

Airport Authority Schedule Guideline Manual

Rev 6: February 20, 2020

Section 1 - Introduction

The project Critical Path Method (CPM) schedule is intended to be a shared resource among the Contractor, the Authority, and stakeholders. The development and ongoing management of the CPM schedule is a critical tool for delivering a successful project. The schedule will model the planning and forecasting of the Contractor's work to meet the coordination, collaborative, communication, and reporting requirements of the contract.

This guideline presented herein defines the Authority's expectations of how the project schedule is developed, managed, and reported throughout the project. It provides clarification and advice but does not supersede the contract requirements.

Authority review, acceptance, and/or rejection of any and all schedules do not waive any Contract requirements, does not relieve the Contractor of any obligation or responsibility for timely submitting complete and accurate information, and shall not be considered an Authority endorsement or certification of the validity or accuracy of any part of the schedule. The validity and accuracy of all schedules is the sole responsibility of the Contractor. Errors and omissions within the schedules do not relieve the Contractor from finishing all the work required within the time specified for various milestones.

Section 2 - Schedule Development

- 2.1 Schedule development will detail the project by project components and tasks as defined by coding structures, level of detail, logic relationship development and usage, durations, calendars, contingency, naming convention, and general CPM recommended practice. The Contractor, Authority, and project team will collaborate and actively participate on the development of these components to facilitate the monitoring and reporting of progress, processing of payments, and allocation of funding sources in accordance with the Authority's procedures.
- 2.2 Required software: All schedules will be developed and managed in Oracle P6 version 18.8 or newer. The Authority and Contractor will agree on the version to be used for submittal of the .xer native file to the Authority. Depending on the version used by the Contractor, the Contractor's file may need to be converted to version 18.8 for export. Microsoft Project will not be accepted.

- 2.3 Scheduler Qualifications: Unless otherwise agreed to by the Authority, the Contractor's Project scheduler will be on-site full time and will be responsible for coordinating the development of the schedule of the work with the project team, updating the schedule, and submitting the schedule for Authority review. The Authority will review the Scheduler's resume for acceptance. The Scheduler shall have a minimum of ten (10) years of scheduling experience on projects of similar size, scope, and complexity using P6.
- 2.4 Software Settings: The following project specific settings will be used for the development and management of all P6 schedules associated with this project:
- a. The overall project calendar will be in calendar days. Trade activities may use 5-day or 7-day calendars as consistent with the Contractor's standard practice. The calendars including weather and holidays must be clearly identified by identification and name.
 - b. Activity codes must be project specific for the work required and not global codes.
 - c. Resources and cost accounts are to be discussed and approved prior being applied to the activities.
 - d. Total float calculations are to be made by setting Total Float to finish float=late finish-early finish.
 - e. Retained Logic will be used for schedule calculation.
 - f. Percent Complete will use Physical as "% complete type."
 - g. Global Enterprise data is not to be used unless fully explained, justified, and pre-approved by the Authority.
- 2.5 Schedule File Project ID Naming Convention: Each schedule submittal will have a dedicated, incremental number that is not repeated, written over, or reused.
- a. The initial submittal of the validation schedule will be referred to as the Preliminary Baseline Master Schedule. It will carry an alpha-numeric identification ID ending in 00. (i.e., T1PR-PB-00). Subsequent revisions will incremental -01, -02, etc.
 - b. The accepted validation schedule will represent the initial baseline master schedule and be given a unique ID -00.
 - c. The GMP Master Schedule to be presented with the GMP will have a unique ID-00.
 - d. Revision numbers if applicable will be identified as ID-00rev1 until

accepted.

e. Subsequent revised baseline, updates, impacts, and recovery schedule naming conventions are discussed in Section 3, Schedule Management.

