Establishing the Baseline

Establishing the initial baseline for a large program is a difficult and time consuming effort, but it pays many dividends in terms of understanding the full scope of the program and being realistic about the job that lies ahead. Many cost overruns and schedule slips on large programs are the result of not fully recognizing and, consequently, underestimating the scope and complexity of the work to be done.

At the conclusion of this lesson you will be able to recall the purpose and elements of the performance measurement baseline.

As a risk management tool, Earned Value Management is key to identifying elements that may eventually lead to cost growth, schedule slips and technical problems. Without a comprehensive plan that realistically addresses the total program, the program may proceed on the basis of near-term plans without knowing whether or not resource consumption is consistent with the equitable distribution of budget for the overall program. This presentation, Build a PMB Guide, elaborates on the process of building a baseline, scheduling, and developing control accounts. Click on the link to download the PowerPoint file. A narrated version of this presentation is also available at the following web site; Performance Measurement Baseline.

In other words, if the downstream work cannot be defined, there is no way to know that sufficient resources have been set aside for that work when the time comes to do it. Thus, the "downstream surprise" occurs when it finally becomes obvious that the "good performance" to date has really been at the expense of the work remaining to be done.

Figure 6-1: Performance Measurement Baseline (PMB)

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Copyright 1998 Humphrey's & Associates
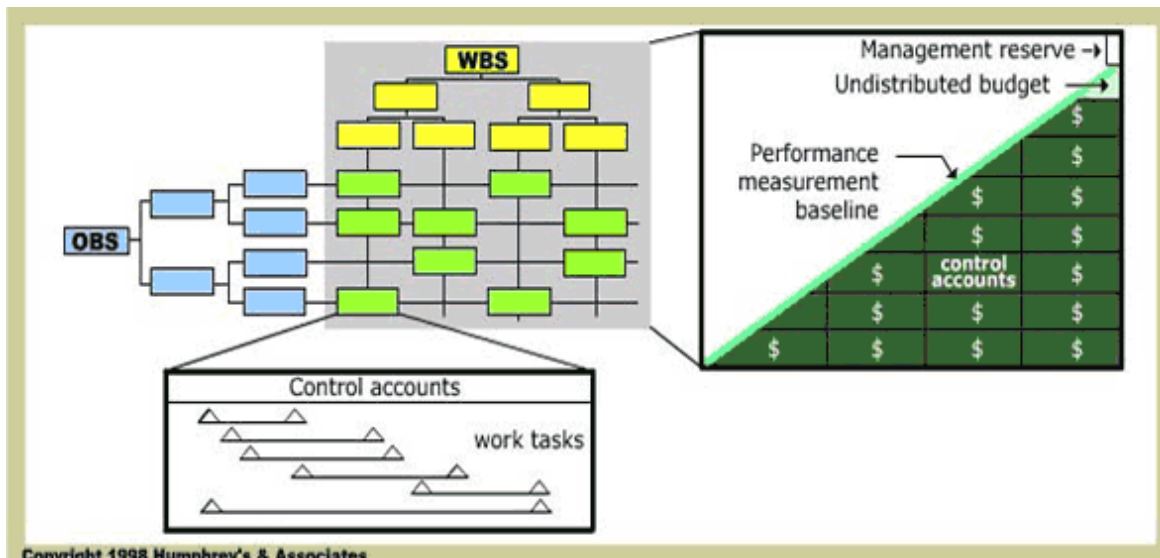
The PMB includes defining the work, scheduling of work tasks, designating responsibility for doing the work, establishing production targets, and allocating budgets to the scheduled increments of work, as shown above in **Figure 6-1**.
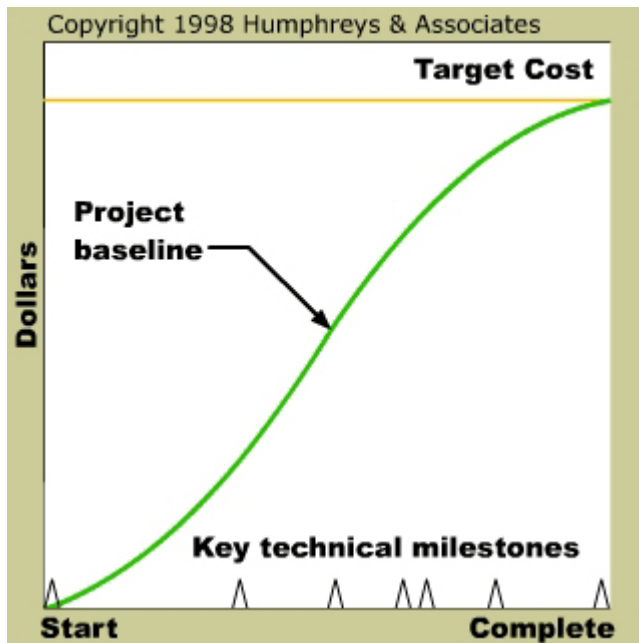
Long Description

