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COVID-19 & CONSTRUCTION:

How to Model & Track Pandemic-Related Schedule Impacts

PROJECT CONTROLS

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COVID-19 CONTINUES TO IMPACT BUSINESSES ACROSS THE WORLD.

More specifically, in the United States, a survey by the Associated General Contractors of America (AGC) showed that 67% of respondents reported experiencing project delays or disruptions as of April 2020. Several State and local government authorities have ordered either all construction or non-essential construction to stop during the pandemic.

Consequently, construction projects have had to face time impacts such as temporary shutdowns, manpower shortages, PPE shortages, and material delivery delays due to supply chain disruptions. All these events can potentially result in impacts to the project schedule. While the actual impact due to COVID-19 can still be difficult to determine at this time, it is important for a contractor to be able to track this unplanned event as it occurs. The time impacts due to COVID-19 can be modeled and tracked using a schedule analysis technique known as a prospective time impact analysis (TIA).

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CONTRACT REVIEW AND NOTICE REQUIREMENTS

Prior to putting together a prospective TIA, it is crucial to review the contract to understand clauses that discuss excusable delays, time extension requests, and notice requirements. Examples of relevant clauses to better understand these topics are:

1. Changes in the Work
2. Delays and Extensions of Time
3. Force Majeure
4. Suspension and Termination
5. Emergencies / Pandemic
6. Claims and Disputes

It is important to provide notice per the contract requirements. The contract will dictate time, content, and delivery of notice requirements. There may not be contractual requirements for providing a TIA, however submitting a TIA to the owner is typically crucial for providing notice of an unexpected event that may require a time extension and/or additional cost.

TIME IMPACT ANALYSIS

A TIA is a simple analytical procedure used to model and track an unexpected event that may potentially impact the project schedule. It is most useful when:

+ Work was stopped due to an unprecedented event for a certain period of time
+ Work is currently delayed due to an unprecedented event for a certain period of time

While modeling a TIA, it is difficult to predict what the true impact of the unprecedented event will be. TIAs are simply used to forecast potential delays. Therefore, it is important to track the actual delay as it occurs during the periodic schedule update process to refine the modeled TIA to reflect actual information. It is also important to use a schedule accepted by the owner with a status date just prior to the occurrence of the unexpected event.

The following steps generally outline the procedure of modeling a TIA:

STEP 1 Model the impact with a schedule fragnet

STEP 2 Select the appropriate accepted schedule update to impact

STEP 3 Insert fragnet into schedule

STEP 4 Insert the durations used in the fragnet into the added delay activities and recompute the CPM

STEP 5 Identify the activity indicating project completion and note any change in the project completion date

STEP 6 Determine the correct time impact for the project delay

STEP 7 Determine the actual dates of the delay

STEP 8 Eliminate delay dates from the TIA request that have previously been awarded

After the prospective TIA has been submitted to the owner, the TIA may be tracked by updating the model with new information on a periodic basis during schedule updates. The contractor may track the impact by:

+ Revising duration of modeled activities
+ Adding activities to describe additional impacts that have occurred
+ Modifying logic between modeled activities and base schedule activities to account for appropriate impacts to base schedule and forecasted completion date

Once the unexpected event ends, the actual delay may be statused in the schedule and compared against the forecast. After the TIA is complete, the contractor may submit and/or update its request to the owner for a time extension pursuant to the contract.