- 2.6 File Naming Convention: Each project schedule submittal will include a descriptive identification title referred to as the project name. included in this name will be the Project ID, name, type of schedule submittal, and submittal date (dd/mm/yyyy).
- 2.7 Project Start Date: For the initial Preliminary Baseline Master Schedule and the accepted validation Baseline Master Schedule, the Planned Project Start Date will be the initial authorization or notification of award.
- 2.8 Work Breakdown Structure (WBS) : The Contractor will propose a dedicated project WBS as the primary reporting structure. The proposed WBS structure will be reviewed and finalized in partnership with the Authority to meet the Authority's requirements. The Contractor may need to develop additional Project Activity Codes in hierarchy format if requested by the Authority. As defined by the WBS, the schedule shall include, at a minimum, the following scope of work including discreet tasks under each respective grouping.
- a. Summary Overview and Contractual Milestones: A high level overview of major contractual milestones, interface with other projects, and critical inter-relationships or constraints affecting follow-on work such as GMP approval, permanent power, turnover of shell space, etc.
 - b. Design: Major design package development and deliverables, Authority reviews, and jurisdictional approvals.
 - c. Permitting: All major construction permit applications and approvals including, but not limited to, California Coastal Commission, City Permits, and FAA 7460.
 - d. Procurement: Reflect major package advertisement, award, submittals, and fabrication/delivery on significant and long lead components.
 - e. Construction: Trade activities, inspections by Authority having Jurisdiction (AHJ), commissioning, and punchlist.
 - f. Closeout: Reconciliation of accounts, Submittal of record documents, O&M manuals, As-Built schedules and models, and other requirements.
- 2.9 Calendar development and usage: Calendars used in the schedule will be named in collaboration with the Authority. Agreed upon naming conventions will identify calendars, if varied, to reflect the expected work days/week, hours/day, day/night shifts, holidays, and non-work periods.

Holidays and event restrictions with potential impact to the work are to be included.

2.10 Relationships of Activities: With the exception of the Project Start and Project Completion, all activities will have predecessors and successors.

a. Predecessors and successors shall not be linked to the same activity with different relationship types.

b. The start of an activity will have a Start-to-Start or Finish-to-Start relationship with the preceding activity. Completion of an activity shall have a Finish-to-Finish or Finish-to-Start relationship with successor activities.

c. Finish-to-Start relationships of an activity with a positive lag need to be identified and approved by the Authority.

2.11 Constraints: The contractor may use appropriate constraints on milestones to be used by the Contractor with the understanding that the constraint will not be used in place of available logic. Date restraints or work restraints shall not be placed on any task activity without approval of the Authority. In addition, Contractual and Interim Milestones are to use 'On or Before" or On or After" and applied in accordance with the Contract. Work restraints such as Least Tern nesting season and holiday blackout periods are to be identified, planned, and explained.

2.12 Lag and Overlap: The use of lag and overlap conditions in baseline and progress updates must be realistic and used sparingly. Lag and overlap will be rejected where detailed tasks using standard Finish-to Start can be used to define and model the work.

2.13 Activity ID Naming Convention: Activity IDs will include enough information to allow the reviewer to relate the activity to specific work types and locations on complex aviation projects by their naming conventions in typical static PDF document environments.

a. Standard P6 default identification allow 20 alphanumeric characters to describe the type, trade, location, and component of the Task. Once established, the Activity IDs cannot be changed and must remain consistent.

b. Summary and Level of Effort (LOE): Detailed tasks can be rolled up into a hammock. Hammocks are a standard practice to summary bars for quick duration totals and a summary report. Summary tasks need to include SUM or similar in the ID for clarity. Summary LOE tasks can show

a total float of 0 which is misleading because LOE tasks do not necessarily drive tasks.

- 2,14 Activity Descriptions: Activity descriptions will include a level of detail that provide casual reviewers of the schedule a clear understanding of the work description, the material used or installed, a general location, phase, and optimally the crew and shift if applicable. The reason for the detailed approach is to facilitate the review of data in PDF format when access to the P6 software is not accessible to confirm the requested information.

- a. Activity descriptions shall be succinct in a near sentence form. The description and ID shall be based on the WBS and correlated to BIM and the Schedule of Values.
- b. After the baseline schedule is accepted, activity descriptions cannot change. If a task is no longer applicable, the task will be moved to section entitled "Not Applicable" with an explanation in the narrative report. The Activity ID or description should not be used again.
- c. The use of acronyms will be limited. Those used must be standard and applied consistently.
- d. The use of characters to separate detail is acceptable.
- e. The Contractor will perform a quality check including spell check prior to submitting to the authority. Descriptions are to adhere to working document standards. Acceptable acronyms and industry words not listed in spell check will be added to the P6 dictionary.
- f. Activity codes will be assigned to Owner responsible and Third Party responsible activities or tasks.

