum amount payable will be by Supplemental Agreement.

A contingency amount of $ [Insert Amount] has been established for this Agreement and is included in the maximum amount payable. Written request by the ***Consultant*** indicating the need and written approval by the ***Contract Administrator*** and concurrence from the Iowa DOT are needed prior to usage of the contingency amount.

The current schedule of billing rates (direct labor rate, overhead, and fixed fee) are set forth in Attachment C-1.* The ***Consultant*** may submit for approval a revised rate schedule once during the contract period. This revision may include a revised overhead rate and revised direct labor rates. The revised rate schedule should be submitted to the ***Contract Administrator*** for approval and by the ***Contract Administrator's*** written approval it shall become a part of this Agreement.

**The example Cost Analysis Worksheet (Attachment C-1) may be modified for this method of compensation to show the schedule of specific rates instead of a breakdown of direct labor, overhead and fixed fee.*

3.1.1.2 Reimbursable Costs. The ***Consultant*** shall be reimbursed for direct non-salary costs which are directly attributable and properly allocable to the work. The ***Consultant*** will be required to submit a detailed listing of direct non-salary costs incurred and certify that such costs are not included in the overhead expense pool. These costs may include travel and subsistence, reproductions, computer charges, and materials and supplies.

Reimbursement of costs is limited to those that are attributable to the specific work covered by this Agreement and allowable under the provisions of the Code of Federal Regulations (CFR), Title 48, Federal Acquisition Regulation System, Subchapter E., Part 30 (when applicable), and Part 31, Section 31.105 and Subpart 31.2. In addition to Title 48 requirements, for meals to be eligible for reimbursement, an overnight stay will be required.

3.1.1.3 Premium Overtime Pay. Not applicable.

3.1.1.4 Payments. Monthly payments for work completed shall be based on the services completed at the time of the billing and substantiated by monthly progress reports in a form that follows the specific rate schedule. The ***Contract Administrator*** will check such progress reports and payment will be made for the hours completed at each rate and for direct non-salary costs incurred during said month. The ***Owner*** shall retain from each monthly payment for construction inspection or construction administration services [Insert Amount]% of the amount due.**

*** Retainage is required only if the contract includes construction inspection and / or administration services. If the LPA elects to withhold retainage on other types of services, or if the contract does not include construction inspection and / or administration services, this sentence should be modified accordingly.*

Invoices shall clearly identify the beginning and ending dates of the prime's and subconsultant's billing cycles. All direct and indirect costs incurred during the billing cycle shall be invoiced. Costs incurred from prior billing cycles and previously not billed, will not be allowed for reimbursement unless approved by the ***Contract Administrator***.

Upon completion, delivery and acceptance of all work contemplated under this Agreement, the

Consultant shall submit one complete invoice statement of costs incurred and amounts earned. Payment of 100% of the total cost claimed, inclusive of retainage, if applicable, will be made upon receipt and review of such claim. The ***Consultant*** agrees to reimburse the ***Owner*** for possible overpayment determined by final audit.

ATTACHMENT C (referenced from 3.1)
Unit Price

3.1.1 FEES AND PAYMENTS

3.1.1.1 Fees. For full and complete compensation for all work, materials, and services furnished under the terms of this Agreement, the ***Consultant*** shall be paid fees on a unit price basis in accordance with the following fee schedule. Maximum amount payable is the total cost of $ [Insert Amount].

The maximum amount payable will not be changed unless there is substantial change in the magnitude, scope, character, or complexity of the services from those covered in this Agreement. Any change in the maximum amount payable will be by Supplemental Agreement.

A contingency amount of $ [Insert Amount] has been established for this Agreement and is included in the maximum amount payable. Written request by the ***Consultant*** indicating the need and written approval by the ***Contract Administrator*** and concurrence from the Iowa DOT are needed prior to usage of the contingency amount.

3.1.1.2 Reimbursable Costs. Reimbursement of costs is limited to those that are attributable to the specific work covered by this Agreement and allowable under the provisions of the Code of Federal Regulations (CFR), Title 48, Federal Acquisition Regulation System, Subchapter E., Part 30 (when applicable), and part 31, Section 31.105 and Subpart 31.2. In addition to Title 48 requirements, for meals to be eligible for reimbursement, an overnight stay will be required.

3.1.1.3 Premium Overtime Pay. Not applicable.

3.1.1.4 Payments. Monthly payments for work completed shall be based on the services completed at the time of billing and substantiated by monthly progress reports in a form that follows unit prices in fee schedule. The ***Contract Administrator*** will check such progress reports and payment will be made for the unit amounts completed. The ***Owner*** shall retain from each monthly payment for construction inspection or construction administration services [Insert Amount]% of the amount due.*

** Retainage is required only if the contract includes construction inspection and / or administration services. If the LPA elects to withhold retainage on other types of services, or if the contract does not include construction inspection and / or administration services, this sentence should be modified accordingly.*

Invoices shall clearly identify the beginning and ending dates of the prime's and subconsultant's billing cycles. All direct and indirect costs incurred during the billing cycle shall be invoiced. Costs incurred from prior billing cycles and previously not billed, will not be allowed for reimbursement unless approved by the ***Contract Administrator***.

Upon completion, delivery and acceptance of all work contemplated under this Agreement, the ***Consultant*** shall submit one complete invoice statement of costs incurred and amounts earned. Payment of 100% of the total cost claimed, inclusive of retainage, if applicable, will be made upon receipt and review of such claim. The ***Consultant*** agrees to reimburse the ***Owner*** for possible overpayment determined by final audit.

[Attach Fee Schedule].

ATTACHMENT C (referenced from 3.1)
Fixed Overhead Rate

3.1.1 FEES AND PAYMENTS

3.1.1.1 Fees. For full and complete compensation of all work, materials, and services furnished under the terms of this Agreement, the ***Consultant*** shall be paid fees in the amounts of the ***Consultant's*** actual cost plus applicable fixed fee amount. The ***Consultant's*** actual costs shall include payments to any subconsultants. The estimated actual costs and fixed fee are shown below and are itemized in Attachment [Insert Attachment Number]. Subconsultant costs are not available for use by the prime ***Consultant*** or other subconsultants. A contingency amount [has / has not] been established to provide for actual costs that exceed those estimated.

Estimated Actual Costs (Prime only)	$ [Insert Costs]
Fixed Fee (Prime only)	$ [Insert Fee]
Contingency (Prime only)	$ [Insert Contingency]
Total Prime Consultant Costs	$ [Insert Costs]
Subconsultant (1)	$ [Insert Costs]
Subconsultant (2)	$ [Insert Costs]
Subconsultant (3)	$ [Insert Costs]
Total Subconsultant Costs	$ [Insert Costs]
Maximum Amount Payable	$ [Insert Amount]

The nature of engineering services is such that actual costs are not completely determinate. Therefore, the ***Consultant*** shall establish a procedure for comparing the actual costs incurred during the performance of the work to the estimated actual costs listed above. The procedure will itemize prime consultant and subconsultant costs in association with each scoped task. The purpose is to monitor these two elements and thus provide for early identification of any potential for the actual costs exceeding the estimated actual costs. The procedure shall be used in a way that will allow enough lead time to execute the paragraphs below without interrupting the work schedule. Therefore once the accrued labor costs for a scoped task reach 85% of the estimated value for the prime or subconsultant, then the ***Consultant*** shall notify the ***Owner*** in writing.

It is possible that the ***Consultant's*** costs for the scoped tasks may need to exceed those shown in Attachment C-1. The ***Consultant's*** and subconsultants' costs for scoped tasks shall not be exceeded without prior written authorization from the ***Contract Administrator*** and concurrence from the Iowa DOT. Costs for scoped tasks that exceed estimated costs, if approved by the ***Contract Administrator***, may be compensated via Supplemental Agreement, Work Order, Amendment, or Contingency as detailed in the paragraphs below. If the ***Consultant*** exceeds the estimated costs for scoped tasks for any reason (other than that covered in Section 3.1.1.2) before the ***Contract Administrator*** is notified in writing, the ***Owner*** will have the right, at its discretion, to deny compensation for that amount.

The fixed fee amount will not be changed unless there is a substantial reduction or increase in scope, character, or complexity of the services covered by this Agreement or the time schedule is changed by the ***Owner***. The adjustment to fixed fee will consider both cumulative and aggregate changes in scope, character, or complexity of the services. Any change in the fixed fee amount will be made by a Supplemental Agreement, Work Order, or Amendment.

