Check and Final Plan Guidelines

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

Plan Format

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

Iowa DOT Standard Plans

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

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

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

The LRFD English Culvert Standards, and/or LRFD Precast Culvert Standards have been developed by the Iowa DOT Office of Bridge and Structures. These culvert standards include complete details for a variety sizes and configurations of culverts.

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

Iowa DOT Road Design Details

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

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

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

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

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

Iowa DOT Specifications

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

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

Standard Specifications

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

General Supplemental Specifications (GS)

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

Supplemental Specifications (SS)

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

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

Developmental Specifications (DS)

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

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

Special Provisions (SP)

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

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

SUDAS Specifications

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

Proprietary Products

Specifications using patented or proprietary (i.e., brand name) products or processes are strongly discouraged, either on the project plans or as part of an SP. Generic, end-result specifications are preferred. However, if a proprietary specification must be used, at least 3 acceptable products must also be listed, along with the phrase, "or approved equal." If only one proprietary product is allowed, a Public Interest Finding must be submitted to and approved by the Administering Office. For more information, refer to I.M. 3.760, Public Interest Findings.

Salvaged Materials

Section 1104 of the Standard Specifications states that all items or materials to be removed by the contractor shall become the possession of the contractor, unless stated otherwise in the contract documents. In some cases, Local Public Agency (LPA) may wish to retain possession of certain items or materials by directing the contractor to transport and stockpile those items or materials to a specified location. If items or materials will be salvaged, credit to the project is not required. However, in order to comply with Federal requirements, neither Federal nor State funds may participate in the cost of transporting and stockpiling salvaged materials. Therefore, for any item or material that will be salvaged by the contractor, 2 bid items shall be used:

1. A standard bid item shall be used for the cost of removal, demolition, or milling of material, as appropriate, that is necessary to construct the project. If no standard bid item exists, a non-standard bid item may be used. Federal, State, Farm-to-Market (FM), or local funds may be used to pay for the costs associated with this item.

2. A lump sum bid item 2555-0000010, Deliver and Stockpile Salvaged Materials, shall be used for the cost of transporting and stockpiling the items or materials. Neither Federal nor State funds may participate in the cost of this bid item. However, local or FM funds may participate. An LPA may also elect to transport and stockpile the salvaged materials with its own forces. If so, use of this bid item is not required, but the contract documents must specify how and where the LPA's forces will pick up the salvaged materials.

In addition to the 2 bid items described above, in all cases the plans shall include a tabulation of the items or materials to be salvaged including a description, quantity, and delivery location. The plans shall also specify the manner in which the materials must be stockpiled.

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

Special Procedures for HMA Millings:

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

Stockpiled Shoulder Material" bid item may not have Federal-aid or State-aid, but may have local or FM funding participation.

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

Federal-aid or State-aid projects shall not require salvage of more than 5,000 tons of excess HMA millings because this quantity of material may have a significant value and therefore could result in lower bid prices if the contractor were allowed to keep the excess material. Projects paid for with only local or FM funds may require some or all of the HMA millings to be delivered and stockpiled for use by the LPA.

Combined (Tied) Projects

When combining non-Federal-aid projects with Federal-aid projects into one contract, in certain situations the National Environmental Policy Act (NEPA) requirements will also apply to the non-Federal-aid projects. The general principle that governs the application of NEPA can be stated as follows: NEPA does not apply to a non-Federal-aid project that is combined with a Federal-aid project, if all the following conditions are met:

1. The projects have independent utility. This means that each project can be constructed and serve its intended purpose, even if the other project is not built. For example, a grading project and a paving project for the same physical limits do not have independent utility, because the grading project itself doesn't result in a useable transportation facility. As another example, a bridge deck overlay and an adjacent roadway overlay would have independent utility, because it is possible to construct one without the other and each would result in a useable transportation facility.

2. The funding and payments for each project can be segregated and tracked separately. This condition is not directly related to NEPA, but since one project has Federal participation and the other doesn't, this is required to ensure that Federal-aid is not used to reimburse ineligible project costs.

3. The non-Federal-aid project was not "de-federalized" simply to avoid NEPA requirements. This means that if the LPA begins developing a Federal-aid project and then run into environmental issues that will require more work than anticipated, the LPA cannot simply remove the Federal-aid or divide the Federal-aid project into separate Federal-aid and non-Federal-aid projects. The potential environmental impacts of a project may be considered before deciding which type of funds to use, but once the Federal-aid project development process begins, the LPA must comply with the NEPA requirements.

