COST ESTIMATING FORMAT STANDARD OPERATING PROCEDURE

This Standard Operating Procedure (SOP) provides an overview of the Cost Estimating Format (CEF) for Large Projects and guidance on how to use the CEF tool. The SOP also discusses FEMA Headquarters large project reporting requirements.

What reference information is available on the CEF for Large Projects?

- The CEF Information Update (January 1999) provides an overview of FEMA's cost estimating methodology for large projects.
- The Cost Estimating Format for Large Projects Instructional Guide, Version 2.1 (September 2009) provides application guidance to users responsible for developing large project cost estimates.
- A Microsoft Excel-based template, referred to as the CEF for Large Projects Spreadsheet, provides more uniformity in estimating costs for large projects, and is user friendly and flexible enough to respond to individual project conditions for all types of permanent restorative work.
- The Applicant Handbook (FEMA Publication 323, October 2009) – Chapter 6, Handling Large Projects describes an applicant roles and responsibilities in formulating and documenting large projects.

(All documents referenced above can be located on the FEMA Web site at http://www.fema.gov/government/grant/pa/resources.shtm).

For which Large Projects can the CEF be used to estimate costs?

The CEF should only be used on large projects for which the permanent restorative work (categories C, D, E, F, and G) is less than 90 percent complete. Percent complete for all types of projects (including improved and alternate projects) is calculated by dividing the amount of approved contractor invoices for eligible work by the approved construction contract amount for eligible work and multiplying the resulting decimal by 100.

What is the process for preparing an estimate for a Large Project using the CEF?

- The CEF tool is to be used for developing estimates of eligible costs for certain permanent work large projects as described below. The primary objective is ensure FEMA develops sound and reasonable estimates of eligible costs based on the numerous factors, complexities, and local considerations related to the geographic area and circumstances arising from the declared event. In order to develop the most accurate and sound estimates, FEMA depends on a strong partnership with grantees and subgrantees. The local officials and local technical professionals (i.e. engineers and architects) commonly are in the best position to develop the estimates of eligible costs once FEMA, the State, and local officials have agreed upon eligible scopes of work. The role of FEMA is often to validate the estimates of eligible costs developed by the locals, ensure the costs address only eligible disaster-related work, and that appropriate CEF factors are applied to the base costs.

- The Public Assistance (PA) Group Supervisor or designee will determine which local factors to use to develop the project cost estimate. Specific factors include unit price sources, city cost indices (if applicable), and local costs for plan checks, building permits, or special reviews. The PA Group Supervisor will collect and evaluate this information for use in all CEF analyses at the beginning of each disaster.

- Project Specialists will determine the eligible scope of work and base costs (Part A of the CEF); including Special Considerations and appropriate Section 406 hazard mitigation for large projects that meet the CEF criteria. Projects Specialists will complete Part A of the CEF in accordance with the guidance provided in the *Cost Estimating Format for Large Projects Instructional Guide*. All work activities needed to perform the eligible scope of work must include a written description of the scope of work, the cost item reference [Construction Specifications Institute (CSI) based], cost code reference (if FEMA cost codes are used), the unit [linear foot (LF), square foot (SF), each (EA), cubic yard (CY), etc. - do not use lump sum (LS)], the quantity or measurement, the unit cost, and the quantity cost. Project Specialists will adjust each line item's unit price and subtotal cost to reflect the city cost index where the work will take place.

- Project Specialists will document the eligible scope of work on the CEF Fact Sheet. Documentation must include detailed supporting backup information such as site maps (or location plan), photographs, sketches, calculations, measurements, insurance declarations, anticipated or actual insurance settlement, Section 406 Hazard Mitigation Proposal(s) (HMP), construction permits and clearances, force account summary sheets, and codes and standards described in the CEF Notes Sheet. For major construction activities (e.g. water control facilities and large buildings), the applicant should submit to the Project Specialist schematic drawings, a set of plans

(preferably reduced to 11" x 17") containing basic information such as elevations, floor plans, site plan, structural plans and sections, etc., as applicable. The applicant should keep copies of source documents such as invoices, vouchers, timesheets, purchase orders, item slips, weight slips, plans and specifications, and insurance policies.