If a contingency has been established and at any time during the work the ***Consultant*** determines that its actual costs will exceed the estimated actual costs, thus necessitating the use of a contingency amount, it will promptly so notify the ***Contract Administrator*** in writing and describe what costs are causing the overrun and the reason. The ***Consultant*** shall not exceed the estimated actual costs without the prior written approval of the ***Contract Administrator*** and concurrence of the Iowa DOT. The ***Owner*** or the Iowa DOT may audit the ***Consultant's*** cost records prior to authorizing the use of a contingency amount.

The maximum amount payable will not be changed except for a change in the scope. If at any time it is determined that a maximum amount payable will be or has been exceeded, the ***Consultant*** shall

immediately so notify the ***Contract Administrator*** in writing. The maximum amount payable shall be changed by a Supplemental Agreement, Work Order, or Amendment, or this Agreement will be terminated as identified in Article 4.12.3. The ***Owner*** may audit the ***Consultant's*** cost records prior to making a decision whether or not to increase the maximum amount payable.

3.1.1.2 Reimbursable Costs. Reimbursable costs are the actual costs incurred by the ***Consultant*** which are attributable to the specific work covered by this Agreement and allowable under the provisions of the Code of Federal Regulations (CFR), Title 48, Federal Acquisition Regulations System, Subchapter E., Part 30 (when applicable), and Part 31, Section 31.105 and Subpart 31.2. In addition to Title 48 requirements, for meals to be eligible for reimbursement, an overnight stay will be required. The Title 48 requirements include the following:

1. Salaries of the employees for time directly chargeable to work covered by the Agreement, and salaries of principals for time they are productively engaged in work necessary to fulfill the terms of the Agreement.

2. Direct non-salary costs incurred in fulfilling the terms of this Agreement. The ***Consultant*** will be required to submit a detailed listing of direct non-salary costs incurred and certify that such costs are not included in overhead expense pool. These costs may include travel and subsistence, reproductions, computer charges and materials and supplies.

3. The indirect costs (salary-related expenses and general overhead costs) to the extent that they are properly allowable to the work covered by this Agreement. The ***Consultant*** has submitted to the ***Owner*** the following indirect costs as percentages of direct salary costs to be used for the duration of the contract: Salary-related expenses are [Insert %] of direct salary costs and general overhead costs are [Insert %] of direct salary costs, for a composite rate of [Insert %].

3.1.1.3 Premium Overtime Pay. Premium overtime pay (pay over normal hourly pay) will not be allowed without written authorization from the ***Contract Administrator***. If allowed, premium overtime pay shall not shall not exceed 2 percent of the total direct salary cost without written authorization from the ***Contract Administrator***.

3.1.1.4 Payments. Monthly payments shall be made based on the work completed and substantiated by monthly progress reports. The report shall indicate the direct and indirect costs associated with the work completed during the month. The ***Contract Administrator*** will check such progress reports and payment will be made for the direct non-salary costs and salary and indirect costs during said month, plus a portion of the fixed fee. The ***Owner*** shall retain from each monthly payment for construction inspection or construction administration services [Insert Amount] % of the amount due.* Fixed fee will be calculated and progressively invoiced based on actual costs incurred for the current billing cycle. Each invoice shall be accompanied with a monthly progress report which details the tasks invoiced, estimated tasks to be billed on the next invoice, and any other contract tracking information.

** Retainage is required only if the contract includes construction inspection and / or administration services. If the LPA elects to withhold retainage on other types of services, or if the contract does not include construction inspection and / or administration services, this sentence should be modified accordingly.*

Invoices shall clearly identify the beginning and ending dates of the prime's and subconsultant's billing cycles. All direct and indirect costs incurred during the billing cycle shall be invoiced. Costs incurred from prior billing cycles and previously not billed, will not be allowed for reimbursement unless approved by the ***Contract Administrator***.

Upon delivery and acceptance of all work contemplated under this Agreement, the ***Consultant*** shall submit one complete invoice statement of costs incurred and amounts earned. Payment of 100% of the total cost claimed, inclusive of retainage, if applicable, will be made upon receipt and review of such claim. Final audit will determine correctness of all invoiced costs and final payment will be based upon this audit. The ***Consultant*** agrees to reimburse the ***Owner*** for possible overpayment determined by final audit.

ATTACHMENT C-1
Cost Analysis Worksheet

Contract xxxxx, [Either insert "Base Agreement" or "Supplemental Agreement No. ___"]
Project Number: _____

I. Direct Labor Cost (Prime Only)

Category	Hours	Rate/Hour	Amount
Engineer I			
Engineer II			
Tech I			
Tech II			

Payroll total $_____

II. Combined Overhead (COH) & Facilities Capital Cost of Money (FCCM) Costs (Prime Only)

IIA. Indirect Cost Factor: [Insert COH factor] (% X I) $_____

IIB. FCCM Factor: [Insert FCCM factor] (% X I) $_____*

Combined Overhead and FCCM total: $_____

III. Direct Project Expenses (Prime Only)

Phone/Fax _____
Mileage _____ _____miles @ _____
Reproduction _____
Postage _____

Total Direct Project Expenses $_____

IV. Estimated Actual Costs (EAC) (Prime Only) (I + II + III) $_____
(Rounded)

V. Fixed Fee (Prime Only) (% X (I + IIA)) $_____
Less FCCM (IIB) - $_____*
Fix Fee total: $_____
(Rounded)

VI. Contingency (Prime Only) % X (I + II + III) $_____
(Rounded)

VII. Subconsultant Expenses *(Designate if Cost Plus Fixed Fee (CP), Lump Sum (LS), etc. and include appropriate number of Attachment "I's" as necessary)*

List First Subconsultant Total Costs (EAC+FF+Cont.) CP $_____
List Second Subconsultant Total Costs (EAC+FF) LS $_____
List the remaining Subconsultant for this contract CP $_____

Total Subcontractor Costs $_____
(Rounded)

VIII. [Indicate type of reimbursement] Agreement Total (IV + V + VI + VII) $_____
(Maximum Amount Payable) (Rounded)

**Including the FCCM in the overhead rate is optional. If included in the overhead, it must be subtracted from the Fixed Fee amount. If FCCM is not included in the overhead, these lines may be omitted from the calculations.*

ATTACHMENT D

CERTIFICATION REGARDING DEBARMENT, SUSPENSION, AND OTHER RESPONSIBILITY MATTERS -- PRIMARY COVERED TRANSACTIONS

Instructions for Certification

1. By signing and submitting this proposal, the prospective primary participant is providing the certification set out below.
2. The inability of a person to provide the certification required below will not necessarily result in denial of participation in this covered transaction. The prospective participant shall submit an explanation of why it cannot provide the certification set out below. The certification or explanation will be considered in connection with the department or agency's determination whether to enter into this transaction. However, failure of the prospective primary participant to furnish a certification or an explanation shall disqualify such person from participation in this transaction.
3. The certification in this clause is a material representation of fact upon which reliance was placed when the department or agency determined to enter into this transaction. If it is later determined that the prospective primary participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause or default.
4. The prospective primary participant shall provide immediate written notice to the department or agency to whom this proposal is submitted if at any time the prospective primary participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.
5. The terms "covered transaction," "debarred," "suspended," "ineligible," "lower tier covered transaction," "participant," "person" "primary covered transaction," "principal," "proposal," and "voluntarily excluded," as used in this clause, have the meanings set out in the definitions and coverage sections of the rules implementing Executive Order 12549. You may contact the department or agency to which this proposal is being submitted for assistance in obtaining a copy of those regulations.
6. The prospective primary participant agrees by submitting this proposal that should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency entering into this transaction.
7. The prospective primary participant further agrees by submitting this proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion - Lower Tier Covered Transaction," provided by the department or agency entering into this covered transaction, without modification in all lower tier covered transactions and in all solicitations for lower tier covered transactions.
8. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that it is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant may decide the method and frequency by which it determines the eligibility of its principals. Each participant may, but is not required to, check the Nonprocurement List.
9. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of a participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.
10. Except for transactions authorized under paragraph 6 of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause or default.

Certification Regarding Debarment, Suspension, and Other Responsibility Matters - Primary Covered Transactions

(1) The prospective primary participant certifies to the best of its knowledge and belief, that it and its principals:

(a) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;

(b) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State Antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

(c) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (1)(b) of this certification; and

(d) Have not within a three-year period preceding this application /proposal had one or more public transactions (Federal, State or local) terminated for cause or default.

(2) Where the prospective primary participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

State of [Insert State]

[Insert County Name] County

I [Insert Name], [Insert Title] of the

[Insert Company Name] Company, being duly sworn (or under penalty of perjury under the laws of the United States and the State of Iowa) do hereby certify that the above Statements are true and correct.