If the combined projects do not meet the criteria outlined above, for purposes of NEPA, they will be viewed as one project, and therefore the NEPA process and associated requirements would apply to all the combined projects. Please note this guidance pertains only to the applicability of NEPA. The criteria outlined above has no effect on other Federal requirements, some of which always apply to the whole contract, including any non-Federal-aid projects included in the contract. Examples include Davis-Bacon wage rates and Buy America provisions.

If an LPA has project-specific questions, or if are unsure whether their project meets these criteria, please contact the appropriate Iowa DOT Administering Office. The Administering Office will consultant with the Iowa DOT Office of Location and Environment as needed to determine whether NEPA will apply to non-Federal-aid projects combined with Federal-aid projects.

Plan Divisions

Plan divisions are required when there is a need to separate certain parts of the work from other parts of the work for a single project. Following are examples of common situations where plans divisions should be used:

- All the work shown on the plans cannot be paid for with the same funding sources. For example, items with Federal-aid must be in a separate plan division from non-Federal-aid items. Another example is when the project involves multiple types of funds (not counting the local match) and one type of funds may be used only for certain items and not for others.

- The work crosses a jurisdictional boundary and there is a need to identify the proportion of project costs that will be paid by the respective LPAs. For example, a county project may begin in a rural area and continue into a city. In this instance, plan divisions would be necessary to track and identify the final project costs so the county can bill the city for its share of the project costs.

- The LPA desires to separate the costs based on the general type of work, such as structures and pavement. Use of plans divisions in this instance is optional.

There may be other situations where the use of plan divisions is appropriate. Contact the Administering Office for assistance if needed.

If plan divisions are used, they should comply with the following guidelines:

1. Use the fewest number of divisions as possible.
2. The bid items and quantities in each plan division shall be shown in a corresponding bid item category in the electronic bid item information (see the "Bid Items" section below for more information).
3. The Estimated Project Quantities tabulation shall have a separate column for each division, labeled with a division number (e.g., "Division 1," "Division 2," etc.). For each division, include quantities for all bid items that apply to that division. Show the sum of all bid item quantities for all divisions in the "Total" column of the Estimated Project Quantities tabulation.
4. Provide a description for each division on the quantities sheet. This description should identify the purpose of the division. For example, divisions may be used to separate Federal-aid items from non-Federal-aid items. They may also be used to separate items paid for by separate LPAs, or one funding source from another. Funding sources should be identified by the type of funds (e.g., STP) instead of a project number.

   Note: Different project numbers should only be assigned to plan divisions if those plan divisions represent separate projects that are combined on one set of plans. In such cases, a separate entry in the Transportation Program Management System (TPMS) and a separate electronic bid item submittal will be required for each project.

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

Use the following guidelines for establishing funding priorities within a division:

1. Use Federal-aid first.
2. If more than one type of Federal-aid will be used, use the one with the highest reimbursement percentage first. For example, if a project has an earmark at 100% and STP funds at 80%, use the earmark first, then the STP funds.
3. Use State-aid second.
4. If more than one type of State-aid will be used, use the one with the highest reimbursement percentage first.
5. When matching Federal-aid, use State-aid first, then local funds.
6. State-aid may match Federal-aid and vice-versa.
7. When all other funding sources have reached their limit, use local funds.

These guidelines are designed to maximize the use of Federal-aid and minimize the use of local funds. However, there may be situations where it is appropriate to deviate from these guidelines. Contact the Administering Office for assistance if needed.

Bid Items

Use Iowa DOT standard bid items as listed in the Bid Items Application referenced by I.M. 3.520, Electronic Bid Item Information. Each bid item listed in the Estimated Project Quantities tabulation must have a valid bid item code, description, units, and estimated quantity.

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

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

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

Incidental Items

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

Bid Item Specifications

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

For each bid item listed in the Bid Item Description Book, a code is listed under the SPEC column. This code directs the bidder to the appropriate location for the specifications for that bid item. If the code in the SPEC column is “PLAN, STD6, SP or SP2,” the designer must supply the specification information, either on the plans or in a Special Provision. See the instructions in the front of the Bid Item Description Book for more information.

If unfamiliar with writing specification language, the designer should refer to the Standard Specifications for examples.