Figure 6-1 represents the elements that make up the performance measurement baseline and their relationship to each other. It shows an OBS flowchart intersecting a WBS chart, with one cell zoomed out to show a control account diagram, and a PMB graph zoomed out of the right side of the WBS chart.

PMB

Performance Measurement Baseline (PMB) is the time-phased budget plan against which contract performance will be measured.

Figure 6-2: Baseline Realism

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Target Cost

Project baseline

Dollars

Key technical milestones

Start   **Complete**

D

The baseline must make sense! It must be logical! It must be rational!

A good way to ensure that the baseline is all of these is to look at it in context; to actually plot the numbers, dollars against time, lay in the key technical and schedule milestones, and assess the realism of the resulting "S" curve. **Figure 6-2 shows a typical baseline curve.**

Looking at technical and schedule milestones in conjunction with the baseline curve provides insights as to when manpower can logically be removed from the program.

Long Description

Figure 6-2 reinforces the need for baseline realism by graphing the project baseline values of cost against time, with key technical milestones indicated on the time axis. The goal is to achieve each milestone before arriving at the target cost, without exhausting all of the projects resources early in the timeline. (There is no Flash movie version of this graphic.)

Figure 6-3: Front Loading

Copyright 1998 Humphreys & Associates

Target Cost

Project baseline

Key technical milestones

Dollars

Start   Complete

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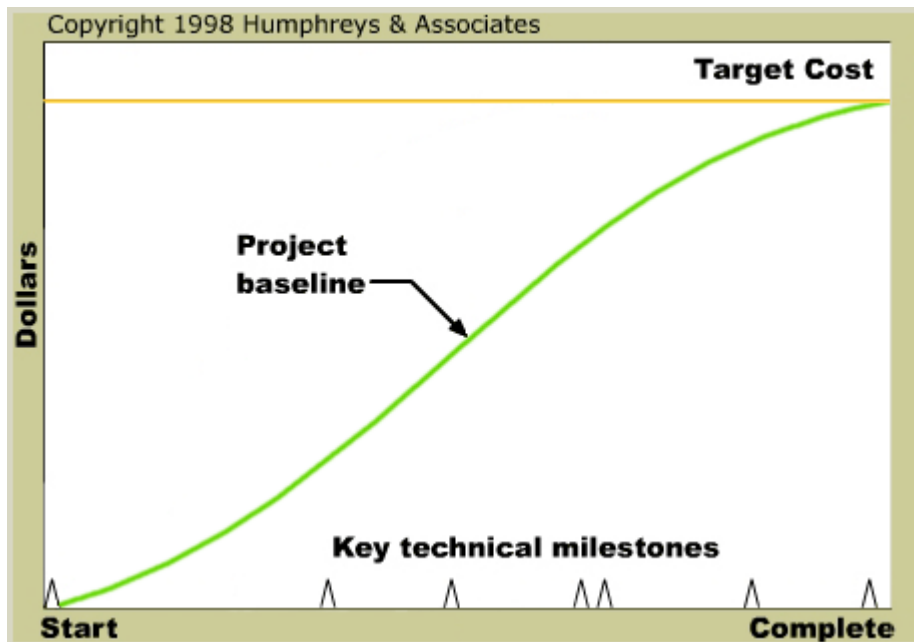
A baseline plan that indicates a tailing off of resources before milestones have been achieved is probably unrealistic and should be challenged. **Figure 6-3** illustrates an apparent "front-loaded" baseline that would not seem, at first glance, to support downstream work.
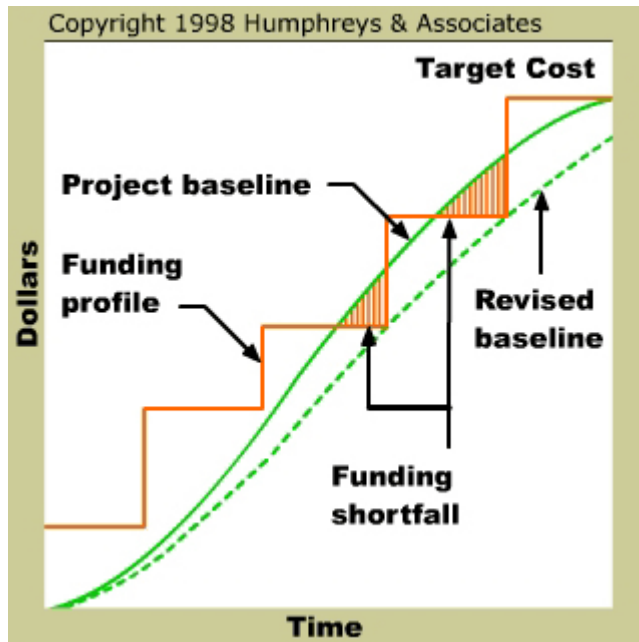
Long Description

