

CALIFORNIA DEPARTMENT OF TRANSPORTATION NORTH REGION DESIGN & ENGINEERING SERVICES		
North Region Project Development Directive	Date Issued: 3/20/06	No. D-3 Revised Page 1 of 3
Title: Project Estimates	Approved By: CHARLES C. FIELDER  BRIAN F. CRANE  JODY JONES 	
Subject Area: Procedures for developing project estimates.	Issuing Unit: North Region Design and Engineering Services	
Supersedes: Design Directive No. D-3	Distribution: All Project Delivery staff in the North Region	

Activity

Project Development staff in the North Region produce high-quality plans and specifications along with accurate project design cost estimates in accordance with the North Region Quality Management Plan.

The Region will change its project estimating practices by requiring an Estimate Certification for all projects. A focal point position (District Estimator) will be established to work in concert with the Project Engineer (PE) and Design Senior, in estimating unit prices, and prepare documentation for the Estimate Certification. The District Estimator will seek input from many sources including the Construction Industry. All project design estimates will undergo rigorous QC/QA checks to ensure construction item quantities are accurate and their estimated unit prices are reasonable.

Procedure

Project Development staff engaged in the preparation of design estimates will follow the procedures outlined in Chapter 20 and Appendix AA of the Project Development Procedures Manual (Gold Book).

All design estimates will be submitted to the District Estimator (DE) at Project Initiation, Project Report, Draft PS&E, Ready to List, Revised Ready to List and annually. The DE will work with the PE and Design Senior to determine roadway unit prices, taking into account influential factors that could impact the estimate. The District Estimator will document significant factors on the Estimate Certification (Supporting Data) form (see attached). All applicable estimates from other sources such as Structures, Electrical, Landscape, etc., will be listed and verified by their author. Also, for projects greater than \$5 million, an Estimate Certification Memo (see attached) will be prepared. The District Director will certify the estimate by signing the Estimate Certification Memo. For all projects, the Estimate Certification Supporting Data form will be signed by the Design Senior and initialed by the PE, DE, Construction Representative and Project Manager. By signing, the Design Senior verifies that Construction and Project Management were involved in the process, quality input was incorporated, and conflicts were addressed. If conflicts cannot be resolved between parties, the Region's Conflict Resolution Process will be utilized. As early as possible, all imbalances between the project estimate and the

project budget shall be reported to the Project Manager and the District SFP. If needed, the PM will lead the PDT in activities that will bring the project scope and project budget into alignment.

Methodology

Per the Gold Book (PDPM, Appendix AA), it states that the use of previous bid prices as a basis for cost estimating is probably the most frequently used method and in most cases the most practical method. It has become evident, that due to the volatility of today’s market, more aggressive analysis is needed. The Gold Book discusses an analysis method commonly used by the Construction Industry, called the “Complete Analysis Method.” This method analyzes construction operations, production rates, and material costs. Unit item costs are calculated based upon labor and equipment rental rates at the specified production rates. Overhead costs and profit are then added to obtain the final unit cost. The “Complete Analysis Method” for determining unit prices shall be utilized for major items of work, effective immediately (see PDPM, Appendix AA). The results of this analysis can be crosschecked by utilizing the “Previous Bid Prices Method” (see PDPM, Appendix AA). In light of the need for more aggressive analysis, the District Estimator will proactively pursue Construction industry knowledge and become specialized in contractor estimating methodology, recognizing common factors that affect unit prices, and timely identification of sudden changes in the market that could influence bids. The District Estimator will be a key resource for the PE and Design Senior to utilize.

Roles and Responsibilities

The process of preparing complete and accurate project estimates, which are in balance with the project scope and budget, relies upon an empowered project development team. The responsibility matrix describes the major activities of the process and displays related responsibilities.

	Project Engineer	Assistant PE	District Estimator	Construction Rep.	Design Senior	Specification Writer	Project Manager	Single Focal Point	District Director
A = Accountable I = Input S = Signature QA = Quality Assurance Check QC = Quality Control Check									
Major Activity									
Calculates Unit Quantities	A	QA			QC				
Calculates Working Days	A	QA	I	I	QC				
Determines Unit Prices	A		I/QA	I	QC	I			
Ensures estimate reflects work required by the plans and specs	A	QA	I		QC	QA			
Ensures project estimate is not inflated or constrained	A		QA		QC				
Ensures project scope and estimate is within budget	I				QC		A	QA	
Prepares Estimate Certification (Supporting Data) form	I/QA		A	I	QC				
Prepares Certification Memo for estimates > \$5 Million			A						S
Verifies all estimates	I		I	I	A/S		I		

Applicability

The procedure outlined above will apply to all projects in the North Region (including major maintenance).