_____
(Signature)

Subscribed and sworn to this _____ day of _____, _____.
(month) (year)

ATTACHMENT E

CERTIFICATION OF CONSULTANT

I hereby certify that I, [name of signatory], am the [Title] and duly authorized representative of the firm of [Organization], whose address is [Address], and that neither the above firm nor I has:

(a) Employed or retained for a commission, percentage, brokerage, contingent fee, or other consideration, any firm or person (other than a bona fide employee working solely for me or the above ***Consultant***) to solicit or secure this contract,

(b) Agreed, as an express or implied condition for obtaining this contract, to employ or retain the services of any firm or person in connection with carrying out the contract, or

(c) Paid, or agreed to pay, to any firm, organization or person (other than a bona fide employee working solely for me or the above ***Consultant***) any fee, contribution, donation or consideration of any kind for, or in connection with, procuring or carrying out the contract; except as here expressly stated (if any):

I acknowledge that this certificate is to be furnished to the Iowa Department of Transportation and the Federal Highway Administration, U.S. Department of Transportation, in connection with this contract involving participation of Federal-aid highway funds, and is subject to applicable, State and Federal laws, both criminal and civil.

_____ _____

Signature Date

ATTACHMENT F

CERTIFICATION OF OWNER

I hereby certify that I, [name of signatory], am the [title of signatory] and the duly authorized representative of the ***Owner***, and that the above consulting firm or his representative has not been required, directly or indirectly as an express or implied condition in connection with obtaining or carrying out this contract to:

(a) Employ or retain, or agree to employ or retain, any firm or person, or

(b) Pay, or agree to pay, to any firm, person, or organization, any fee, contribution, donation, or consideration of any kind; except as here expressly stated (if any):

I acknowledge that this certificate is to be furnished to the to the Iowa Department of Transportation and the Federal Highway Administration, U.S. Department of Transportation, in connection with this contract involving participation of Federal-aid highway funds, and is subject to applicable State and Federal laws, both criminal and civil.

Signature

Date

ATTACHMENT G
Page 1

Consultant Name
Consultant Address
Consultant Address

Cost Plus Fixed Fee Progressive Invoice

Date

Invoice No.
Invoice Period Covered
Consultant Job No.

Client Project No.
County
Client Project Description
Client Contract No.

	Contract Estimate	Cumulative To Date	Current Period
Labor Dollars			
Overhead			
Overhead Adjustments			
Direct Expenses			
Mileage			
Per Diem			
CADD			
Estimated Actual Costs [Prime Only] (See Note 1)			
Subconsultants (including authorized contingency)			
Name			
Name			
Name			
Estimated Actual Costs [Total Subconsultant Costs]			
Total Estimated Actual Costs [Prime + Total Subconsultant Costs]			
Fixed Fee (See Note 2)			
Authorized Contingency			
Total Authorized Amount			
Total Billed To Date			
Remaining Authorized Balance			
Unauthorized Contingency			
Prime			
Subconsultant Name			
Subconsultant Name			
Labor Hours			

Note 1: Do not include Subconsultant Expenses. Include Direct Labor, Overhead, and Direct Expenses for Prime Consultant only.

Note 2: Fixed fee shall be proportionate to the amount of actual costs invoiced compared to the actual costs estimated.

ATTACHMENT G
Page 2

Consultant Name
Consultant Address
Consultant Address

Cost Plus Fixed Fee Final Invoice

Date

Invoice No.
Invoice Period Covered
Consultant Job No.

Client Project No.
County
Client Project Description
Client Contract No.

	Contract Estimate	Cumulative To Date	Current Period
Labor Dollars (2001)			
Labor Dollars (2000)			
Labor Dollars (1999)			
Overhead (2001)			
Overhead (2000)			
Overhead (1999)			
Direct Expenses			
Mileage			
Per Diem			
CADD			
Estimated Actual Costs [Prime Only]			
Subconsultants (including authorized contingency)			
Name			
Name			
Name			
Estimated Actual Costs [Total Subconsultant Costs]			
Total Estimated Actual Costs [Prime + Total Subconsultant Costs]			
Fixed Fee			
Authorized Contingency			
Total Authorized Amount			
Total Billed To Date			
Remaining Authorized Balance			
Unauthorized Contingency			
Prime			
Subconsultant Name			
Subconsultant Name			
Labor Hours (2001)			
Labor Hours (2000)			
Labor Hours (1999)			

ATTACHMENT G
Page 3

Cost Plus Fixed Fee Final Invoice Instructions

- Employee Labor Hours and Dollars: A final cumulative job cost report that shows a breakdown of labor by fiscal year, employee name, employee labor hours and employee labor rate is required. In lieu of a final job cost report, a summary of the aforementioned information is needed. The summary should be supported by monthly job cost detail.

- Overhead Rates: Overhead rates and labor dollars to which the overhead rates are applied should match the fiscal year in which the costs are incurred. Overhead rates applied to labor should be audit verified when available. When not available, proposed FAR adjusted rates for the fiscal year in which the labor is incurred should be used.

- Direct Expenses: A final cumulative job cost report that shows a breakdown of direct expenses by specific item (mileage, CADD, per diem, etc….) by fiscal year is required. Direct expense items charged should identify the number of units (miles, hours, prints, copies, feet, etc….) and the rate applied by fiscal year. In lieu of a final job cost report, a summary of the aforementioned information is needed. The summary should be supported by monthly job cost detail.

- Subconsultant: Final invoice requirements for subconsultants with cost plus fixed fee contracts are the same as the requirements for the prime consultant. It is the prime consultant's responsibility to assure such an invoice is acquired and attached to the prime's final invoice.

ATTACHMENT G
Page 4

Consultant Name
Consultant Address
Consultant Address

Lump Sum Progressive Invoice

Date

Invoice No.
Invoice Period Covered
Consultant Job No.

Client Project No.
County
Client Project Description
Client Contract No.

Total Lump Sum Amount [Prime only]
Percentage Completed
Total
Less Amount Previously Billed
[Prime only]
Total Current Bill [Prime only]
Subconsultants
Name
Name
Name
Total

Current Labor Hours
Total Labor Hours Incurred To Date
Total Estimated Labor Hours

Note: When submitting more than the final invoice on a lump sum project, each progressive invoice shall be identified as a “Progressive Invoice” (as in the above title).

ATTACHMENT G
Page 5

Consultant Name
Consultant Address
Consultant Address

Lump Sum Final Invoice

Date

Invoice No.
Invoice Period Covered
Consultant Job No.

Client Project No.
County
Client Project Description
Client Contract No.

Total Lump Sum Amount [Prime only]
Percentage Completed
Total
Less Amount Previously Billed
[Prime only]
Total Current Bill [Prime only]
Subconsultants
Name
Name
Name
Total

Current Labor Hours
Total Labor Hours Incurred To Date
Total Estimated Labor Hours

Note: When submitting a final invoice on a lump sum project, the final cumulative job cost report should be submitted with the final invoice.

ATTACHMENT G
Page 6

Consultant Name
Consultant Address
Consultant Address

Specific Rate Progressive Invoice

Date

Invoice No.
Invoice Period Covered
Consultant Job No.

Client Project No.
County
Client Project Description
Client Contract No.

	Contract Estimate	Cumulative To Date	Current Period
Labor Dollars			
Direct Expenses			
Mileage			
Per Diem			
CADD			
Estimated Actual Costs [Prime Only] (See Note 1)			
Subconsultants (including authorized contingency)			
Name			
Name			
Name			
Total			
Authorized Contingency			
Total Authorized Amount			
Total Billed To Date			
Remaining Authorized Balance			
Unauthorized Contingency			
Prime			
Subconsultant Name			
Subconsultant Name			
Labor Hours			

Note 1: Do not include Subconsultant Expenses. Include Labor Dollars and Direct Expenses for Prime Consultant only.

ATTACHMENT G
Page 7

Consultant Name
Consultant Address
Consultant Address

Specific Rate Final Invoice

Date

Invoice No.
Invoice Period Covered
Consultant Job No.

Client Project No.
County
Client Project Description
Client Contract No.

