

# Forensic Delay Analysis Success with or without Contemporaneous Documentation

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# Outline

- ▷ Importance of Contemporaneous Documentation
- ▷ Common Types of Documentation
- ▷ Common Issues
- ▷ Contract Requirement Considerations
- ▷ Why forensic schedule analysts rely on contemporaneous documentation?
- ▷ Case Studies

# Importance of Contemporaneous Docs

- ▶ Contract Compliance
- ▶ Causation
  - Documentation of Impacts
- ▶ Methodology
  - Schedule: Contemporaneous Schedules vs As-Built Basis
  - Productivity: Quantity vs Earned Value vs Mod. Total Cost
- ▶ Cost

# Common Types of Documentation

- ▶ Schedules
- ▶ Daily Reports
- ▶ Inspection Reports
- ▶ Meeting Minutes
- ▶ RFIs / Submittals
- ▶ Material Delivery Ticket / BOLs
- ▶ Cost Reports / Codes
- ▶ Pay Applications
- ▶ Interviews / Declarations
- ▶ Photos / Site Camera / Drones



# Common Issues

- ▶ Lack of Documentation
  - Incomplete or never existed
- ▶ Records Prepared by One Party Only
- ▶ Daily Reports:
  - Repeated Entries
  - Lack of Detail
  - Inconsistent Nomenclature
  - Missing Information:
    - Impacts
    - Weather
    - Manpower

# Contract Requirement / Documentation Considerations

- ▶ Site Camera
- ▶ Schedules
  - Format / Layouts / Level of Detail / Narrative
  - Concurrent Delays
  - Methodology
- ▶ Document Management System
- ▶ Nomenclature

# Why forensic schedule analysts rely on contemporaneous documentation?

- ▶ Contemporaneous documentation (underlying proof) is required to identify delays and establish a cause-and-effect relationship between claim events and delays
  - Provides evidence and drives success of the analysis
  - Link between cause-and-effect is not an exact science
  - Outlines historical progression of the project
  - Project schedule is a tool to evaluate cause-and-effect
  - Some documents are more reliable than others
  - Alternating cause-and-effects



# Why forensic schedule analysts rely on contemporaneous documentation?

- ▶ *“The importance accurate contemporaneous documentation that records the facts is that it gives credibility to the history of the project” (Knoke et al. 1996)*
- ▶ Schedule updates used in a schedule analysis must be validated (functionality vs. reasonableness) as accurate
  - Using inaccurate schedules to assign delay responsibility may produce unreliable and incorrect results
  - Availability and quality of contemporaneous documentation increases utilization of detailed methods

# Why forensic schedule analysts rely on contemporaneous documentation?

- ▶ Finding a proper schedule analysis methodology suited quality of existing contemporaneous documentation.

For example, “if a baseline schedule exists on a project but no schedule updates available for the duration of the project, AACEi MIP’s 3.3 and 3.4 cannot be utilized”

Source Schedules or Data	M E T H O D								
	3.1	3.2	3.3	3.4	3.5	3.6	3.7	3.8	3.9
Baseline Schedule	Min.	Min.				Min.	Min.		
Schedule Updates			Min.	Min.			Min.		Min.
As-Built Record	Min.	Min.			Min.			Min.	Min.

- ▶ Contemporaneous understanding of criticality

# Why forensic schedule analysts rely on contemporaneous documentation?

- ▶ Different methodologies measure delays differently
  - CPA (observational) and TIA (modeled) methods requires substantial contemporaneous documentation – If not available, need to
  - APAB