References

- PDPM, Chap 20, Project Development Cost Estimates
- PDPM, Appendix AA, Cost Estimate
- Design Memorandum, Certification of Project Cost Estimate, Richard D. Land, December 14, 2005
- Design Memorandum, Independent Assurance of Project Cost Estimates, Robert L. Buckley, January 26, 2006.

Attachments

- Estimate Certification (Supporting Data) form
- Sample Estimate Certification Memo

ESTIMATE CERTIFICATION (SUPPORTING DATA)

DIST/EA: _____
 LOCATION (CO/RTE/PM): _____

DATE: _____
 PREVIOUS ESTIMATE: _____
 CURRENT ESTIMATE: _____
 % CHANGE +/-: _____
 PROGRAMMED AMOUNT: _____

DIST.DIR.CERT.REQUIRED: YES NO

Estimate Level	PID	PR	PS&E	RTL	ANNUAL	OTHER
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PROJECT PERSONNEL	CONCURRENCE INITIALS	COMMENTS
District Estimator		
Project Engineer		
Design Senior	Signature below	
Project Manager		
Construction Representative		

DISCUSSION OF FACTORS INFLUENCING ESTIMATE:

A narrative discussing influential factors has been requested by the District Directors. Replace this instruction text with the actual narrative. Refer to PDPM, Appendix AA. Consider the following factors: California Construction Cost Index, costs adjustment for future bid date, fluctuation of costs such as: wage increases and time of advertisement, construction work windows due to: environmental, traffic, and holidays, staging/restrictive work methods, quantities of work, separate operations, handwork/inefficient operations, accessibility, geographic location, construction methods, material shortages/industry issues, adequate competition, specialty work, sole source, etc....

Other areas to discuss:

- Comparison of "complete analysis method" to "previous bid price" method.
- Discussion of Contractor contacts made, # of likely bidders and who they might be, and any information the Contractor shares that will likely influence his estimate.
- Recent projects that have advertised in the geographic area, along with the type of work
- Location of material sources/disposal sites

A discussion of the realistic range of low to high unit prices for the higher priced items, and the impact this variability could have on the estimate may be useful. This could be done in table summary format as follows:

Item #	Item Description	Quantity	Engineer's Estimate	Realistic Range	Item Cost @ High End
XXXXX					
XXXXX					
Cumulative Impact:					Total \$\$ Uncertainty

OTHER ESTIMATE SOURCES:

Function	Estimate Amount	Date Last Verified	By Whom
Structures			
Electrical			
Landscape/Erosion Control			
Signing & Striping			
TMP			
Other			

Only use this table as needed. Modify to reflect those units that are actually involved with the project. You are accountable to review the estimates with these specialty units to better be able to recognize industry trends that may be affecting their estimates. This is also a good opportunity to understand their estimating practices and gain confidence in their process.

SUPPLEMENTAL FUNDS:

Discuss the percentage of supplemental funds to the overall amount of the job, if relevant. Communicate the reason for each supplemental item, the cost, and any other pertinent information (such as location: ie. additional work may be needed around the bridge abutments)

STATE FURNISHED MATERIALS:

Discuss the state furnished materials included in the estimate.

- For example, a discussion of an RE Office item may include other projects in the area, or that staff will work out of the Red Bluff office, or that Construction communicated a certain dollar value to share in the cost of the RE Office. The RE Office item should not be considered an automatic; it should reflect thoughtful consideration of need.
- Discussion of items such as revegetation or mitigation should include reference to permits that require specific needs, or other related pertinent info to the item
- Connection fees should discuss what utility is anticipating connection: sewer, water, reclaimed water, etc.

CONTINGENCIES

Only include this heading with a general discussion, when an Exception has been processed through the Construction Office Chief to allow a deviation from the standard 5%.

PROJECT ESTIMATE CERTIFICATION:

The Engineer's Estimate was developed in a collaborative team environment including, but not limited to, the PM, PE, Construction Engineer and District Estimator. Issues raised during this process have been resolved and incorporated in the Estimate and this certification.

Design Senior

Date

Memorandum

To: DES OE

Date:

File: County, Route , PM, EA, Dollar Amount

From: **Enter District Director's name**
District X (enter 1, 2, or 3) Director

Subject: Project Cost Estimate Certification

I certify that the contract cost estimate for the above mentioned project is complete and accurate reflecting the true scope of the work to be performed and representative of the most current market trends.

Attach: Estimate Certification (Supporting Data) form (District Director gets a copy of this attachment, the original goes in the Project Files. When this cert letter is sent to HQ, strikethrough the attachment info and note that the attachment is located in the Design Project Files. Do not send the attachment to HQ.)

cc: District Estimator, Spec Writer, Project Engineer, Design Engineer