Meeting the Challenge of EPC
Project Proposal Schedules

Ted Douglas, CCC, PSP
ACTPMA, LLC Consulting
Construction CPM Conference
2014 Orlando Florida

---

Project Proposal Schedules

Outline of Presentation

- The Challenge of a Proposal Schedule
- Sources of Schedule Input & the RFP
- Role of the Scheduler
- Shortcuts for Schedule Input
- CPM Proposal Schedule Review
- Questions & Final Discussion

ACTPMA, LLC Consulting
Accurate, Complete, Timely Project Management Assistance
The Challenge

Preparing a CPM schedule that meets the request for proposal (RFP) and represents the project team requirements:

- Understand the Scope of Work of the project
- Identify key project tasks & deliverables
- Minimal proposal team interface or guidance
- Limited time & quick turnaround to complete

What is a CPM Proposal Schedule?

A realistic time phased project plan that represents how the project will be built that includes:

- the entire scope of the project
- Key milestones and phases
- specific activities with reasonable durations
- a logic or sequence of work activities
- how these various activities interrelate
Typical RFP Table Of Contents

Part I - The Schedule
A. Solicitation/Contract Form
B. Supplies or Services and Prices/Costs
C. Description/Specs./Work Statement
D. Packaging and Marking
E. Inspection and Acceptance
F. Deliveries or Performance
G. Contract Administration Data
H. Special Contract Requirements

Part II - Contract Clauses

Part III - List Of Documents, Exhibits, And Other Attachments

Part IV - Representations And Instructions
a. Representations, Certifications, and Other Statements of Offerors
b. Instructions, Conditions, and Notices to Offerors
c. Evaluation Factors for Award

ACTPMA, LLC Consulting
Accurate, Complete, Timely Project Management Assistance

Project Proposal Stage

The Project Management Team reviews the Request for Proposal (RFP) including:

- Scope of Work for the Project
- Design drawings, technical specifications and specified construction materials
- Prepares the proposal cost estimate

While the proposal effort is underway the project CPM proposal schedule is prepared.
**RFP Schedule Assessment**

Review the RFP to Assess:
- Scope of Work (inclusions / exclusions)
- Key Milestones & Phases
- Start / Completion/ Period of Performance
- Interface with Agencies and Regulators
- Procurement of Materials & Equipment
- Labor requirements / restrictions
  i.e. prevailing wages / hiring requirements
- Site Access and Work Restrictions
- Influence of Weather on the Project

**RFP Input for CPM Schedule**

Review the RFP General Conditions:
- Scope of Work (inclusions / exclusions)
- Type of Contract (Fixed price/ T&M/ Other)
- Site Access and Work Restrictions
- Liquidated Damages / No Damage for Delay
- Period of Performance:
  Start Date & Major Milestones
- Materials and Key Equipment Requirements
- Regulatory & Agency Permits / Requirements
- Design Completion Status
**CPM Schedule Specification**

Review the RFP Scheduling Specification:
- CPM Software Specified
- Standard Codes / WBS / Activity IDs
- Frequency Updates & Progress Reporting
- Schedule Baseline & Change Management
- Schedule Level of Detail
- Resources - Crews / Budget Loading
- On site Scheduler Support
- Scheduler Qualifications / Prior Experience

**Maximum RFP Schedule Durations**

Frequently Scheduling Specifications state that the maximum activity duration cannot exceed 21 calendar days duration except for:
- Concrete curing
- Submittal reviews
- Equipment fabrication & deliveries
What Phases are in the Project Scope?

Feasibility & Planning

Design

Procurement

Construction Execution

*Start-up & Operations

CPM Schedule Detail

“Good work, but I think we need a little more detail right here.”
**EPC Project Procurement Phase**

Normally at 90% design completion, the owner/CM/project management team:
- prepares the project for procurement
- prepare the subcontracts, bid packages
- pre-qualify vendors, suppliers, and trade contractors
- recommends modular, pre-assembly, “stick build” or a combination of construction methods

**RFP Construction Execution Planning**

How will the project be executed?
- Direct hire or CM (subcontractors)
- Construction phasing
- Responsibility matrix – contractor interfaces
- Site assessment
- Testing and Start-up planning
- High level schedule (timeline) at this phase
Project Site Location