Figure 6-3 shows the effects of front loading the baseline. It is the same graph as 6-2, but the curve shows the effects of exhausting most of the projects resources early in the timeline, before meeting all of the key technical milestones.

Figure 6-4: Project Funding vs. The Baseline

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Another element that can affect the program baseline is the ability to fund that baseline plan. Many programs are incrementally funded and a baseline plan cannot be established that ignores affordability constraints.

Figure 6-4 illustrates a situation where incremental funding does not support the desired baseline plan. In this example, if the third and fourth increments of funding cannot be increased, the program must be re-planned to accommodate these constraints. Re-planning will likely result in a stretch-out of the program with a concomitant increase in program cost.

Long Description

Figure 6-4 illustrates the effects of incremental funding on the baseline plan, resulting in funding shortfalls that produce a revised (extended in time) baseline.

Program Funding vs. Performance Budgeting

There is sometimes confusion about the difference between **Program Funding** and **Performance Budgeting**. Funding is "real money". The bills must be paid, including overruns! Funding must be made available, as required, by management for an internal program, or by the customer in a contractual situation. Various arrangements can be made to provide funds in the form of progress payments, payments for items delivered, etc. The source of funds, though, is irrelevant to the Earned Value Management process, except as it constrains the company's ability to perform work, as described above.

Performance budgeting is simply an allocation of the program or contract target cost to the work to be performed in order to give each piece of work a "value" that is relational to the program target cost. Theoretically, it should not matter whether or not the budgets are "realistic" in terms of being able to actually do the work for that amount. An element of work is only worth so much in terms of the total program and, when the work is done, the budget for that work becomes the earned value, regardless of the actual costs incurred. At the end of the program, the earned value is the program target cost.

Realistic Program Targets

In the real world, people want realistic budgets to work toward and be measured against. A manager who perceives that the assigned budget is patently unachievable will ignore the budget and manage to some other goal that makes more sense, even if the variance from the "official" budget must be explained every month. Thus, it is important that program targets be as realistic as possible. Otherwise, managers will pay lip service to the program baseline and actually manage to some other informal plan. This is clearly not desirable.

There must be a commitment to the original cost and schedule targets (and program scope) by all levels of management at the outset of the program, even if the targets are acknowledged to be very tight. The performance measurement baseline is a reflection of this commitment and represents the plan to achieve those targets. Maintaining a viable baseline in the face of program changes, technical problems and other challenges can be more difficult. Controlling the baseline and baseline maintenance will be explored in Lessons 12 & 13.

Evaluating the Baseline

Evaluating the adequacy of the baseline is not as hard as it sounds. Once a certain level of resources; i.e. manpower and facilities, are determined to be necessary to a program, costs will be incurred at a very predictable rate. After the initial build-up, the baseline plan should be almost a straight line up to the point where significant manpower reductions can logically take place.

Funding perturbations during the life of a program are a major cause of program cost and schedule problems and every effort should be taken to ensure funding stability to the extent possible. External budgetary decisions made without regard to impacts on individual programs are often responsible for schedule slips and cost growth.

Knowledge Review

Which of the following is not an element of the PMB?

- ○ Production Targets (Schedule)
- ○ Allocated Budget (Resources)
- ● Management Reserve
- ○ Work Definition (Scope)

Correct. Management Reserve is not an element of the PMB.

End of Lesson

You must click the **Next** button in order to receive credit for this lesson.