- After the eligible scope of work and its base costs are completed in Part A, the Project Specialist will complete Parts B through H (the factors applied to the base cost) of the CEF. The Project Specialist will develop separate summaries for completed and uncompleted work. The Project Specialist will document assumptions used in selecting factors B through H on the CEF Notes sheet.

- The Project Specialist will complete the Project Cost section of the PW as follows:
  - *Item* – Enter sequential item number
  - *Code* – #9000
  - *Narrative* – add statement "*See attached CEF spreadsheet for itemized unit-price estimate particulars*"
  - *Quantity/Unit* – 1 LS (lump sum)
  - *Unit Price* – use <u>the total estimate</u> value from the CEF spreadsheet
  - Apply appropriate cost adjustments to the CEF line-item #1 (e.g., a deduction for anticipated or actual insurance proceeds, salvage value/depreciation, etc.)
  - The *Total Project Cost* will reflect the final eligible cost after any cost adjustments

- The following steps will then be performed:
  1. The Project Specialist will print the Excel file containing the CEF estimate and attach it to the PW. All applicable supporting back-up documentation noted above must be attached to the CEF spreadsheet. The Project Specialist will submit the completed PW and the CD ROM containing the electronic CEF spreadsheet to the Public Assistance Coordination (PAC) Crew Leader for review.
  2. The PAC Crew Leader will review, approve, and submit a paper and electronic copy of the PW and CEF documentation to the Data Coordinator for entry into EMMIE.
  3. The *Total Cost* block of the PW will be used as the basis for obligating the Federal share of the large project cost.

- When applicants complete large projects and submit project documentation to the State and FEMA, FEMA will reconcile actual eligible costs against estimated costs, except for alternate and improved projects.

- If the Project Specialist requires assistance with any part of the CEF, the PAC Crew Leader will request a Technical Specialist (a cost estimator, engineer, environmental specialist, historic preservation specialist, insurance specialist, etc.) from the Ordering Specialist. Refer to the *CEF for Large Projects Instructional Guide* for more detail.

What is the process for preparing an estimate for a Large Project if CEF is <u>not</u> used?

- The Project Specialist will prepare the eligible scope of work and cost estimate using the standard damage assessment cost estimating procedures (see the *Public Assistance Guide FEMA 322).*

- The applicant should submit the same back-up and source documentation for all large projects formulated with or without CEF.

- The Data coordinator will scan all applicable supporting back-up documentation and attach to the PW.

- If the Project Specialist requires assistance with any part of the CEF, the PAC Crew Leader will request a Technical Specialist (a cost estimator, engineer, environmental specialist, historic preservation specialist, insurance specialist, etc.) from the Ordering Specialist.

What are the appropriate references for unit prices in preparing Part A base costs?

- Project Specialists will request average weighted unit prices (local costs derived from actual contract history) from the applicant or relevant State/regional agency (e.g., Department of Transportation) in order to develop Part A of the CEF. The Project Specialist should evaluate the average weighted unit price information for applicability to the eligible scope of work and consistency over a reasonable time period.

- The Project Specialist may use the FEMA Cost Codes, but is not required to do so. The FEMA Regional offices issue cost codes at the beginning of a Joint Field Office (JFO) operation. The cost codes represent "complete and in-place" costs (i.e., labor, equipment, and material costs necessary to complete installation) at the general contractor level (different from various industry standard cost estimating resources) and include overhead and profit.

- The Project Specialist may use the current edition of industry standard construction cost estimating resources (e.g., RSMeans, BNi Costbooks, Marshall & Swift, Sweet's Unit Cost Guide, etc.) if the applicant does not have appropriate average weighted unit price data for unit prices in preparing Part A base costs.

The PA Group Supervisor should order (at a minimum) one copy of each of the following cost data books for use by PA staff at the JFO:

- ADA Compliance Pricing Guide
- Building Construction
- Concrete and Masonry
- Electrical
- Repair and Remodeling
- Site Work and Landscape
- Facilities
- Heavy Construction
- Mechanical
- Plumbing
- Square Foot Costs

- If the Project Specialist uses national industry standard cost data in Part A, he should apply city cost indices to adjust the national unit prices to the nearest city for the declared counties. The PA Group Supervisor or designee will identify the zip codes included in the declared area, research industry standard cost estimating resources for the appropriate city cost factors and tabulate them for use by the Project Specialists.