Estimate Reference Information

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

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

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

Alternate Bids

In some cases, alternate bidding may be an appropriate method to promote competition and thereby reduce project costs. There are two acceptable methods for alternate bidding:

1. Standard. Using this method, which is also sometimes referred to “head-to-head”. Using this method, the alternatives are included in separate sections on the plans and proposal. The alternatives are compared with each other, and a contract is awarded to the bidder with the lowest overall bid. No adjustment factors are used.

   Note: This method is not acceptable for alternate pavement types (see below for more information).

2. Best Value. This method expands the number of options a bidder can bid and allows the contracting authority to receive the best value based on individual alternatives selected by each bidder. Under this method, the contracting authority pre-determines the additional amount it is willing to pay for the best value alternative over the base alternative and this differential (D) is identified on the bid proposal. Refer to the DS for Best Value Alternative (A-D) Bidding for more information.

Plan Requirements for Alternate Bids

When alternate bids are used, the plans and proposal must include sections to separate the bid items appropriately. There are two acceptable methods for accomplishing this:

1. Base bid + alternatives. Using this method, the base (or non-alternate) bid items are placed in the first section. The base bid includes work that is common to all the alternatives. The work unique to each alternative is placed in a separate section, one for each alternative. All bidders must submit a bid for the base bid items, but may bid only one of the alternatives.

2. Alternatives only. Using this method, there is no common set of bid items. All the items necessary for a complete bid are included in a separate section, one for each alternative. Bidders may bid only one of the alternatives.

Alternate Bids for Pavement Types

While not encouraged by the Iowa DOT, alternative bids for pavement types (such as HMA vs. PCC) may be used if all the following conditions are met:

1. The LPA’s engineering and economic analysis does not indicate a clear choice between the pavement designs. In other words, the designs are essentially equivalent. Essentially equivalent means the designs provide a similar level of service over the same performance period and have similar life-cycle costs.

2. The pavement costs will likely have a significant impact on the low bid. Alternative bids for pavement types are not appropriate for contracts in which the paving costs are expected to be relatively minor in comparison to the other items of work.

3. The pavement alternates will be bid using the DS for Best Value Alternative (A-D) Bidding, where (D) is the difference between the Net Present Value of the two alternatives, as calculated by the contracting authority. This is also referred to as a bid adjustment factor.

If alternate pavement type bidding is requested, the LPA’s design engineer shall prepare and submit a life cycle cost analysis (LCCA) for the alternate pavement designs to the Iowa DOT Administering Office. The LCCA shall demonstrate the designs are essentially equivalent and comply with guidelines provided in the Federal Highway Administration’s (FHWA) Pavement Technical Advisory T 5040.39, Use of Alternate Bidding for Pavement Type Selection. The LCCA shall show how the bid adjustment factor was calculated.

For Federal-aid projects, the LPA's LCCA shall be reviewed and approved by the FHWA before the project is turned in to the Office of Contracts for letting. In order to allow enough time for FHWA's review, the LCCA should be submitted with the Check Plans if possible, but no later than 3 weeks prior to the Contracts Turn-in date, as per I.M. 3.005, Project Development Submittal Dates and Information.

For non-Federal-aid projects, FHWA review and approval is not required, but the LCCA should still comply with FHWA's Technical Advisory in order to ensure the contract is awarded to the design with the lowest estimated life-cycle cost. The Iowa DOT will only verify that the LCCA has been performed.

Note: Because of the data required and complexity of analysis involved, LPAs should carefully evaluate the expected benefits against the additional costs required to prepare an LCCA that meets FHWA's guidelines. Also, after bids are opened, the Iowa DOT will provide copies of the LCCA to bidders or other interested parties upon request. LPAs should also be aware that it is difficult to prepare an LCCA that is satisfactory to the competing paving industries, so they should be fully prepared to defend a decision to award which is based on their LCCA.

Added Options Bidding

This method allows the Contracting Authority to obtain the most work, or the best options, for the funds available for the project. Using this method, a contract is awarded to the bidder who bids the most options but stays under the contract award limit, which is identified on the bid proposal.

When this method is used, plans and proposal shall have a separate section for the base bid items and the items for each of the added options. Each added option is an incremental improvement over the base and previous options, if applicable. The price bid for each option will be added in the order shown on the plans and proposal. Therefore, the most important option should be included first, and the least important option is included last.

Refer to the DS for Added Options Bidding for more details on this bidding method.