The Revay Review
Quick and timely information
February 2025

Is Your Schedule Telling You What You Need to Know?

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When it comes to project schedules, in Revay's experience, it is important that all scopes of work be included, and that time is taken to develop a properly functioning critical path method ("CPM") schedule. This article provides practical considerations for developing and maintaining project schedules, to help ensure that your schedule is telling you (and the other stakeholders on your project) what you need to know.

Revay has been involved in the development and analysis of countless schedules, which we view as vital project documents. Having a reliable schedule that is maintained throughout the project lifecycle is important for many reasons, including:

- It is essential for proper project planning.
- It is an integral communication tool for all project stakeholders.
- It is used to identify, quantify, and mitigate delays and disruptions early.
- It creates the as-built record of the project.
- It is used in delay analysis if/when delays occur. It may be even more important if disputes arise.

This is not an exhaustive list.

In Revay's experience, it is typical that the project schedule is developed and maintained by the construction contractor. Depending on the project's contracting model, this could be the general contractor or the construction manager. In the case of design-build and construction management projects, the schedule will be developed before design is complete. In the case of design-bid-build projects, consultants will typically be involved in the development of schedules prior to the tendering of construction.

In order for a schedule to be reliable, it must be built on a solid foundation. This foundation is the complete project scope (i.e., **all** activities applicable to the project and not only the construction activities). Among the myriad of challenges Revay has seen with respect to project schedules, Revay has often found that schedules omit, or include

inadequate time for, key activities. Examples of activities commonly omitted/understated in schedules are:

- Issuance of design drawings in the case of design-bid-build projects, or design activities which should include sufficient review time and time for iterations in the case of design-build projects.
- Submittals by the construction contractor, such as shop drawings, including sufficient review time and time for iterations.
- Permitting and other pre-requisites to starting construction work.
- Procurement activities.
- Activities related to temporary works.
- Owner activities.
- Commissioning activities.
- Subcontractor activities.

For projects with a significant amount of subcontracted work, as is common with many sectors of construction such as commercial, institutional, and residential projects, the subcontractors represent an important stakeholder group. The schedules for such projects can only be reliable with (continuous) input from the subcontractors. Further, in Revay's experience, the subcontracted work can only be effectively planned and managed if subcontractors have access to, and provide input into, the overall project schedule. Collaborating in the overall project schedule is in the best interest of both general contractors and subcontractors.

Once a solid foundation is established, there are numerous other requirements in order for schedules to be reliable. From a technical perspective, this includes, among other things, logic links for all activities, proper dates and calendars, reasonably short durations, adequate float, and the minimal use of constraints.[1] Omitting, or understating, activities and technical schedule components results in an incomplete schedule. As such, the schedule may (knowingly or unknowingly) be unachievable, meaning the desired project completion date is potentially at risk from the outset.

In the end, a schedule can only be effectively developed with inputs from all project stakeholders. And, only a complete schedule, from both scope and technical perspectives, can properly communicate impacts so that mitigation measures can be implemented when issues arise. These may seem like simple rules to follow; however, in practice, we all too often come across incomplete or inadequate schedules on projects. Having a complete and technically sound schedule is the best way your schedule will tell you what you need to know.

1 This article is not intended to discuss all technical aspects of scheduling. A common reference for developing schedules and assessing the technical quality of schedules is the Defense Contract Management Agency ("DCMA") 14-Point Assessment.

Your comments and suggestions for future articles are most welcome.

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