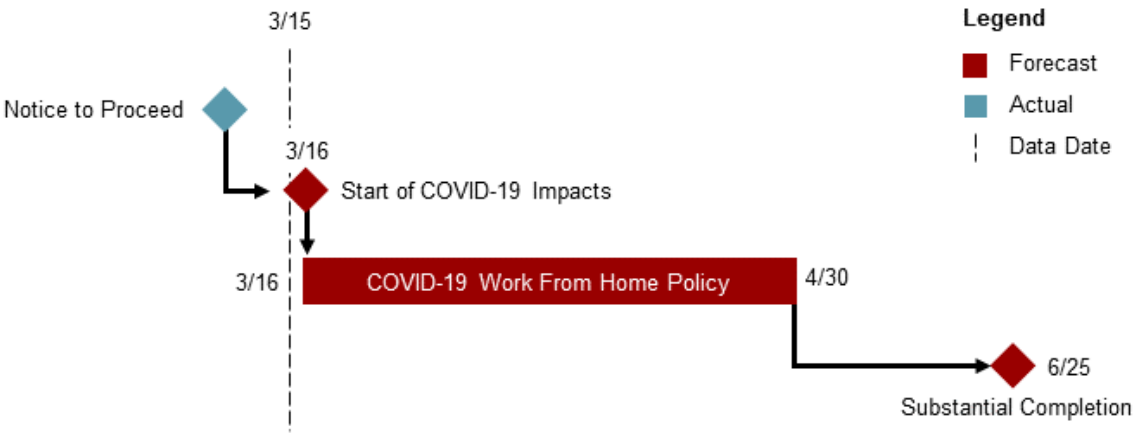
CASE STUDY

The following case study describes hypothetical events that occur on a construction project where the contractor is affected by COVID-19 related issues on a periodic basis. It describes how to model the impacts in the project schedule using the TIA method and how to update the model as new information is received over time.

March 15, 2020: A contractor's field team is informed by its corporate office that as of March 16, 2020, all non-essential personnel must work from home due to COVID-19. At the time, there were no impacts to construction activities.

TIA: The contractor ensures that a TIA fragnet is added to the March 15, 2020 schedule update to reflect its corporate "COVID-19 Work from Home Policy for Non-Essential Personnel." This schedule is submitted to the owner to serve as notice, per its contract. The contractor assumes the end date of the policy to be April 30, 2020.

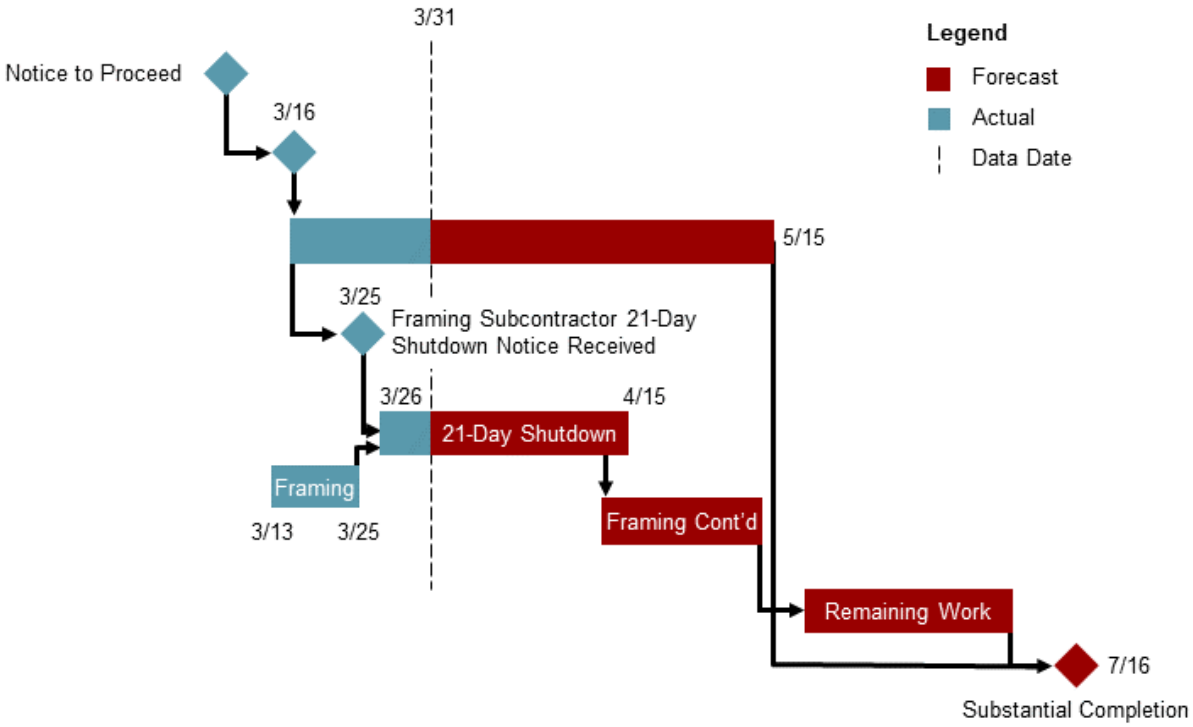
The substantial completion date of June 25, 2020 is not impacted.



March 31, 2020: The contractor receives updated information that the work from home policy was extended to May 15, 2020. In addition, the contractor receives a 21-day shutdown notice from its framing subcontractor due to manpower shortages arising from COVID-19 and its ongoing framing operations will cease immediately.