# Why forensic schedule analysts rely on contemporaneous documentation?

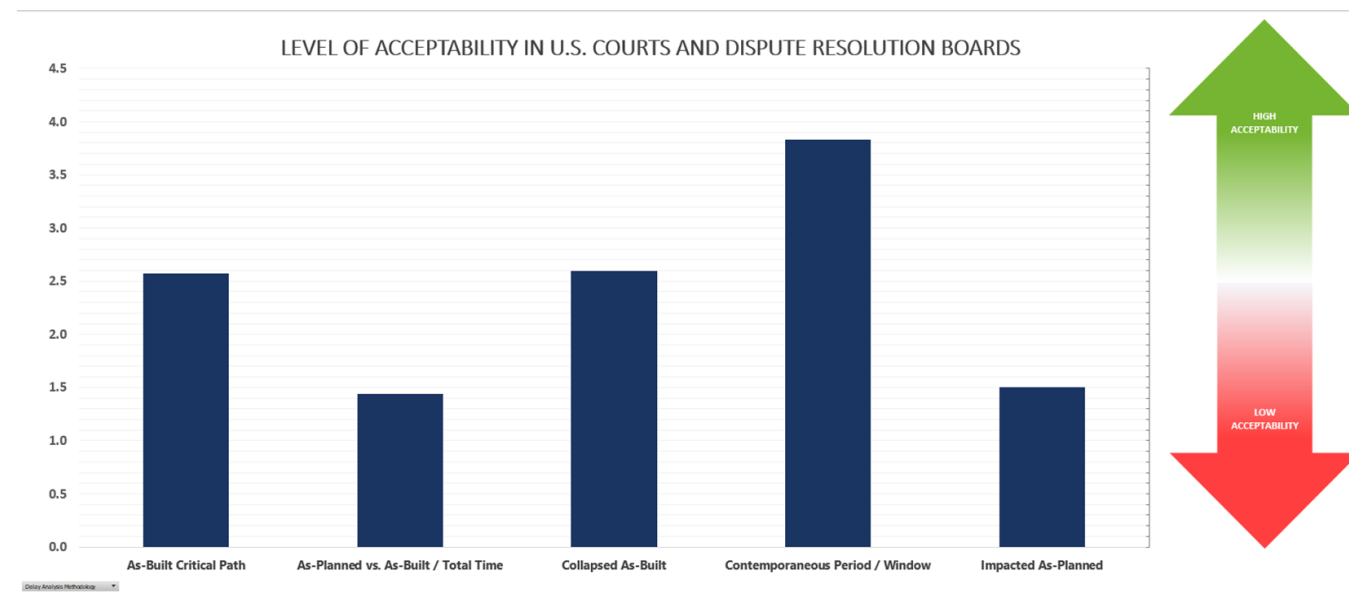
## ► Contemporaneous Period Analysis (CPA – AACEi MIP 3.3/3.4)

**Difficult to manipulate** and widely accepted by courts and the Dispute Review Boards:

Studies have been performed including a 2014 AACEi Technical Paper (CDR.1526) ranking Methodologies by Robert D'Onofrio, PE. In this report, the author refers to a 2008 study (by Arditi, David and Thanat Pattanakitchamroon), involving **legal acceptance**, in which Arditi et al applied "...a number from 1 to 5 to each method reflecting that **method's acceptability by courts and boards** where a 5 denoted acceptance with credible data, a 3 represented some method acceptance but bad data, and a 1 represented a finding of a flawed method...",

The average legal acceptability by method (from 1 to 5) was:

- 1) Contemporaneous Period / Windows – 3.83
- 2) Collapsed as-built – 2.60
- 3) As-built critical path – 2.57
- 4) Impacted as-planned – 1.50
- 5) As-planned versus as-built/total time – 1.44



# Why forensic schedule analysts rely on contemporaneous documentation?

- ▶ CPA is an objective process and extremely accurate (if contemporaneously updated CPM schedules exists and validated as accurate) to determine cause-and-effects of the events as they occurred.
- ▶ It is widely used
- ▶ Recognized by the Courts and Dispute Resolution Boards
- ▶ If the updates were re-created, it is perceived to be after-the-fact analysis

