# 123 Engineering Design Estimate Process

## 123.1 General

The construction cost estimate (Authorization Estimate) is one of the last activities performed during the design phase. Use the following items to develop a construction cost estimate:

(1) The contract plans set, including all component sets; e.g., structures, architectural.

(2) The specifications, including the supplemental specifications and technical special provisions.

(3) The Standard Plans referenced on the key sheet of the contract plans.

(4) The current ***Basis of Estimates Manual***.

| Modification for Non-Conventional Projects: |
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| Delete ***FDM 123.1*** and replace with the following:<br>**123.1 General**<br>The construction cost estimate (Authorization Estimate) is one of the last activities performed on design projects prior to beginning the procurement process. Use the following items to develop a construction cost estimate:<br>(1) The Concept Plans including a summary of quantities, if available;<br>(2) The Request for Proposal. |

## 123.2 Basis of Estimates

The ***Standard Specifications*** establish the method of measurement, basis of payment, and pay items for work specified for road and bridge construction. The ***Basis of Estimates Manual*** contains design aids, notes, the pay item structure, a list of currently open pay items, and computation information to aid the engineer in preparing the cost estimate.

Pay items for the various categories of construction work should be identified as those components are completed. For example, pay items for base and pavement work may be identified as the pavement design is completed; signal pay items may be identified as the signal design is completed. The engineer doing the design and specifications should

be knowledgeable about what work is to be done and which pay items are needed. The quantity take-off is generally performed at a later date when the plans are final and the tabulations and calculations are completed. The persons doing the quantity take-off should also ensure that all pay items have been identified.

Use the ***Basis of Estimates Manual*** to identify pay items on all types of projects, e.g., resurfacing, widening, safety, bridge. If any work on a project is not covered by existing specifications, then a technical special provision and possibly a new pay item description, unit of measure, and basis of payment may be required. If a desired pay item is not available, contact the FDOT Project Manager or District Estimates Office for assistance. Additional details for requesting pay items are available in ***Chapter 6*** of the ***Basis of Estimates Manual***.

| Modification for Non-Conventional Projects: |
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| Delete ***FDM 123.2***. |

## 123.3 Designer Interface for AASHTOWare Project Preconstruction™ (formerly Trns•port)

The Designer Interface, available through the Program Management Office webpage via the Webgate login, is used to build categories and to add pay items and quantities to categories. Contact the District Estimates Office for more information.

| Modification for Non-Conventional Projects: |
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| Delete ***FDM 123.3*** and replace with the following:<br><br>**123.3 Designer Interface for AASHTOWare Project Preconstruction™ (formerly Trns•port)**<br><br>Use ***Chapter 11*** of the ***Basis of Estimates Manual*** to select the design-build pay items. |

## 123.4 Estimated Quantities

### 123.4.1 Summary of Quantities

All quantities for pay items are tabulated and totaled on Summary of Quantity sheets in the plans. The summary boxes should be organized in pay item sequence for the project. See the ***Basis of Estimates Manual*** for further details. Place detailed documentation on calculations in the project's Calculations folder and included in the CADD_[FPID].ZIP file with the Final Plans Submittal. See the ***CADD Manual*** for details. Summary of Quantity sheets in the plans should be completed in accordance with ***FDM 307***.

#### 123.4.1.1 Plan Quantity

The Department's current practice is to provide for final payment under the plan quantity concept for a large number of commonly used items. Refer to the ***Standard Specifications*** to determine if an item is paid by plan quantity. This concept requires that the estimated quantities be calculated and documented as accurately as possible. Do not include contingencies in the quantity calculation for plan quantity pay items. The designer is responsible for the final pay quantity for all plan quantity items.

#### 123.4.1.2 Final Measurement Concept

The designer is responsible to estimate a quantity for all final measure items. Because there are many variables associated with these items, the final pay quantity will be determined by measurements performed in the field when the item is being used or constructed.