	Contract Estimate	Cumulative To Date	Current Period
Labor Dollars (2002)			
Labor Dollars (2001)			
Labor Dollars (2000)			
Labor Dollars (1999)			
Direct Expenses			
Mileage			
Per Diem			
CADD			
Estimated Actual Costs [Prime Only] (See Note 1)			
Subconsultants (including authorized contingency)			
Name			
Name			
Name			
Total			
Authorized Contingency			
Total Authorized Amount			
Total Billed To Date			
Remaining Authorized Balance			
Unauthorized Contingency			
Prime			
Subconsultant Name			
Subconsultant Name			
Labor Hours (2002)			
Labor Hours (2001)			
Labor Hours (2000)			
Labor Hours (1999)			

Note 1: Do not include Subconsultant Expenses. Include Labor Dollars and Direct Expenses for Prime Consultant only

ATTACHMENT G
Page 8

Specific Rate Final Invoice Instructions

- Employee Labor Hours and Dollars: A final cumulative job cost report that shows a breakdown of labor by fiscal year, employee name, employee labor hours and employee labor rate is required. In lieu of a final job cost report, a summary of the aforementioned information is needed. The summary should be supported by monthly job cost detail.

- Direct Expenses: A final cumulative job cost report that shows a breakdown of direct expenses by specific item (mileage, CADD, per diem, etc….) by fiscal year is required. Direct expense items charged should identify the number of units (miles, hours, prints, copies, feet, etc….) and the rate applied by fiscal year. In lieu of a final job cost report, a summary of the aforementioned information is needed. The summary should be supported by monthly job cost detail.

- Subconsultant: Final invoice requirements for subconsultants with specific rate contracts are the same as the requirements for the prime consultant. It is the prime consultant's responsibility to assure such an invoice is acquired and attached to the prime's final invoice.

ATTACHMENT H
Consultant Fee Proposal

Insert prime consultant fee proposal here.

ATTACHMENT I
Page 1 of x
SUBCONSULTANT SCOPE AND BUDGET

Project Number: [Insert Project Number]

State of [Insert State]

I hereby certify that I, [name of signatory], am the [Title] and duly authorized representative of the firm of [name of subconsultant firm], whose address is [Address], and do hereby certify that the below Scope of Services and Subconsultant Budget Proposals are a true and accurate copy of the Scope of Services and Subconsultant Budget. Any changes to the proposed Scope and Budget shall be documented, signed by both the ***Consultant*** and subconsultant, and approved by the ***Contract Administrator***.

_____ _____
Signature Date

[Insert Subconsultant Scope of Services]

[Insert Subconsultant Fee Proposal]

INSTRUCTIONAL MEMORANDUMS
To Local Public Agencies

To:	Counties and Cities	Date: May 7, 2015
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 – Hydraulic Review Criteria
Attachment B – Iowa DNR Floodplain Regulations
Attachment C – Instructions for Completing the Request for Approval: Local Road System Form (referred to as Form 1-E) (Form 621003E)
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

For projects that meet any of the criteria listed in Attachment A, Hydraulic Review Criteria, 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 in Attachment A. However, such reviews will be conducted at the discretion of the Office of Bridges and Structures, and only as time permits.

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 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 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.

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. 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. 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.

4. A completed Request for Approval: Local Road System Form (referred to as Form 1-E) (Form 621003E).

   The Request for Approval: Local Road System (referred to as Form 1-E) (Form 621003E) 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 Request for Approval: Local Road System Form (referred to as Form 1-E) (Form 621003E).

5. A completed Risk Assessment Form.

   The Risk Assessment for Bridges (Culverts) (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.

6. 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

Hydraulic Review 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 an area where the 100-year (1% annual chance) flood water surface elevations have been determined by a detailed Flood Insurance Study (FIS).
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.

To determine if the proposed structure is located in an area where the 100-year flood water surface elevations have been determined, use the following steps:

1. Go to the Federal Emergency Management Agency (FEMA) Flood Map Service Center search page.
2. Find the structure location on the map using one of the search options provided, or just zoom into the project area using the interactive map.
3. Determine if a Flood Insurance Rate Map (FIRM) exists for proposed structure location.
   - If not, then this criterion does not apply.
   - If a FIRM does exist for the proposed structure location, click anywhere inside the FIRM boundary that includes the structure location. This will display information in the left hand panel of the web page, including several options for viewing the FIRM.
4. View the FIRM using one of the options provided.
5. Refer to the map to determine if the structure is in shaded area where the 100-year flood water surface elevations have been determined. These are shown with either cross sections or flood water surface elevation labels. Shaded areas that do not have cross sections or flood water surface elevation labels will not require a hydraulic review.

Instructions for Completing the Request for Approval: Local Road System Form

(referred to as Form 1-E) (Form 621003E)

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.

Form 621003E
11-02wd
(Form 1-E)

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)

☐ RA
☐ LA

List fill if RBC or Pipe ____ ft.
Length of RCB or Pipe ____ ft.
Flow Line Left ____
Flow Line Right ____

22. Superstructure: Type Continuous concrete slab Skew Angle 0
23. Substructure: Type P10 piers, integral abutments
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. (City/County Engineer) July 15, 2000 (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
1	0	997.0	0.07	FP
2	92	995.0		
3	145	993.0		
4	275	991.0		
5	430	990.0	n=0.07 n=0.03	TB
6	462	982.5		ES
7	472	979.5		CL
8	487	982.5		ES
9	510	990.0	n=0.03 n=0.07	TB
10	562	990.0		FP
11	705	993.0		FP
12	745	995.0		FP
13				
14				
15				

Shot No.	Distance	Elevation	(N) Roughness	Remarks
16	807	1000.9	0.07	FP
17	900	1003.0	0.07	FP
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
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

(Form 517002)

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.

Form 517002wd
11-02

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} 20,000 cfs Est. Bkwtr. 0 ft. Q_{25} 27,000 cfs Est. Bkwtr. 0 ft.

Q_{50} 36,200 cfs Est. Bkwtr. 0.1 ft. Q_{100} 41,000 cfs Est. Bkwtr. 0.1 ft.

Q_{500} 49,000 cfs or Overtopping _____ cfs (Whichever is lower)

Drainage Area 1661 sq. mi. Method Used to compute Q gage 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 Q_{500}) _____ 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: May 07, 2015
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 (Word)

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 LRFD English Culvert Standards, LRFD Precast Culvert Standards, English Bridge Standards, or County Bridge Standards.

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, completely reconstructed, rehabilitated, or repaired Federal-aid bridge and culvert structures shall be designed in accordance with the Iowa DOT Office of Bridges and Structures LRFD Design Manual.

Structural Reviews

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.

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

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.: _____ e-mail: _____

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. If the structure will not become the property of the contractor, specify how the existing structure will be disposed of. If the structure or parts of the structure will be salvaged, the plans shall indicate what part of the removals, if any, the contractor will be responsible for. For more information, refer to the "Salvaged Materials" section of Attachment A to I.M. 3.505, Check and Final Plans.

☐ **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 oversize 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 P10L.
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.

INSTRUCTIONAL MEMORANDUMS
To Local Public Agencies

To:	Counties and Cities	Date: May 7, 2015
From:	Office of Local Systems	I.M. No. 3.670
Subject:	Work on Railroad Right-of-Way	

Contents: This Instructional Memorandum (I.M.) includes general guidelines and procedures for a Local Public Agency (LPA) to obtain approval to work within a railroad's right-of-way. These procedures are required for all LPA projects let through the Iowa Department of Transportation (Iowa DOT) and all LPA Federal-aid projects let locally. These procedures are highly recommended, but not required, for all other LPA projects. This I.M. includes the following attachment:

Attachment A – Work on Railroad Right-of-Way Flowchart

Note: For Federal-aid projects, additional requirements will apply. For more information, refer to I.M. 3.680, Federal-aid Projects Involving Railroads.

Introduction

There are many railroads operating in Iowa, and each one has different requirements for work within their right-of-way. Therefore, this I.M. will provide only general guidelines and procedures that are applicable when working with any railroad. For more specific information relating to each railroad, refer to the Railroad Information Sheets for Local Public Agencies (RR Information Sheets). In the case of a conflict between the general guidelines provided in this I.M. and the RR Information Sheets, the information in the RR Information Sheets shall govern.

Railroad Contacts

Identifying the appropriate railroad contact person(s) is an important first step in coordinating with the railroad. The Office of Rail Transportation's railroad contact page provides several different contact lists. For most transportation infrastructure projects, the Public Works Contacts list is a good place to start.

Design

Most railroads have specific design requirements that must be met, such as horizontal and vertical clearances. Therefore, it's best to contact the railroad early in the design process to determine these parameters. Submittal of preliminary plans and site visit with the railroad is recommended during the early part of the project development process. This helps identify potential problems and reduces the likelihood of expensive design changes and delays later on in the project development process.

Agreements

Generally speaking, a written agreement between the LPA and the railroad will be required anytime LPA personnel or the LPA's contractor will need access to the railroad's right-of-way. Because negotiation of an agreement can take some time, LPAs should initiate negotiations with the railroad as soon as possible in the project development process. The form and content of the agreement is usually determined by the railroad, and may vary greatly depending on the railroad's requirements.

