Section 1
Information Phase

Preparation is the key to any study. Gathering and reviewing the appropriate information prior to starting a Value Management study provides the team with a basic understanding of the project. Depending on the type of study, preparation will vary slightly in the type of information required, how the project scope is defines, and how the current costs are accumulated.

For each type of project there is a specific list of data and materials required for project study preparation. While there are some common items on these lists, they are tailored to the needs of each type of study.

While the purpose of the project scope is to clarify exactly what is being studied and allow the team to properly focus their attention, how the scope is defined varies slightly for the different types of studies. The major difference in project preparation involves the organization of the project cost data. A project design study uses a cost visibility worksheet, a construction study uses a cost model and manufacturing process and administrative process studies use the sequence flow chart.

In this section, the preparation details for Construction Projects will be addressed.

INFORMATION STEPS

REVIEW PROJECT
GATHER BACKGROUND INFORMATION
UPDATE CUSTOMER NEEDS AND REQUIREMENTS
ESTABLISH OBJECTIVES AND GOALS
DEFINE SCOPE
UNDERSTAND CURRENT COSTS
- COST VISIBILITY
- COST MODEL

REVIEW PROJECT

Value Management projects are typically selected by the company's management staff. The rationale for selecting each project may vary slightly, but in each case management is looking to the Value Management Team to provide them with specific recommendations for improvements. A clear understanding of what the project is and what management hopes to see improved should first be understood. Often some members of the team are very close to the project and can provide significant insight. Frequently, a company will identify a "Project Sponsor." Typically this is someone from management who has either the initiator of the study or whose area of responsibility is most affected by the study. This person can become a resource to the team to help overcome any obstacles they may face.

The following information lists the specifics required in the preparation for a construction design study. This information should be assembled, reviewed and understood in advance of a VM workshop or study. While most of this information is part of the concept submittal package prepared by the prime architect, individual team members may be responsible for some specific data. During preparation the responsibility for accumulating the data should be distributed throughout the team and not concentrated on just one or two team members.

GATHER BACKGROUND INFORMATION

Once the project is clearly understood, pertinent data needs to be gathered to assure the team has sufficient information to properly conduct the study. A checklist of data required is listed below. Once collected, team members should review analysis of design, site plans, design specifications, building plans, and cost estimates to broaden their understanding of the project they will be studying prior to the start of the workshop.

Data and Materials Required for Construction Study Project

1. Description of project - Outline Specifications.
2. Analysis of Design.
3. Site and building drawings.
4. Cost estimates (preliminary design level) and/or budgets.
5. Listing of all material and quantity requirements.
6. Customer requirements and features.
7. Specifications and specific codes.
8. Name of Project Manager.

In addition, the reference material listed below can be helpful during the workshop.

- Cost Estimating Books (Dodge, Means, etc.)
- Handbooks
- Specialty Catalogs

UPDATE CUSTOMER NEEDS AND REQUIREMENTS

A key part of the project background information is customer information. Understanding the project from the customer's/user's point of view is important. Too often we react to what we think the customer wants and not to their real needs. Are the customer's wants and needs the same as when the project was initiated? Has the customer's requirements changed? Are there any project concerns or problems? Is the project projected as over or under budget? What is the customer's motivation for this new project? Is there any features or requirements that are not meeting the customer's wants or needs? Is there any project constraints that are not evident in the documentation (i.e. future expansion, environmental conditions, agreements with local agencies to do or not to do something, etc.)? These are all questions that should be asked prior to your value study. Many times the perceived wants and needs of you customer vary considerably from their actual requirements. Up-to-date documentation from the customer can reduce many of these misunderstandings.

ESTABLISH OBJECTIVES AND GOALS

The basic objectives and goals of the team are usually provided to the team by the management group or project initiator. After reviewing the project background and based on the individual team members' knowledge of the project, objectives regarding life cycle cost, quality, constructability, construction time, environmental issues and future expansions are often important considerations. It is important that the team understand not only *what* they are studying, but *why*, if they are to make recommendations that can best improve the project.

DETERMINE SCOPE

In order to solve a problem, the parameters of the study must be defined. It is important to know what is included in the study as well as the interface points. Most construction projects have broad scopes. Typically the scope includes not only the structure but also such items as site preparation, demolition, landscaping, provisions for future expansion and parking. Occasionally, some restrictions are placed on scope of study, such as site location, building orientation, aesthetics (matching existing facilities), or existing structures or utilities that are being affected by the new construction. Therefore, it is important for the team members to agree upon the scope of their study before they become too involved in the study. This allows the team to be better focused as the analysis proceeds.

The scope for construction studies is defined by identifying the major components, or systems included in the project being studied. In addition, for further clarification often the items existing at the boundary of the study but not included in the scope are also identified. Listed below are project definition worksheets for various construction examples. The total cost of the project shown on these worksheets were determined from the cost model which is developed from the detailed cost data on the project.

The **Training Center** is a new facility being added to a campus to expand training capacity. It is being built next to the existing, smaller facility. A covered walkway will connect the two buildings. The architecture of the new facility must be consistent with nearby buildings.

COST MODEL - UNDERSTANDING CURRENT COSTS

The objective of most Value Engineering studies is cost reduction. While cost estimates are provided on new construction projects at a very detailed level, this cost data needs to be organized in a format that is helpful to rapid analysis. Most construction contractors use the Uniform Construction Index (UCI) system, which is now better known as Master format, to develop their cost estimates. This approach utilizes a trade oriented format to structure costs.

Because this system was found poorly suited for analysis and cost control, the American Institute of Architects and the General Services Administration developed a format that was system oriented. "Uniformat" as it was dubbed by the GSA, blocks out the major cost elements of a project. This allows for a one page summary of the major cost contributors to a project and allows for easy comparison to other, similar projects.

Occasionally, certain projects may not detail cost sufficiently with the standard Uniformat system descriptions. In this case teams are encouraged to modify the system descriptions to better fit the project. The Demineralization and Irrigation Cost Model example in this section is an example of where this modification was necessary.

Listed below are several important items to consider as the cost data is analyzed.

1. DETERMINE TOTAL COST:
   First, determine the appropriate level of cost for your project. The total cost of a construction project includes not only the material and labor for construction, but overhead, profit, contingency and escalation costs as well. It is not uncommon for the actual construction cost (material and direct labor) to be 60% to 70% of the total project cost.

2. DETERMINE COST ELEMENTS
   To better understand the total cost of a project, the cost is organized into a cost model. The cost model breaks down the major cost elements of the project into two major groupings - site and building - and numerous minor groupings. These minor groupings include cost categories such as structural, architectural, mechanical, electrical, equipment, etc. as well as profit and overhead. Reference examples on the following pages will utilize this format.

3. DETERMINE COST WITHIN THE SCOPE OF THE PROJECT
   Once the cost has been structured into a cost model, it is relatively easy to determine how much of the total cost of the project the team can actually affect. Typically, any overheads, contingencies, escalation factors, etc., will be relatively unaffected by the study team's effort. These costs are represented as a percentage of the direct project cost and can be indirectly affected by the study. The point of identifying the cost within the scope of the project is to focus the team's attention on the direct material and labor costs where identifiable changes are possible.