- If cost estimating data is provided in an electronic format, only the appropriate city and/or zip codes may need to be provided. Various industry standard electronic cost estimating resources can be used to adjust the unit cost data to the required location automatically.

How are local costs for Plan Review and Construction Permits (Part F) determined?

- The PA Group Supervisor or designee should request documentation related to plan review and construction permit costs from the grantee and distribute the costs in tabular form to the Project Specialists for their use.

- Alternatively, the Project Specialist may request this documentation from the applicant and provide the documentation to the PAC Crew Leader and the PA Group Supervisor for review and approval.

- The controlling jurisdiction (e.g., City Building Department or Office of State Architect) will determine costs applicable to its areas of responsibility. Key items of information include:

  - A description of how the plan review or construction permitting cost is defined.

  - Identification of the cost item that (construction cost, total project cost, etc.) serves as the basis for calculation of plan review/construction permit costs.

  - The percentage applied to the base cost and these percentages may be on a sliding scale.

  - If the fees are waived in post-disaster situations.

What are the responsibilities of the PA Group Supervisor?

The PA Group Supervisor or designee is responsible for checking the appropriateness of individual factors and ranges (Parts B through H) and for uniform application of these factors during large project formulation. This is especially important with regard to force account efforts, use of contingencies, time frames for escalation, post-disaster inflation adjustments (e.g., when local costs are used in Part A, etc.), and the need for engineering design and construction phase services.

The type of damage sustained will dictate how the values are selected for many of the factors. For example, visual identification of damage may be less difficult after a flood (once floodwaters have receded) than after an earthquake. The PA Group Supervisor may decide that the contingency factors in Part C should therefore be at the higher end of the range for an earthquake than for flooding.

The PA Group Supervisor will be responsible for justifying range selections in writing.

How is completed work costs included when the CEF is used for estimating the total cost of a Large Project that is <u>less</u> than 90 percent complete?

The Project Specialist will prepare a Part A estimate using the CEF for Large Projects spreadsheet for the entire project. The Project Specialist is responsible for separating eligible work from ineligible work. If the applicant had an estimate prepared before the work was completed, the Project Specialist should compare the actual costs against that estimate, and if reasonable, reconcile the cost differences. The result should be entered in Part A "Summary for Completed Work." If no applicant estimate exists, the Project Specialist will prepare a CEF Part A estimate of the eligible completed work activities and compare the actual costs against it, and if reasonable, reconcile the cost differences. The result should be entered in Part A "Summary for Completed Work." In both instances, the Project Specialist will also prepare a Part A CEF estimate for the uncompleted work portion using either average weighted unit prices or industry standard construction cost estimating resources (e.g. RSMeans, BNi Costbooks, Marshall & Swift, Sweet's Unit Cost Guide, etc.). The Project Specialist is also responsible for completing Parts B through H, as appropriate, for both the completed and uncompleted work.

What are the CEF large project reporting requirements?

- The CEF Large Project Report is a Microsoft Word-based form that is distributed with the CEF Excel-based spreadsheet. Both tools are located on a CD ROM attached to the inside-back cover of the *Cost Estimating Format for Large Projects Instructional Guide*, Version 2.1, September 2009.

- For every large project FEMA estimated using CEF, the PA Group Supervisor or designee will prepare a CEF Large Project Report consisting of:

  - Disaster Number (and preparer's name)
  - Declaration Date (and date prepared)
  - Applicant Name
  - PA ID Number
  - PW Number
  - Category of Work
  - Type and function of the Facility
  - CEF Estimated Project Cost
  - Actual Project Cost
  - Dollar Amount of Obligation or Deobligation
  - Reason for Cost Reconciliation

- After applicants complete all large projects for which FEMA used CEF to estimate the costs, and FEMA reconciles the actual project costs with estimates, the PA Group Supervisor will forward the CEF Large Project Report to:

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