



# Integrated Project Schedule Guidance

## What is an Integrated Project Schedule?

An Integrated Project Schedule is a management tool used for planning and executing work during a major project. An Integrated Project Schedule, also referred to as a schedule model, identifies the necessary activities with interdependencies along a timeline to complete a specific deliverable or defined scope of work with a beginning and an end. An Integrated Project Schedule addresses both how and when the work is to be performed by identifying the activities needed to accomplish the scope of work and by time-phasing these activities with durations and schedule logic. Time-phasing involves identifying the key relationships between activities to determine the proper sequence necessary to accomplish the work.

## Why is an Integrated Project Schedule required?

Integrated Project Schedules are typically used to manage work during the Design and Construction Stages of a project's life cycle. A reliable Integrated Project Schedule is critical for the Construction Stage. Schedules used for the Operations Stage of a project's life cycle are generally performance goals defined as events or milestones on a timeline and may or may not have activities with identified interdependencies. OCED may require an Integrated Project Schedule for all phases of the project.

The [GAO Schedule Assessment Guide](#) identifies ten best practices associated with creating and maintaining reliable Integrated Project Schedules. Refer to the GAO Schedule Assessment Guide for discussion of concepts associated with critical path methods and the specifics of each best practice.

A high-quality and reliable schedule, that is effectively controlled, is a key element to successful project execution. A project's resource-loaded schedule is the foundation that integrates scope, budget, and time. Therefore, it is used to establish the budget and schedule contingencies, to develop the time-phased funding needs and to measure and forecast performance.

Developing a high-quality and reliable schedule requires the knowledge and experience of both the activity owners and the project scheduler(s). Activity owners in charge of managing the work and the most experienced team members performing the work should be responsible for estimating the resources and identifying the interdependencies of the activities to execute the work. The complexity of a schedule typically drives the necessary experience level of the person(s) developing and maintaining the schedule and the selection of a scheduling software tool. A Construction Stage schedule for a major project will usually require a scheduler properly trained and experienced in critical path method scheduling and the scheduling tool. Different scheduling software packages have different features that require a project user experienced with that software tool to ensure a reliable schedule.

Various scheduling software packages use different terms to define a component of work performed during a project – activity and task. The use of the term activity in this guidance is interchangeable with the term task.

*This guidance document does not supersede Federal laws and regulations. This OCED guidance document is for informational purposes only and is not a requirements document. If there are inconsistencies between this OCED guidance document and any specific program or project document, the specific OCED program or project document should be relied upon as it is the controlling document.*



## What are the characteristics of a reliable schedule?

The GAO Schedule Assessment Guide identifies four characteristics of a high-quality, reliable schedule – (1) comprehensive, (2) well-constructed, (3) credible, and (4) controlled. Each of the GAO ten scheduling best practices aligns to one of these four characteristics. Various other industry scheduling good practices can also be generally aligned to one or more of these characteristics. Refer to the [GAO Schedule Assessment Guide](#) for details on each of the best practices and the mapping of best practices to the characteristics.

## What are the Integrated Project Schedule requirements?

All Integrated Project Schedules provided as part of the application or during later phases should include and clearly identify the following best practices:

- ▶ Project Critical Path and key sub- or non-critical paths if relevant
- ▶ Anticipated project baseline schedule
- ▶ Major project milestones and deliverables associated with all project areas, including but not limited to, technology maturation, business development, engineering, procurement, construction, Community Benefits Plan implementation, permitting, safety, and regulatory
- ▶ Activities supporting completion of those milestones and deliverables
- ▶ Schedule dependencies, including predecessors and successors as well as parallel and sequential activities

The following table may be used to guide schedule development. Please note that the below descriptions are non-exhaustive, and should only be considered indicative of expectations. Please refer to the Funding Opportunity Announcement for guidance on any required minimum level by project phase.

*Table 1: GAO Integrated Project Schedule Level of Detail Examples*

|         |                                                                                                                                                                                                                                                                                                                                                         |
|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Level 1 | Summary schedule including major project milestones, deliverables, and related activities.                                                                                                                                                                                                                                                              |
| Level 2 | A more detailed version of the Level 1 schedule that should include a breakdown into major project categories such as engineering, design, construction, procurement, permitting and regulatory, Community Benefits Plan implementation, and others as appropriate.                                                                                     |
| Level 3 | Integrated roll up of Level 4 schedules. Should reflect breakout of activities underlying elements of the Level 2 schedule including anticipated start and finish dates for each activity. Often developed by the executing contractor using detailed information from project and/or construction managers and is used for project progress reporting. |
| Level 4 | Detailed working schedule used to manage day-to-day activities or other near term work plans. Should be resource loaded. Often called execution or working schedule or similar.                                                                                                                                                                         |

## What is a Schedule Basis Document?

To assist with the development of the Integrated Project Schedule DOE recommends using a Schedule Basis Document, which provides parameters and underlying assumptions relied on in the development of the schedule for all project stakeholders' understanding. A well-written Schedule Basis Document will also help reviewers assess a schedule's validity and reliability.



The Schedule Basis Document usually includes the following components at a minimum:

- General description of the overall approach to achieve the project goals that gives a high-level framework of the schedule network logic, the external dependencies, and key drivers of the critical path.
- Identification of key dates used in the development of the schedule such as life-cycle dates, decision dates, hand-off dates, etc.
- List of schedule assumptions such as external constraints, procurement durations, construction calendar/seasons, operations integration requirements, funding parameters, any significant resource limitations, items excluded from the schedule, etc.
- Basis for the constraints, lags, leads, open-ended activities used in the schedule.
- Project management team's assessment of the schedule integrity and quality using GAO Schedule Assessment Guide's characteristics of a reliable schedule – comprehensive, well-constructed, credible, and controlled. For well-constructed, the assessment should include the results from a software quality assessment tool such as Acumen Fuse with explanations for elements that exceed standard metrics.
- Schedule contingency analysis and results.

The following are additional components that could be included in the Schedule Basis Document that may be useful in an independent review of the Integrated Project Schedule.

- Identification of scheduling software options used, i.e. calendars, activity identifications (level of effort, task dependent, schedule visibility, planning packages, etc.), project-specific coding used, calculation of critical paths, progress override contrasted with retained logic, progress updates with duration updates, etc.
- Method(s) used for resource leveling – an explanation of how the project determined that the time-phased manpower requirements from the schedule are aligned with the project staffing plans.
- Description of the process to convert planning packages to detailed packages or the rolling wave planning, if used. This may be included in an earned value management system description.

A schedule management plan or estimating plan typically describes the policies, procedures, and tools to be used for development and management of the schedule. It is not the same as the Integrated Project Schedule but may include some similar components.