### 123.4.2 Breakdown of Quantities

Pay item quantities are loaded into the Designer Interface system by category, to reflect the work shown in each design group. When incidental work from one design group is included in the component plans for another group, the pay items must continue to be loaded in the appropriate category for the work to be completed. When a contract contains more than one Financial Project ID, pay item quantities for each project are loaded separately; the plan summary boxes for each project should clearly distinguish the location for each item of work. Similarly, the plan tabulation sheets must show separate quantities for each project. Only the Summary of Pay Items run from the AASHTOWare Project™ WebGate Reporting menu (formerly Trns•port reports menu) will show the

project totals, as well as the combined proposal/contract total. Additional information is available in ***Chapter 9*** of the ***Basis of Estimates Manual***.

## 123.4.3 Participating and Non-participating Pay Items

When multiple funding sources are available for a single project (federal, state, or local funds), an additional breakdown of pay item quantities may be necessary to identify those pay items or quantities that will "participate" in the available funding. For projects with federal funds, most of the pay items are eligible to "participate" for federal funds. Federal funds are not eligible for use on routine maintenance activities; e.g., mowing, litter removal, but may be used for preventative maintenance (i.e., extending the useful life of a highway.)

Refer to ***Chapter 9*** of the ***Basis of Estimates Manual*** for more information on loading pay items with multiple funding sources. Note that with multiple funding sources, the method of presenting this information in the plans must be of sufficient detail for project personnel to readily distinguish between participating and nonparticipating work, including its physical location on the project. Project personnel must be able to properly account for the necessary separation of quantities.

For Lump Sum or projects without federal funds, most items will "participate" in the available funding source(s). Unless otherwise directed by the Federal Aid or Work Program Office, all items of work (not including the initial contingency item) will default to participate in the available funding source.

## 123.4.4 Utility Work by Highway Contractor Agreement Plans

When separate plans for utility construction are to be included in the contract, special attention should be given to establishment of pay items and loading the projects into Designer Interface. Refer to the ***Work Program Instructions***, ***Section 42*** for guidance on the Financial Project ID phase number identification.

For contracts with more than one project, the pay items for Mobilization and Maintenance of Traffic will be shown on each project's Summary of Pay Items. An exception to this is when the contract contains a Utility Work by Highway Contractor (UWHC) Agreement. The pay items for Mobilization and Maintenance of Traffic will not be shown on the Summary of Pay Items for the UWHC Agreement. The cost of these items will be included in the lead project.

## 123.4.5 Pay Item Notes

Pay item notes are to be used to clarify basis of quantity, work included or method for payment. Pay item notes should not restate the ***Standard Specifications*** or ***Standard Plans***. This will help to avoid discrepancy of documents. Refer to ***FDM 307*** for details on the usage of pay item notes in the plans.

| Modification for Non-Conventional Projects: |
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| Delete ***FDM 123.4***. |

## 123.5 Contract Time

Contract duration is the time required for the complete construction of the contract. Pay items measured per day need an accurate estimate of construction duration. Before completion of the design project, the plans package is submitted to the District Construction Office scheduling engineer for establishing the contract duration. Large complex projects should have the desired contract duration established earlier in the design process.

| Modification for Non-Conventional Projects: |
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| Delete ***FDM 123.5.*** |

## 123.6 Alternative Contracting Practices

The Construction Office web page defines various contracting techniques used by the Department (http://www.fdot.gov/construction/AltContract/AltContract.shtm). When alternative contracting is called for by the Department, coordinate the PS&E preparation with the FDOT Project Manager.

| Modification for Non-Conventional Projects: |
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| Delete the previous paragraph and replace with the following:<br><br>The Construction Office web page defines various contracting techniques used by the Department (http://www.fdot.gov/construction/AltContract/AltContract.shtm). When design-build contracting method is called for by the Department, coordinate the estimate preparation with the FDOT Project Manager. |