pleted. It will take a smaller team a longer period of time than a larger team to produce a large project.

Establishing the size of the design team is a balancing act. Too few people can extend the schedule, necessitate overtime work, and possibly affect the quality of the project. Too many people can cause inefficiencies, make it difficult to manage the project to an agreed-upon number of staff hours and fee, and possibly also affect the quality of the work.

Once the team is selected, it is the project manager's responsibility to document the organizational structure of the team, including team members from consultant firms. Everyone associated with the project should have a clear understanding of who the team members are and what their respective responsibilities are.

The individual team members, their role and responsibilities, and the organizational structure of the design team should be shared with the client. The design team, in turn, should understand the client's organizational structure and representatives for the project.

PROJECT SCHEDULE

Once the detailed tasks, activities, deliverables, and design team have been established, the project manager can develop a project schedule. The project schedule is a tool. At the beginning of the project it is used to show graphically how the work will be accomplished over time for both the client and the design team. It can be used to fine-tune the project approach in order to achieve the client's schedule parameters. It can also help determine staffing resources required for the project. As the project moves forward, progress on the project should be monitored regularly against the project schedule.

The project schedule simply overlays the tasks and activities on a calendar of days, weeks, or months, depending on the level of detail of task or activity. The tasks and activities are assigned a duration of time based on the amount of work and number of people producing the work. They are also laid out in the sequence that the work must be accomplished. The schedule will typically show deliverables and key decision points, meetings, or presentations as milestones.

Project managers must determine how detailed the schedule should be for each team and each project. Project schedules can be as simple as a sched-

ule which shows the five or six major phases of work, or as complex as a schedule which is hundreds of lines long, showing many tasks and activities within each phase of work. A large, complex project typically requires a rather detailed project schedule that assists both the client and design team in managing the work and monitoring the progress on the project.

As changes occur, to the goals, the scope, the tasks, activities, and deliverables, or to the design team, the schedule should be revised to reflect these changes. Project schedules are essentially a diagram of the work. They show tasks that may be performed on parallel tracks of work and tasks which cannot start until all or part of another task is completed. Interdependent tasks form the critical path for the project. Before the project manager can change the completion date of the project, he or she must adjust the tasks that form the critical path in some way. For example, in order to complete the project earlier, the project manager may be able to apply additional staff resources to specific tasks on the critical path. Sometimes, the contract and negotiated fees can accommodate such changes. Other times, the contract and negotiated fees will also require adjustment.

INTERNAL PROJECT BUDGET

The contract between the client and the design firm may structure the design firm's compensation in a variety of ways: as a lump-sum fee; as a fee per project square foot; as a percentage of construction; as a not-to-exceed fee based on approved tasks, activities, and deliverables; or at hourly rates for professional services. No matter how the firm will be paid by the client, the project manager should establish an internal budget for the project based on number of staff hours per phase of work, task, or activity, at the appropriate salary costs. Once this budget is established it will provide a key tool for the project manager to measure progress on the project.

The approach and methodology for establishing internal project budgets varies widely from firm to firm. It is the most important tool for monitoring the progress of the work and, ultimately, the financial success of the project. Still, no matter what the firm, the internal project budget generally contains several components. It identifies all design firm labor costs, reimbursable direct project costs, nonreimbursable direct costs, overhead and profit, consultant costs, and costs associated with any special services.

Labor costs are simply the compilation of all salary costs for the staff assigned to the project. Labor costs are based on individual salaries plus direct per-