For additional guidance on the agreement content, refer to I.M. 3.680, Federal-aid Projects Involving Railroads. While the agreement requirements set forth in I.M. 3.680 are based on Federal requirements, the Iowa DOT strongly recommends, but does not require, including similar provisions in railroad agreements that do not involve Federal funds, with two exceptions. The following provisions listed in I.M. 3.680 are required even for railroad agreements that do not have any Federal participation:

1. Appendix A of the U.S. DOT Standard Title VI Assurances, and

2. Buy America provisions, if the work covered by the agreement is within the scope of work covered by the National Environmental Policy Act (NEPA) document for a Federal-aid project.

Specifications

The project plans, specifications, and other contract documents must address all of the railroad's requirements that will apply to the LPA's contractor. For some railroads, the Iowa DOT has developed a Developmental Specification (DS) or Supplemental Specification (SS) that contains all the railroad's requirements. These are available on the Iowa DOT's Specification Section web page. If available, the DS or SS shall be used, because these have been previously negotiated and approved for use by the respective railroad. The applicable specifications for each railroad are identified on the RR Information Sheets.

If a DS or SS is not available, and the railroad's construction requirements are not otherwise met by the provisions of the Iowa DOT Standard Specifications, a Special Provision (SP) will be necessary. To prepare an SP, the project designer should thoroughly review the agreement between the LPA and the railroad to ensure it includes all of the railroad's requirements that are not addressed elsewhere in the contract documents. Typically the SP should address the following railroad requirements:

- Contact person(s)
- Notification
- Flaggers
- Insurance
- Liability / indemnification
- Safety training

Previously issued SPs for several different railroads are also available on the Iowa DOT's Specification Section web page. Designers may wish to use previously issued SPs as a guide for writing a new SP for a given railroad.

If work will be performed by the railroad within the project limits, either by their own forces or a contractor hired by the railroad, this work shall be identified in the contract documents. This information shall include the limits of responsibility for the LPA's contractor and the coordination required with the railroad and / or its contractors.

Right-of-Entry Agreements

Some railroads require the contractor to enter into a separate right-of-entry (ROE) agreement in order to gain access to the railroad's right of way. The Iowa DOT does not recommend this practice. Use of a ROE agreement increases the risk of project delays and increased costs due to potential conflicts between the requirements of the railroad and LPA, both of whom have a contractual relationship with the contractor. However, if a ROE agreement is required, and the LPA is willing to assume these risks, the Iowa DOT strongly recommends it include ROE agreement provisions similar to those included in the current Canadian National DS. The costs of any conflicts or delays resulting from the ROE agreement will not be eligible for Federal-aid or State-aid participation.

Flagging

A railroad flagger must be present whenever work is occurring within 25 feet of the centerline of the tracks. Flaggers may also be required in other situations, depending on the activity and the railroad's requirements. Flaggers are provided by the railroad, and may be either railroad personnel or contractors hired by the railroad. Flagging rates are determined by the railroad and are usually specified in the railroad agreement.

In most cases, the railroad will bill the contractor for flagging costs. However, when the A+B bidding method is used, the LPA will pay the flagging costs directly. Arrangements for payment of flaggers should be specified in the railroad agreement.

If the LPA desires Federal-aid participation in any costs paid directly to the railroad, a separate FHWA authorization request must be submitted, as per I.M. 3.680, Federal-aid Projects Involving Railroads. If the

flagging costs will be paid by the LPA's contractor, these costs will be included in the construction authorization and so no separate FHWA authorization request is required.

Railroad Protective Insurance

Contractors working on the railroad right of way will need to obtain the insurance specified by the railroad. For projects let by the Iowa DOT, the following procedures will apply.

A separate bid item for railroad protective insurance will be added to the bid proposal prepared by the Iowa DOT Office of Contracts.

> Note: Federal regulations (23 CFR 646.111) limit the amount of railroad protective insurance which may have Federal participation. The limit for bodily injury, death and property damage is $2,000,000 per occurrence and $6,000,000 in aggregate. If the railroad requires insurance in excess of these amounts, the railroad protective insurance bid item will be Federal-aid non-participating, unless FHWA has approved a higher limit for the project.

The LPA shall submit the contractor's certificates of insurance, including the certificate for the railroad protective insurance, with the signed contracts to the Office of Contracts for concurrence in award. The Office of Contracts, Specification Section, will review the railroad protective insurance certificate. If the contract, bonds, insurance certificates, and all other contract documents are acceptable, the Iowa DOT will concur in the award. Upon receipt of Iowa DOT concurrence in the award, the LPA shall make full payment to the contractor for the railroad protective insurance bid item.

The LPA shall provide a copy of the railroad protective insurance certificate to the LPA's Project Engineer. The contractor shall also provide the railroad with the certificate of railroad protective insurance and / or a copy of the policy, as required by the project specifications. Typically the railroad will require these documents before allowing the LPA's contractor to access to railroad property.

Notification and Coordination

LPAs should notify the railroad of the proposed project early in the project development phase.

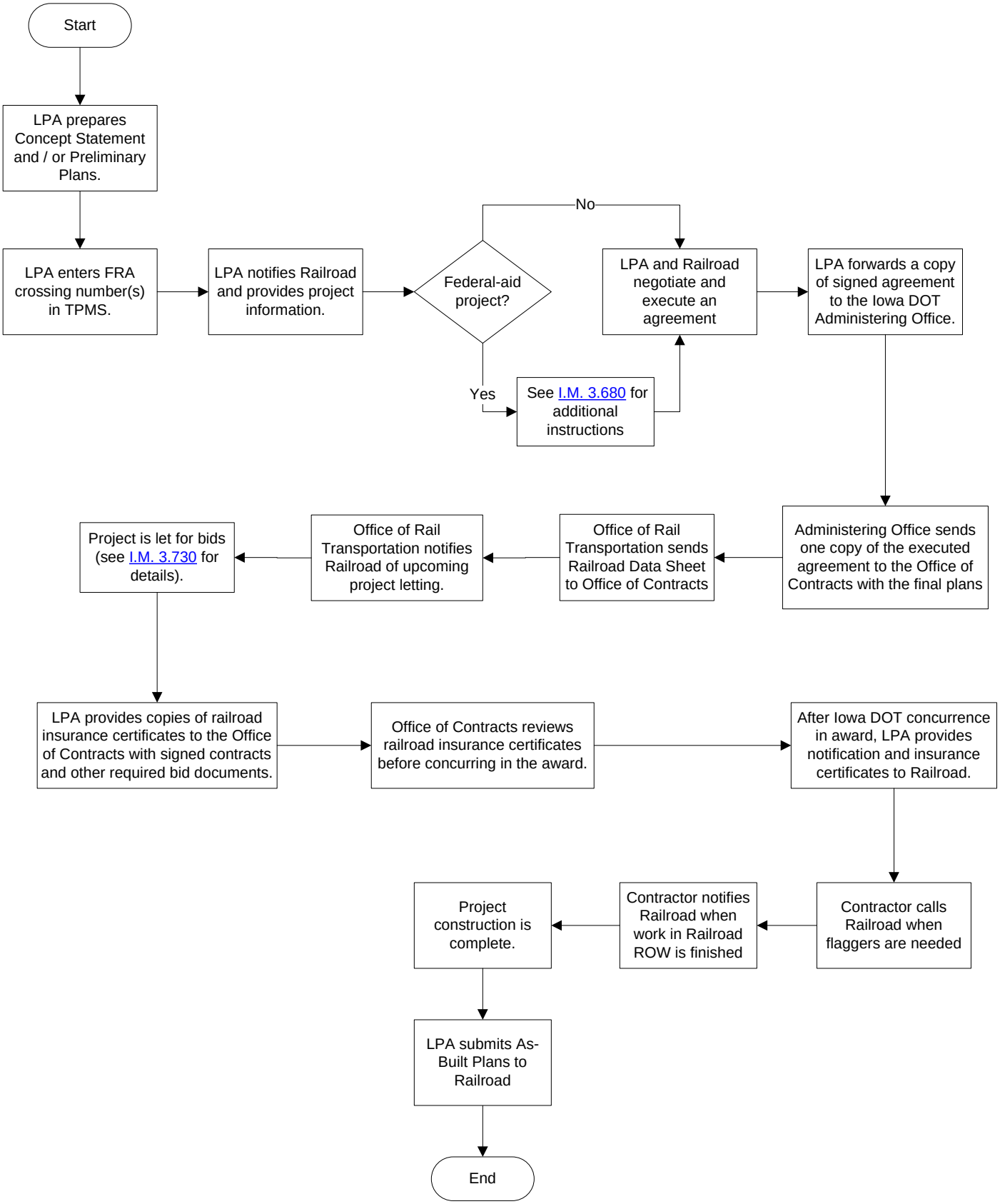
All notifications and submittals to the railroad should include the LPA's project number, location description, and the Federal Rail Administration (FRA) crossing number. To determine the FRA number, refer to the Iowa DOT Office of Rail Transportation's Highway-Railroad Crossing Identifiers web page.