- 2.14 Task Scope: Task durations should reflect the Level of Detail specific to the task scope. This does not apply to Summary LOE tasks.

- a. Tasks will not include more than one specific trade or contractor resource type unless approved by the Authority.
- b. Quantity based tasks should include within the description an approximate quantity of work expected to be performed within the duration. These are more likely in civil works.
- c. Long lead and critical material procurements will be broken into a minimum of three (3) tasks to reflect bidding, submittals and approvals, fabrication, and delivery.
- d. Tasks for the Authority and Third Party work not under the control of the Contractor will be included to assist the Authority identify relationships within the project work. These may include artwork, tenant or concession

fit-out, TSA facilities, other contractors' interface, utility or City work connections, and commissioning.

2.15 Task Durations: Durations on performance tasks should not be greater than 21 calendar days.

- a. Exceptions may be considered for tasks that will not require progress payments such as specific long-term procurement or fabrication activities. If payment will be requested, tasks will not exceed one-month reporting.
- b. The use of 1-day durations are to be limited. If a 1-day task is proposed for other than a specific task such as a concrete pour or a piece of equipment, the activity requires additional review.
- c. Task durations are to be consecutive. If work within a task is split into parts, separate tasks are required.

2.16 Baseline Budgeted Quantities and Cash Flow Development: The Authority requests Resource/Quantity and Cost/Cashflow loading in the baseline Master Schedule. Rough Order of Magnitude (ROM) values are to be provided for the major elements within the project based on the preliminary baseline schedule.

- a. The intent is not to detail every single task but to focus the driving components or assemblies based on productivity expectations. The initial values will be refined as the design and procurement activities proceed.
- b. Ideally, the best practice is to include quantities/resources in both the appropriate P6 resource module and in the task description. Including the information in the task description allows stakeholders without access to P6 to view the same data in a more user-friendly format.
- c. The Authority is focused on the primary driving components/tasks of the project and not necessarily each individual task. For example, large single elements/assemblies such as elevators or stairs can be shown as one component. Primary components such as major assemblies and those segregated based on funding source include but are not limited to:

- Concrete
- Steel
- Formwork
- Foundations
- Curtain Wall
- Roofing

- Primary Electrical Switchgear & Distribution
- Vertical Conveyances
- Flooring (Public areas, tenant spaces)
- Interior Walls
- HVAC Systems
- Passenger Boarding Bridges and aircraft services
(PBB, 400 hz, PC Air, potable water, etc.)
- Baggage Handling System
- Common Use Technology Systems
- Access Roadway
- Parking Structure
- Elevated Roadway Structures
- Apron
- Pedestrian Bridges
- Access Control and Security Systems

d. Using the P6 resource module, a root source should be created as a “non-labor” resource. Material resources are then added below the root hierarchy. The “expense” module should not be used. A similar approach should be used for the cost/cashflow information.

e. Quantities provided can be used to forecast and substantiate progress.

f. To make assignment of costs easier, align the created WBS with summary tasks for each major component in the schedule. Tasks or components should be created for non-discrete costs like overhead, fee, insurance, and contingency.

g. The Summary Tasks may link the first and last task of the component type and shrink or grow throughout the duration of the project without changing the budget.

f. The cost-loaded schedule at the MCP will need to be updated with appropriate costs at the GMP submittal. The Authority at its discretion may choose to wait to accept the cost loaded schedule until the GMP.

Section 3 – Schedule Management

- 3.1 This section details the Authority’s expectations of the baseline schedule(s) submittal, review, analysis, and acceptance process, the update process, weekly look-ahead reporting, schedule impact and delay analysis, and the recovery schedule process.
- 3.2 Baseline Schedule submittal Content includes the native (.xer) file, PDF reports, and the P6 calculation log.