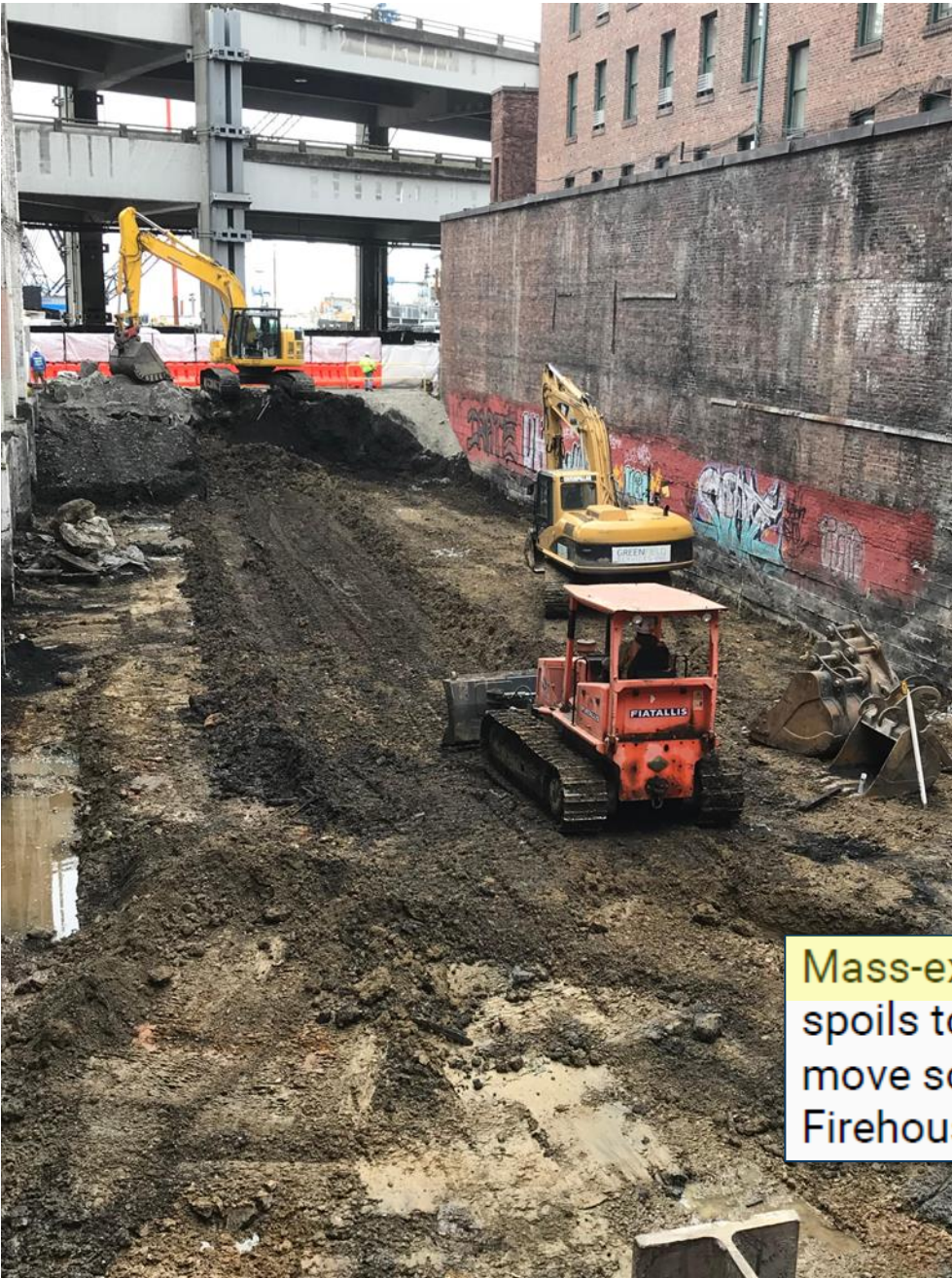
# Why forensic schedule analysts rely on contemporaneous documentation?

- ▶ APAB is based on analyzing the delay over the entire AB schedule which is created using non-schedule data, such as daily reports, meeting minutes, correspondence, change orders, etc.
- ▶ Delays are determined by comparing the “critical” AB work chronologically to the “critical” AP work schedule to determine the resultant critical path impact
- ▶ Per AACEi guidelines, APAB is not suitable
  - for project durations extending into multiple dozens of update periods
  - for projects built in a manner significantly different than planned
  - for complicated projects with multiple critical paths



# Case Studies

- ▶ Aquarium, Concrete Subcontractor:
  - GC alleged concrete subcontractor was responsible entire project delay. Daily reports demonstrated that extended duration was the result of omitted schedule activities in GC schedules.
- ▶ Navy Missile Magazine, Subcontractor.
  - Owner caused 6-month delay and failed to grant time extension – LDs \$20k/day. Subcontractor accelerated and recovered owner delay but failed to track acceleration costs. Acceleration claim relied on fact witness statements / estimates which increased time and cost to resolve.



### Case Study Summary:

- Contractor encountered contaminated groundwater and claimed DSC.
- Daily reports / photos showed that site was primarily dry at bottom of footing (“BOF”) elevation.
- Contractor encountered the groundwater due to over-excavation (means and methods).

**Mass-ex of site to BOF elevation.** Loading for export of spoils to Waste Management Type 3 soil. Continue to move soil to west end for staging to load-out. Saw-cut in Firehouse Alley.



## Case Study Summary:

- Multi-family housing development experienced delays – builders risk insurance issue
- Project team maintained minimal contemporaneous records
- Monthly drone photos provided progress documentation for reasonable quantification of delay





# Key Take-Aways

- ▶ Know the documents required by the contract and follow the contract
- ▶ Select a delay analysis methodology based documentation availability and reliability, as well as considering other factors (contract requirements, size/complexity of the dispute, budget, etc.)
- ▶ Review and source validate schedules as a necessary prerequisite to a delay analysis