LPAs shall enter information about the affected railroads on their project in the Transportation Project Management System (TPMS), including the railroad name and FRA crossing number. This information is used by the Iowa DOT Office of Rail Transportation to prepare the railroad data sheet which is included in the bid documents for projects let through the Iowa DOT. The Office of Rail Transportation also uses this information to provide a pre-letting notice to all railroads for all projects in upcoming Iowa DOT lettings.

Refer to the RR Information Sheets for more specific notification instructions for each railroad.

Work on Railroad Right-of-Way Flowchart

For Local Public Agency (LPA) Projects let through the Iowa DOT



INSTRUCTIONAL MEMORANDUMS
To Local Public Agencies

To:	Counties and Cities	Date: May 7, 2015
From:	Office of Local Systems	I.M. No. 3.680
Subject:	Federal-aid Projects Involving Railroads	

Contents: This Instructional Memorandum (I.M.) provides a summary of the requirements and procedures for Federal-aid transportation projects that involve work on railroad right-of-way or adjustments to railroad facilities, as specified in Title 23 of the Code of Federal Regulations, Part 646 (23 CFR 646). Topics addressed include design requirements, railroad agreements, and Federal participation in railroad costs. This I.M. includes the following attachment:

Attachment A – FHWA Authorization of Railroad Costs Flowchart

Note: For additional instructions and procedures for projects that involve railroads, refer also to I.M. 3.670, Work on Railroad Right-of-Way.

Project Design

Standards Used:

When the facility to be designed will be maintained and operated by the railroad, the design shall comply with the railroad's normal design standards and practices. When the facility will be maintained and operated by the LPA, the design shall comply with the applicable Federal-aid design guidelines, as outlined in Section 3.2 of the I.M.s. For structural or other design criteria not included in the I.M.s, refer to the applicable American Association of Highway Officials (AASHTO) design guidelines.

Specific Requirements:

For grade crossing projects, the project design shall comply with the following:

1. All traffic control devices shall comply with the latest edition of the Manual on Uniform Traffic Control Devices (MUTCD), as adopted by 761 Iowa Administrative Code (IAC), Chapter 130.

2. The project shall not be opened to unrestricted traffic or accepted as complete until adequate warning devices are operational at all highway-rail crossings within or adjacent to the project limits. Adequate warning devices shall include automatic gates and flashing lights when one or more of the following conditions exist:
   - multiple mainline tracks are present;
   - multiple tracks are present which may be occupied by a train or locomotive so as to obscure another train approaching the crossing;
   - high train speeds with limited sight distance;
   - high train speeds and moderately high volumes of train and highway traffic;
   - a high volume of highway traffic, a high number of train movements, substantial numbers of school buses or trucks carrying hazardous materials, unusually restricted sight distance, or recurring crashes; or
   - a diagnostic team recommends them.

   Otherwise, the determination of what type of warning device to install will be made by the LPA and / or the railroad, subject to approval by the Iowa Department of Transportation (Iowa DOT).

For projects on full access control highways (freeways), at-grade crossings shall be eliminated, regardless of the train or highway traffic volumes.

Performance of Design Work:

The engineering design work required for rail-highway projects may be accomplished by one of the following methods, subject to mutual agreement between the railroad and the LPA:

1. The LPA's or the railroad's own engineering staff; or
2. An engineering consultant. The consultant contract may be procured and administered either by LPA, with approval of the railroad; or by the railroad, with approval of the LPA.

Railroad Agreements

The Federal regulations require an agreement between the LPA and the railroad for any Federal-aid project that requires work on railroad right-of-way or adjustments to railroad facilities. It is the responsibility of the LPA to initiate the agreement process with the railroad. Some railroad agreements can take a long time to negotiate and execute, especially for projects that involve a significant amount of work on railroad property or facilities (e.g., construction or reconstruction of overpasses or underpasses, or projects that require relocation or adjustment of grade crossings or other railroad facilities). Therefore, the LPA should contact the railroad as early possible in the project development process.

Agreement Content:

A detailed agreement will need to be negotiated between the railroad and the LPA. Most railroads have standardized agreements that may be used for this purpose. Regardless of the particular form of agreement used, all railroad agreements for projects that require work on railroad right-of-way or adjustments to railroad facilities must provide the following, where applicable:

1. The provisions of 23 CFR 646, Subpart B, and 23 CFR 140, Subpart I, incorporated by reference.

2. A detailed statement of work to be completed by each party.

3. The method of payment for railroad costs. The preferred method of payment is based on actual costs. However, subject to approval by the Iowa DOT, the lump-sum method may be used for work done by railroad forces for any of the following:
   - installation or improvement of grade crossing warning devices and / or grade crossing surfaces;
   - any eligible railroad work where the estimate cost to the LPA does not exceed $100,000; or
   - when the Iowa DOT concurs it is in the public's best interest to use this method.

   Note: Usually, the Iowa DOT will not approve payment on a lump-sum basis because the historical cost data necessary to justify use of a lump-sum method is not available. If a lump-sum method is used, the Iowa DOT will require periodic reviews of the methods and cost data used by the railroad to develop lump-sum estimates.

4. If the project is not a safety project to eliminate a grade crossing, the extent to which the railroad is obligated to move or adjust its facilities at its own expense.

5. The railroad's share of project costs.
   - In general, the railroad is not required to share in the project costs when there is no ascertainable net benefit to the railroad.
   - When the project will eliminate an existing grade crossing at which active warning devices are either in place or have been ordered to be installed by a State regulatory agency, the railroad is required to pay a minimum of 5 percent of the project costs, within the limits set by 23 CFR 646.210(c).
   - Railroads may voluntarily contribute a greater share of project costs than are required, and other parties may also voluntarily assume the railroads share of project costs.

6. An itemized estimate of the cost of work to be completed by the railroad.

7. The method for performing railroad work. Railroad construction may be accomplished by any of the following methods:
   - force account (work done by railroad forces),
   - a competitive contract award,
   - a contractor retained as part of an existing continuing railroad contract, provided the cost is reasonable, or
   - a non-competitive contract award for minor work, provided the cost is reasonable.

8. The maintenance responsibilities of each party.

9. The form, duration, and amounts of any needed insurance. Such insurance shall comply with the requirements of 23 CFR 646, Subpart A.

10. References to the plans and specifications that describe the proposed work.

11. Provisions that specify the type of protective services (such as railroad flaggers) the railroad will provide or require the conditions under which they are required during the performance of the work, and the method of payment to the railroad for these services.

12. Provisions that address the inspection of any recovered materials. These provisions shall allow the LPA to inspect any materials salvaged by the railroad in order to agree upon the credit (if any) to be applied toward the Federal participation in the cost of the railroad work, as required by 23 CFR 646.216(c)(2).

13. Appendix A of the Standard DOT Title VI Assurances. This language is required whether Federal funds are used for the work covered by the railroad agreement or not.

14. Buy America provisions. If the project requires railroad work that is eligible for Federal participation, regardless of whether Federal funds are actually used or not, the agreement shall include provisions that require the railroad to comply with the Buy America law at 23 U.S.C. 313 and its implementing regulations at 23 CFR 635.410. The agreement shall also require the railroad to maintain records to support its compliance. A sample agreement provision, where "COMPANY" is the railroad and the "AGENCY" is the LPA, is provided below:

    > "All portions of the project performed by the COMPANY shall be in compliance with the Buy America Requirements, as set forth in 23 CFR 635.410 and 23 USC 313, as amended by Section 1518 of P.L. 112-141. Before incorporating any iron or steel products into the work, the COMPANY shall provide the AGENCY with manufacturer's certifications indicating that all manufacturing processes for iron and steel, including the application of coatings, have occurred in the United States, unless granted a waiver pursuant to 23 CFR 635.410."

    The Iowa DOT recommends the agreement require the railroad to use a step-certification process, whereby each corporate entity involved in the manufacturing process (from melting to fabrication) on transfer of the intermediate product, certify that its product complies with Buy America. This process produces a "chain of custody" documentation trail that can be used to verify compliance.