- a. The Authority will require the P6 data xer files be submitted in Version 18.8 or newer pending upgrades to Authority software. If requested by the Authority, the Contractor will be requested to remove the PQBS data in the .SER file prior to submitting to the schedule to the Authority.
- b. A PDF report of the entire schedule will be included with each submittal. This allows the Authority to identify data glitches have not resulted in changes in data when imported into the Authority's P6 application. The Authority may request additional reports detailing the schedule data in different formats if needed.
- c. The P6 Schedule calculation log will be included as an exhibit to the submittal.
- d. A Narrative Report will be included that discusses details, the status, changes, approaches, and potential risks and/or recovery within the schedule.

3.3 Baseline Schedule Submittal Review Process: The baseline Master Schedule and monthly updates will be reviewed in accordance with recommended CPM schedule practice as defined by the American Association of Cost Engineers International (AACEI). Specifically, the schedule submittals will be reviewed for the elements and information discussed in Section 2.

- a. A comments log will be maintained with each submittal to track concerns and corrections throughout the project. These comments represent the history of the schedule review process and detail Authority and Contractor concerns specific to schedule performance.
- b. Baseline, preliminary, Master Schedule, and update reviews will be immediately suspended without a complete review and a working schedule meeting convened if "Fatal Flaws" exist. These are defined as:

- Negative Float identified anywhere in the schedule. Negative float will exist when constrained interim or contractual milestone dates are not compliant with stipulated interface or contract dates.
- Open ends that exist in the schedule that have not been previously discussed and accepted by the Authority.
- The narrative report is not included in the submittal.
- The native P6 xer file in the required version is not included with the submittal package.

- c. A working Schedule meeting to address a "Fatal Flaw" will be a collaborative effort by the appropriate members of the project team to

- identify the root cause of the flaw and discuss corrective actions.
- d. Resubmittal content will include a complete schedule submittal package with the review comment sheet indicating the corrections made. A partial resubmittal or substitution of portions of the Schedule package requires the approval of the Authority.
- e. The Authority expects to complete and return schedule reviews within 10 days of submittal.
- f. The Contractor is expected to revise and resubmit all schedule submittals, if required, within 5 calendar days of the submittal return date.

3.4 Monthly Schedule Update submittals will comply with deliverable requirements for the Master Schedule CPM.

a. Each update submittal consists of a narrative report, native file (xer), float calculations, and percent complete correlated to Schedule of Value requests for payment.

b. The update will be reviewed for compliance with contractual requirements, reported progress, and concerns using CPM Recommended Practices including:

- Logic Do's and Don'ts
- Duration Do's and Don'ts
- Activity Detail Revisions Do's and Don'ts
- Relationship Overlap Changes Do's and Don'ts
- Critical Path Do's and Don'ts

c. If the monthly update indicates that the Contractor is more than 14 calendar days behind with the Work or current update on the Critical Path of the schedule, the Contractor shall determine the cause of schedule slippage and take steps to improve progress and/or recover time. The steps taken will include but are not limited to resequencing work, expediting deliveries, increasing manpower or shifts.

d. The Critical Path and near critical path for the top three (3) string of activities will be indicated.

3.5 Weekly Look Ahead Reporting will consist of a rolling 6-week or 3-week forecast of planned activities as approved by the Authority and a 1-week report of the past week's progress compared to the forecast. The Look-Ahead schedule will be submitted to the Authority two (2) days before the weekly project meeting.

- 3.6 Schedule Impact and Delays have specific applications and timelines in the contract. The Contractor is responsible for preparing and submitting a Time Impact Evaluation (TIE) with narrative explaining the cause and potential corrective action and fragnet (small logic diagram) for changes to the work or occurrences that impact the current schedule's critical path or milestones.
- a. The Contractor will indicate how the change or occurrence will be incorporated into the work for the Authority to analyze and evaluate the justification for time impacts.
 - b. The Authority and Contractor will collaborate on the cause, responsibility, and the appropriate action for recovery or remedy as part of the analysis.
 - c. The Contractor response to the review comments will include steps for recovery including but not limited to additional labor or shifts, expedited delivery, resequencing of work, and/or time.

[END OF SECTION]