The Project Site will have an influence on the CPM Schedule:
- Remote Site Location = Logistics
- Vendor & Design Support Sources
- Temporary Facilities / Utilities
- Site Access: Badging / Craft Parking
- Work Restrictions: Hours of Work
- Weather / Temperature / Environmental
- Equipment, Materials & Supplies Storage

Project Site Planning

- site access and egress
- site drainage
- temporary facilities: buildings; plumbing; power
- staging areas for rigging, pre-assembly & field erection work
- lay-down areas / fabrication shops: avoid double handling
- Environmental, safety and security
Role of the Scheduler

To prepare a CPM schedule that meets the request for proposal (RFP) and represents the project team proposed plan:

- Entire scope of work for the project
- Identify key project milestones
- Phases / key tasks & deliverables
- Start Date / Completion Date
- Contract Period of Performance
- Important Interfaces: Design & Procurement

Role of the Project Scheduler

- The Project Scheduler is designated to develop & maintain the construction progress schedule.
- The Project Scheduler shall be present at the Preconstruction Schedule Meeting, and shall attend all meetings, which may affect the CPM schedule.
- The Project Scheduler shall be prepared to discuss, in detail, the proposed sequence of work and methods of operation.
- The Project Scheduler shall be knowledgeable of the status of all aspects of the work throughout the length of the Contract, including but not limited to: original contract work, additional work, new work, and changed conditions of work.
**CPM Schedule Prep Shortcuts**

Create a CPM proposal schedule faster?

- “Stick Build” the proposal schedule (activity by activity & link by link)
- Generic Schedule “Templates”
- Similar Historic Projects
- Modular CPM Series

---

**Generic Schedule “Templates”**
**Similar Historic Projects**

- Historical Data: Construction phases compared for similarities:
  - Example: TVA Steam Plants for AFB Project:
    - Site & Coal Handling Facilities;
    - Powerhouse;
    - Water Treatment Plant;
    - Transformer & Switch Yards
- **Other Projects**
  - TVA Nuclear Power Plants Construction
  - Chemical Weapons Demilarization Projects
  - DOE Management & Operations Program

---

**Modular CPM Series**

- Modular CPM predefined “strings” of activities
  - *Used for a Specific Business Line*
- Created detailed CPM at the proposal stage:
  - Site Prep & Common Facilities;
  - Critical Equipment: GTG; HRSG; & STG
  - Balance of Plant Equipment: i.e. Switch Yard
  - Vendor Designed (Pre-engineered) Buildings
- **Other Modular Series include:**
  - Support Strings: Engineering/Procurement
  - General Design: By Discipline / By System
  - Procurement Durations / Dates for Fab & Delivery

~ Stephen Goodman
"Modular CPM", AACE 1992
**Why a CPM Schedule Review?**

The primary objective of a proposal schedule review is to determine if the project CPM schedule is “accurate, logical and achievable” and meets all the requirements of the RFP.

---

**Proposal CPM Schedule Review**

Compare the RFP & CPM Schedule to Assess:
- Complete Scope of Work (inclusions / exclusions)
- Reasonable Work Sequence & Activity Durations
- Adequate Procurement lead time for Materials & Equipment
- Interface of craft trades & engineering disciplines
- Site Access and Work Restrictions
- Impacts of Weather on the Project
Review - Means, Methods, Materials

Construction Means
- Availability of skilled labor force
- Labor intensity of installation (congestion)
- Accessibility to project site

Construction Methods
- Contracting strategy
- “Biddable” & “Buildable”
- Start-up and Commissioning

Construction Materials
- Fabrication requirements & Time
- Availability & Delivery when required

Proposal CPM Schedule Review

✓ Meets RFP scheduling specification
✓ Complete scope of project
✓ Key Milestones
✓ Sequence of work phases
✓ Reasonable activity/ phase durations
✓ Inter-discipline coordination
✓ Delivery of key equipment & materials
✓ Impact of weather on project
**CPM Proposal Schedule Submittal**

The CPM proposal schedule submittal must be in accordance with the RFP scheduling specifications:

- Schedule Format: CPM / Bar Chart / etc.
- Level of detail and specified activity durations
- Graphics / Layouts / Listings / Resource Curves
- Narrative / Basis of the Schedule
- Electronic (CD) Format

**Project Proposal Schedules**

**Summary of Presentation**

- The Challenge of a Proposal Schedule
- Sources of Schedule Input & the RFP
- Role of the Scheduler
- Shortcuts for Schedule Input
- Proposal Schedule Review
- Questions & Final Discussion