    Regardless of the type of certification process used, the LPA shall retain the certifications provided by the railroad as part of its Federal-aid project file for which the railroad work was eligible. These records shall be retained for at least 3 years after FHWA approval of the final amendment / modification document for the project, as described in Section 9.3 of the Federal-aid Project Development Guide.

    The Iowa DOT will review the LPA's file for Buy America certifications during field reviews or during the project close-out process. If Federal-aid reimbursement is requested for this work, the LPA shall also provide these certifications to the Iowa DOT with its reimbursement request(s).

    Buy America does not apply to manufactured products that are less than 90% iron or steel by weight.

    For additional guidance concerning the Buy America requirements, refer to FHWA's Buy America Construction Program Guide.

Federal Participation in Railroad Costs

To request FHWA authorization for railroad costs, follow the process illustrated in the flowchart included as Attachment A to this I.M. Like any other type of project work, FHWA Authorization must be obtained prior to beginning any railroad work which will be reimbursed with Federal funds. Additional details and guidance concerning this process is provided below.

Federal Share:

The pro-rata share of eligible railroad costs shall be determined by the Federal program that is supplying the Federal funds for the project.

Eligible Costs:

The criteria governing the eligibility of specific cost elements (e.g., labor, overhead, materials, equipment, etc.) incurred by the railroad are given in 23 CFR 140, Subpart I. If a pre-audit is requested, the eligibility of these costs will be reviewed by the Iowa DOT (see the "Pre-audit Procedures" section below).

Eligible Activities:

Engineering

The cost of Preliminary Engineering (PE) work required for the design of railroad facilities may be eligible for Federal reimbursement.

- When LPA procures the services of an engineering consultant, a qualifications-based selection process shall be followed, as described in I.M. 3.305, Federal Participation in Consultant Costs.
- In-house engineering services provided by the LPA must be reviewed and approved in accordance with I.M. 3.310, Federal-aid Participation in In-House Services.
- When the railroad is not adequately staffed to perform the required engineering work, Federal funds may participate in the costs of engineering or other consultants hired by the railroad, provided that such consultant fees are reasonable and are not based on a percentage of construction cost. The railroad may contract for the required engineering work on a project-specific basis, or as part of an existing continuing contract when such work is regularly performed for the railroad.

Right-of-Way

When required by the highway project, the cost of acquiring railroad right-of-way or providing replacement right-of-way for the railroad may be eligible for Federal reimbursement. To be eligible, such right-of-way acquisitions must meet the same eligibility criteria and follow the same procedures as any other Federal-aid project. For more information, refer to the I.M. 3.605, Right-of-Way Acquisition.

Construction

In general, Federal funds may participate in the cost of adjustments or construction of railroad facilities that are required to construct the highway project, but Federal funds may not participate in costs incurred solely for the benefit of the railroad.

Federal funds may participate in the portion of project costs required to provide the normal horizontal and vertical clearances required by the railroad, subject to the limitations provided in the Appendix to Subpart B of 23 CFR 646, or as required by the Iowa DOT.

For grade separation projects, Federal funds may participate in the costs associated with providing additional space to accommodate future tracks, if the railroad provides documentation to show that plans to add such tracks are included in its 5-year improvement plan. The LPA shall forward this documentation to the Iowa DOT Administering Office with its request for FHWA authorization.

FHWA Authorization Request Submittal:

To request FHWA authorization for railroad costs, submit the following to the Administering Office:

1. The draft railroad agreement, including the proposed plans and specifications, and an itemized estimate of all railroad costs to be paid directly by the LPA, including flagging costs, if applicable.
2. If the LPA's cost of acquiring railroad right-of-way is requested, include the information specified by I.M. 3.605, Right-of-Way Acquisition.
3. If the cost of engineering services provided by the LPA is requested, include the information specified by either I.M. 3.305, Federal Participation in Consultant Costs, or I.M. 3.310, Federal-aid Participation in In-House Services, as appropriate.

Agreement Review Procedures:

Administering Office Review

The Administering Office will review the draft agreement to determine if it includes the necessary agreement provisions, as set forth in this I.M. The Administering Office will also review the proposed railroad work to ensure it is within the scope of the project, as defined by the Concept Statement or other environmental documents, if applicable.

Pre-audit

If the estimated total railroad cost to be paid by the LPA is greater than $100,000, the Administering Office will forward 1 copy of the draft railroad agreement to the Iowa DOT Office of Finance, External Audits, and request a pre-audit. If the estimated cost is less than $100,000, a pre-audit is usually not required, unless:

- the railroad is to be paid on a lump-sum basis;
- there is insufficient knowledge of the railroad's accounting system;
- there is previous unfavorable experience regarding the reliability of the railroad's accounting system;
- the draft railroad agreement involves procurement of new equipment or supplies for which cost experience is lacking; or
- the Administering Office has concerns about any item in the proposed cost estimate.

External Audits may waive the need for a pre-audit based on its knowledge of the railroad and its past audit history. A pre-audit typically includes:

- an analysis of the railroad's cost proposal and financial records for the method of accounting in place to assure that the railroad has the ability to adequately segregate and accumulate reasonable and allowable costs to be charged against the project; and
- an analysis of the railroad's proposed direct costing rates and indirect overhead factors to assure their propriety and eligibility for Federal reimbursement, as required by 23 CFR 140, Subpart I.

If there are any questions about the pre-audit procedures, the LPA or Administering Office may contact External Audits for assistance.

Office of Rail Transportation Review

The Administering Office will forward a copy of the draft agreement to the Office of Rail Transportation. The Office of Rail Transportation will review the draft agreement to determine if the estimated cost of the proposed railroad work is reasonable. The Administering Office may also request assistance from the Office of Rail Transportation in reviewing other provisions of the draft agreement. The Office of Rail Transportation will review and provide its comments to the Administering Office on the reasonableness of the estimated cost and other provisions of the draft agreement if requested or if deemed necessary.

Reimbursements:

The LPA may request reimbursement for approved and authorized railroad costs anytime after payments have been made to the railroad. Before submitting a request for reimbursement, the LPA shall ensure the work completed to-date is in accordance with the authorized railroad agreement. Each request for reimbursement shall include:

- A cover letter, memo or e-mail that identifies the project number, the railroad work for which reimbursement is being requested, and the total amount claimed for reimbursement.
- If the railroad is performing the work with its own forces, include a copy of the railroad's estimate of work completed to date.
- If the railroad is using a contractor or consultant to perform the work, include a copy of the contractor or consultant invoice, and any applicable subcontractor or subconsultant invoices.
- A copy of the canceled check or check register to verify that the LPA has made payment to the railroad.
- If the reimbursement includes iron or steel products subject to Buy America, include copies of Buy America certifications provided by the railroad.

Completion of Railroad Work:

After all the railroad's work is completed, the LPA shall submit a request for final reimbursement to the Administering Office. The final reimbursement request shall include:

- A cover letter, memo or e-mail that identifies the project number, the railroad work for which reimbursement is being requested, and the total amount claimed for reimbursement. The cover letter

shall also include a statement by the LPA that the work performed by the railroad was completed in general conformance with the railroad agreement.
- If the railroad is performing the work with its own forces, include a copy of the railroad's final costs.
- If the railroad is using a contractor or consultant to perform the work, include a copy each of the contractor or consultant final invoice, and any applicable subcontractor or subconsultant final invoices.
- A copy of the canceled check or check register to verify that the LPA has made final payment to the railroad.
- Four color photos of showing the finished crossing from both roadway and railroad approaches (recommended but not required – these photos are used for the Iowa DOT's railroad database).