TIA: The contractor adds another TIA fragnet to represent the framing subcontractor's 21-day shut down and ties the impact to the remaining portion of the framing scope of work.

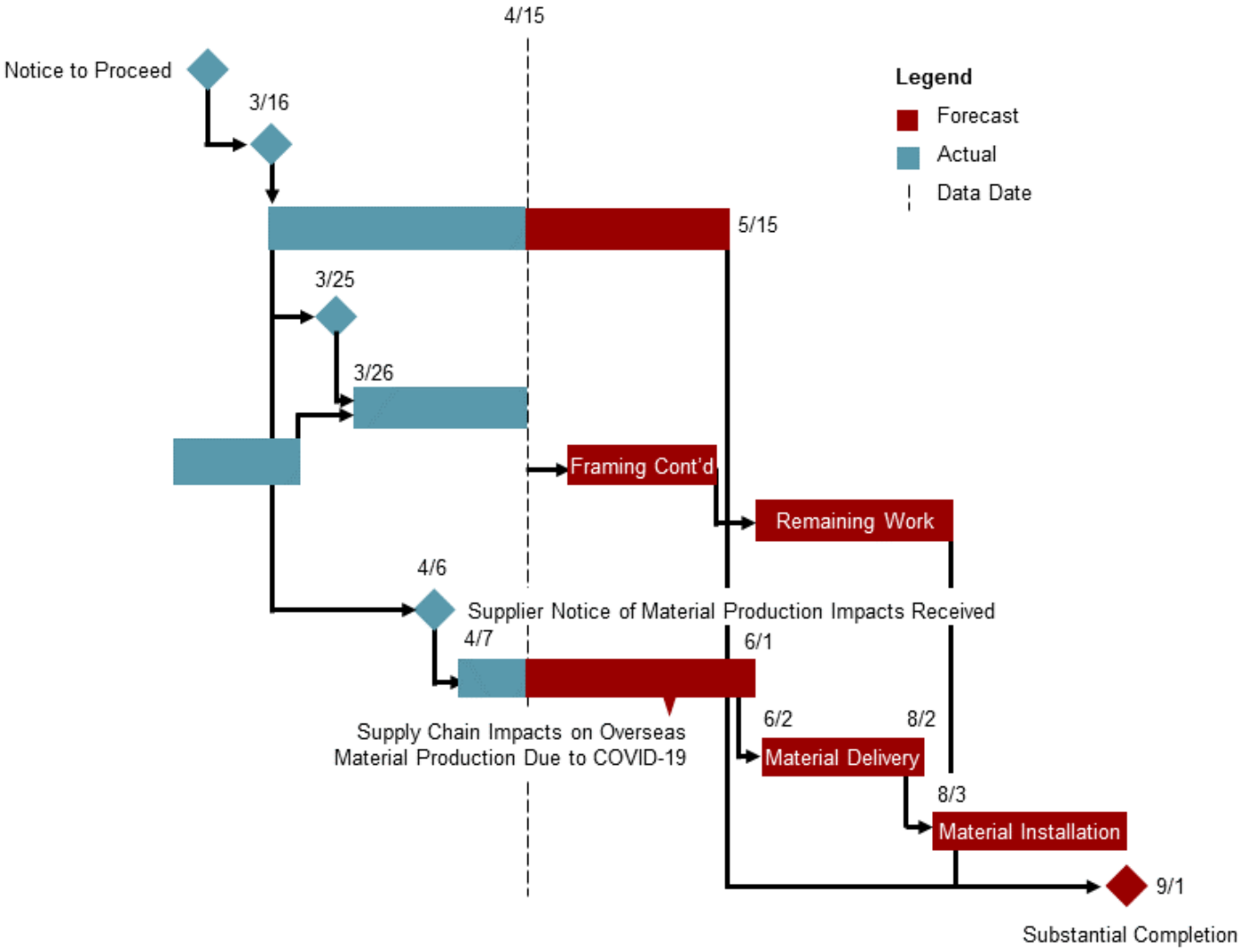
The substantial completion date is delayed 21 calendar days to July 16, 2020.



April 15, 2020: The contractor is informed by its material supplier that production overseas has been impacted due to COVID-19 and that there will be supply chain impacts that could delay the delivery of material to the project.

TIA: The contractor requests an estimated date from the supplier for when the supply chain impacts will cease. The forecasted date is then tied to material delivery and installation to appropriately reflect impacts to downstream activities.

The substantial completion date is delayed 47 calendar days to September 1, 2020.



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