

# CHAPTER 2

## COST ESTIMATION PACKAGE

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### 1. INTRODUCTION

When estimating the cost of a project or program, the estimator needs to know more than a quantity and a price for that quantity to develop an all inclusive (or a good) estimate. When developing an estimate, the estimator is producing a cost estimation package. This package consists of the estimate, the technical scope, and the schedule, all of which should be cross-referenced to ensure that they are consistent. This package establishes a baseline document for the project or program at its onset. This chapter focuses on the components (or elements) of the cost estimation package and their documentation. More detail about the components can be found in later chapters of this cost guide.

### 2. BEGINNING THE PACKAGE

When given the task to develop a cost estimation package, the estimator must first establish the following:

- a description of the purpose of the package (i.e. what type of estimate is required: planning, feasibility, Title I, Title II, etc.);
- a description of the technical scope; and
- a schedule or timeframe for the project.

Once these are established or developed by the estimator as an assumption, the preparation of the cost estimation package may begin.

If developing a revision to an existing package, the estimator must also obtain the complete cost estimation package from the previous estimate.

### **3. TECHNICAL SCOPE**

The technical scope should include all requirements for the project or program. It should include the following information:

- detailed description of work to be performed;
- work not included in the scope;
- description of regulatory drivers;
- deliverables;
- any constraints or special conditions;
- sequence of events and any interdependencies;
- milestones;
- work breakdown structure (WBS); and
- code of accounts (COA).

The above items should be provided to the estimator by the program/project manager or the estimator may assist in their development.

### **4. COST ESTIMATE**

Once the technical scope information is available, the estimator can start developing the estimate. As the estimate is developed, the estimator should keep well-organized worksheets and documentation. These would include the following.

- Definition of what is included in the total project cost (TPC) or the total cost of the program.
- Methodology of how the estimate was developed. This would include information such as any cost databases used, actual quotes, any cost estimating relationships (CERs) used, etc.
- Description of direct and indirect costs. Field distributable overhead should be in enough detail to describe what is included (e.g., site security, on-site trailers, health and safety, etc.).
- Explanation of site overhead rates.
- Definition of when start-up begins and ends and its associated costs.
- Operating costs if the estimate is a program estimate and includes operations as well as construction activities.
- Escalation since most estimated projects are estimated in the current year even though they are not built for several years.

- A written analysis of how contingency was developed.
- Any estimate history if this is a revision to an existing estimate or a change order estimate.
- The name, signature, and/or initials of the preparer and reviewer of the estimate.

## **5. SCHEDULE**

The schedule can play an important role in the cost estimate package since it can help identify the basis for budget cycle timing, any premiums on long-lead items to ensure their timely delivery, and the basis for escalation. The schedule used or developed with the cost estimate should be documented and will become part of the cost estimation package.

## **6. DOCUMENTING THE COST ESTIMATION PACKAGE**

A well-documented cost estimate package withstands scrutiny. If rigorous documentation and estimation procedures are followed, the credibility of the estimate increases. It is important to document all steps of the estimate process. The following items should be well documented and incorporated into the cost estimation package.

- The type and/or purpose of estimate being performed (i.e., Pre-Title I, etc.).
- A detailed description of the technical scope of work. It should define the performance specification and the work activities required, but it should also identify work not included, any constraints or special conditions, ground rules, assumptions, and regulatory drivers.
- All estimating backup, which includes quantity takeoffs, calculations, databases used, historical data, CERs, and actual quotes.
- Detail of indirect costs (field distributables) or a description of what is included and how they were estimated.
- Explanation of site overhead rates.
- If start-up is a part of the estimate, it should be defined and the methodology of its estimation should be included as well as any supporting documents.
- Basis of any operating costs with associated backup.
- Basis of escalation.
- Basis of contingency and how it was calculated.

- A schedule, which can be in the form of a list, a bar chart, or a network diagram.
- A resource loading report, if appropriate.
- A funding profile, or a spreadsheet showing the funding requirements by year in both constant year and escalated dollars.
- Details of how the WBS was developed and a correlating activity dictionary.
- Description of the COA.
- The reviewed estimate.