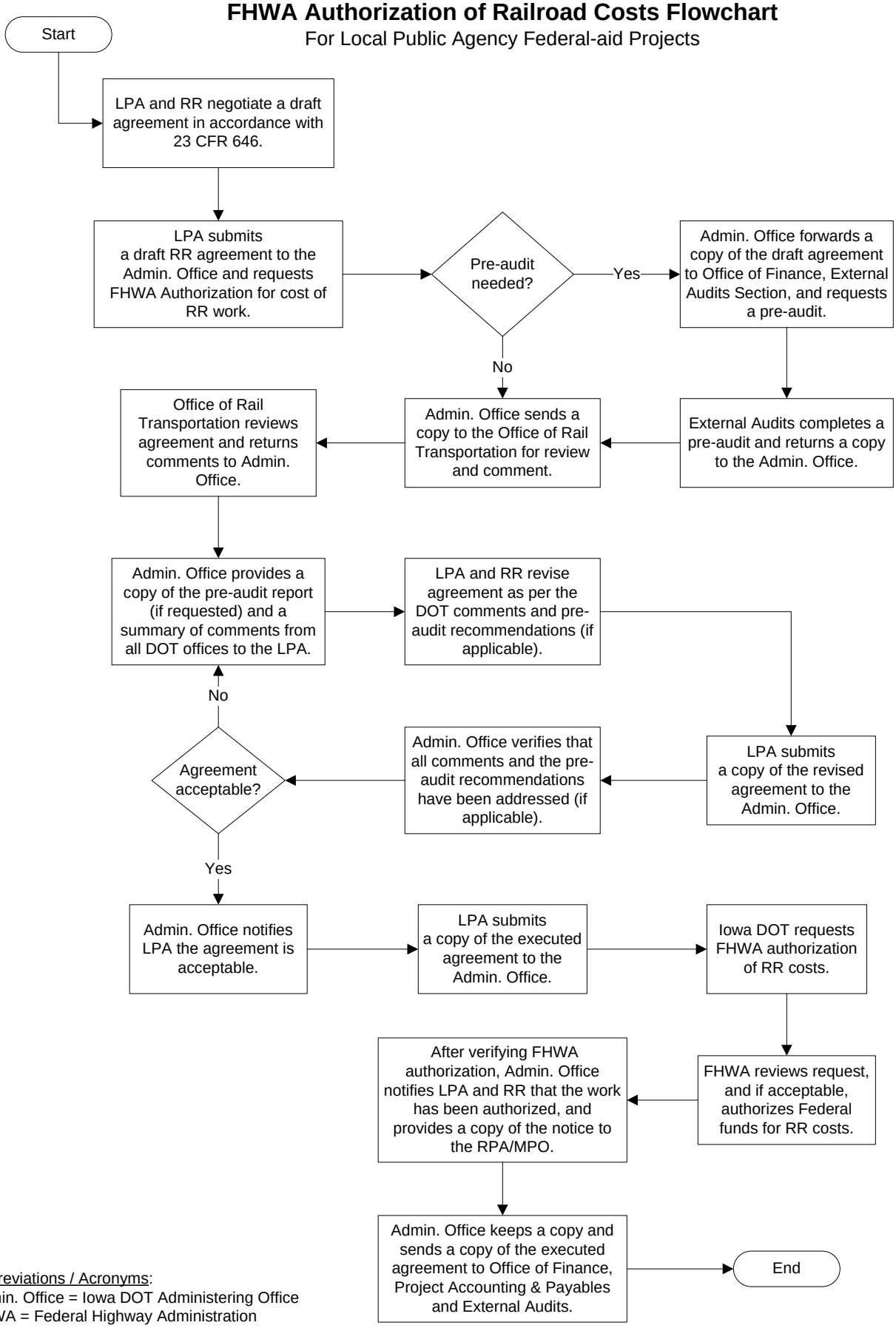
Because the final audit process can require a significant amount of time, and the final audit will need to be complete before the project as a whole can receive final Federal-aid reimbursement, the LPA should submit their request for final reimbursement of railroad work as soon as possible.

Upon receipt of a request for final reimbursement of railroad costs, the Administering Office will forward a request for a final audit or final review to the Office of Finance, External Audits. Lump sum agreements do not need a final audit, but may have a final review. External Audits may waive final audit requirements on railroad agreements less than $100,000. Final reimbursement for lump sum agreements or hourly rate agreements under $100,000 can be made prior to the final audit or review (reimbursement set by agreement).

If a final audit is conducted, External Audits will review all invoiced charges to assure that the charges are adequately supported and are eligible for reimbursement. After the final audit is complete, External Audits will return the audit report to the Administering Office, which in turn will pass the report on to the LPA and the railroad.
- If the final audit report finds that a balance is due to the railroad, the railroad may invoice the LPA for the balance due and the LPA may request reimbursement for the additional payment. Upon receipt of such a request, the Iowa DOT will reimburse the LPA for the appropriate Federal share.
- If the final audit report finds that the railroad has been overpaid, the Iowa DOT will invoice the LPA for the appropriate Federal share or deduct this amount from the balance of reimbursement that is due to the LPA for other project costs. Likewise, the LPA may request reimbursement from the railroad for the amount of overpayment.

FHWA Authorization of Railroad Costs Flowchart

For Local Public Agency Federal-aid Projects



Abbreviations / Acronyms:
Admin. Office = Iowa DOT Administering Office
FHWA = Federal Highway Administration
LPA = Local Public Agency
MPO = Metropolitan Planning Organization
RPA = Regional Planning Affiliation
RR = railroad company

Final Forms Packet Checklist

Project Number: _____ Project Name / Location: _____

Contract Number: _____ Contracting Authority: _____

Accounting Number: _____ Contractor: _____

Instructions: Attach the following documents, as applicable, to this checklist and send with your request for approval of the final voucher or pay estimate to the Iowa DOT Administering Office. Check the box to indicate which documents are being submitted. If the document doesn't apply, write "N/A" below the check box. Include the original and / or number of copies, as indicated for each item. If any of the items are not complete or correct, the final voucher or pay estimate will not be processed until all applicable documents are provided. Keep a copy of this completed checklist, including all attached documents, in the project file.

For many of the checklist items below, references have been provided to the appropriate Iowa DOT form number, Standard Specification Article number, Construction Manual (C.M.) section, Materials Instructional Memorandum (Materials I.M.), or Instructional Memorandum to Local Public Agencies (I.M.). Such references are included in parenthesis immediately after the checklist item title. Consult these references for additional instructions and information.

The Iowa DOT Standard Specifications, Construction Manual, and the Materials I.M.s are all available on-line as part of the Iowa DOT's Electronic Reference Library. Most of the Iowa DOT forms referenced below are also available on the Iowa DOT Forms web page. Finally, many of the forms or documents included in this checklist are also discussed as part of I.M. 3.805, Construction Inspection.

Document	Number	
	Original	Copies
Include for all contracts paid directly by the LPA:		
☐ **Final Pay Estimate** (Form 181235 (Word) or acceptable substitute) - Include if the Contractor was paid directly by the LPA. The final pay estimate reflects the final quantities and price adjustments, as corrected by the Iowa DOT final audits (if applicable), and has been signed by the Contractor and the Project Engineer.	1	
Include for all contracts paid by the Iowa DOT using the Contractor Pay System (CPS):		
☐ **Final Contract Construction Progress Voucher** (Form 181013, C.M. 2.37) - The final voucher includes all Change Orders, reflects the final quantities and price adjustments, as corrected by the Iowa DOT final audits (if applicable), and has been signed by the Project Engineer, Chairman of the Board of Supervisors, District Local Systems Engineer, and the Contractor. Note: If the Field Manager software is used, the computer generated final voucher may be used instead of Form 181013.	1	
For all contracts that apply:		
☐ **Certification of DBE Accomplishments** (Form 102116, C.M. 2.25, Article 1102.03) - Include if the contract was let by the Iowa DOT, even if no DBE firms were used. This certificate shall be submitted on all Federal-aid contracts and shall list the dollar amounts paid to all DBE firms on the contract. The certification shall be dated and signed by a responsible official legally representing the Contractor. Falsification of this certification will result in suspension of bidder qualifications according to Article 1102.03.		1
☐ **Certification of DBE Accomplishments** (Form 517013, I.M. 3.720) - Include if the contract was let by the LPA, even if no DBE firms were used. If no DBE firms were used, the Project Engineer shall complete the applicable portions of the form.	1	
☐ **Certification of Subcontractor Payments** (Form 518002) - Include if the Contractor utilized any subcontractors.	1	
☐ **Contractor Evaluations** Evaluation Report form, Evaluation Report Instructions) - These have to be submitted electronically to the Office of Contracts for the Contractor and any subcontractors with subcontract amounts of $20,000 or more. If using FieldManager, use instructions in the FieldManager Guide. All other projects, use the instructions on the Evaluation Report Instructions web page. At the Project Engineer's option, these may be submitted for subcontracts of lesser value.	1	

Document	Number	
	Original	Copies
☐ **Interest Payment Information** (Form 830236, I.M. 3.930) - Include for all contracts.		1
☐ **Audit of Final Pay Estimate** (Form 830301 (Word)) - Include if the contract was audited by the Iowa DOT. The form identifies the date corrective actions were taken and is signed and dated by the Project Engineer.		1
☐ **Final Payment** (Form 830436, C.M. 2.37) - Include if the contract used the Iowa DOT Standard Specifications.		1

Project Engineer's Certification: I have reviewed and / or approved each of the applicable items shown above and have approved the final voucher or pay estimate. The applicable documents, including supporting documentation as required, are attached.

Printed Name: _____ Date: _____

Signature: _____