President’s Message: The Impact of Cumulative Changes

DRMP Certification Eligibility Requirements Update
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Try talking to yourself without opening your mouth, by simply saying words internally. What if you could search the internet like that -- and get an answer back? In the first live public demo of his new technology, TED Fellow Arnav Kapur introduces AlterEgo: a wearable AI device with the potential to let you silently talk to and get information from a computer system, like a voice inside your head. Learn more about how the device works and the far-reaching implications of this new kind of human-computer interaction.

TED Fellow Arnav Kapur invents wearable AI devices that augment human cognition and give voice to those who have lost their ability to speak.

Source: www.ted.com

Outside the Box will be a standing column designed to introduce new ideas and concepts from other resources and professions that may help stimulate a new way of thinking about total cost management. The views and opinions expressed are those of the authors and do not necessarily reflect the official policy or position of AACE International.

We invite Source readers to send suggestions on other sources to editor@aacei.org.
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6 Technical Development
Increase your knowledge and expertise by joining one of AACE International’s many technical subcommittees, subcommittees, and Special Interest Groups (SIGs) at no additional cost to members. Discuss industry problems with your peers or help experts develop new and improved techniques and practices for the profession.

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The Impact of Cumulative Changes

BY DR. ALEXIA NALEWAIK, CCP FRICS, President, AACE International

Well, kids¹, we made it. I’d like to thank the AACE International board, staff, and countless number of volunteers at the section, regional, and associate board/committee level who have served the institution this year.

I’m not entirely sure what I expected as President, but I can assure you it isn’t all glamorous speeches and toasts. It’s mostly firefighting and politics, with a lot of late-night phone calls, meetings, and endless email threads (not to mention Viber, WhatsApp, Messenger, and more). Every board inherits a squeaky wheel (or two), each board member must find balance between volunteering for AACE and full-time billable employment, and it is impossible to please everyone. In the end, I am disheartened by some of the changes and trends that have occurred over the past decade. In aggregate, I am disheartened by some of the changes and trends that have occurred over the course of a decade. In the aggregate, I am disheartened by some of the changes and trends that have occurred over the past decade. I posit those who serve only a couple of years can never truly recognize the long-term impact of their decisions, especially when made in response to current challenges. This isn’t unique to AACE, but it is a timely reminder to us all to look both backward and forward, to consider our strategic plan and the resources we need to empower our volunteers to be successful in promoting and advancing our profession. It is every member’s privilege, nay, obligation to help shape their Association.

Doug, it’s all yours, now. I’ll be there by your side as Past-President, unveiling every elephant in the room and running counterpoint when needed, as always. I am proud to join the esteemed group of AACE International Past-Presidents, who continue to guide the Association with a depth of comprehension only 20-20 hindsight and long-term service can provide.

If you would like to contact our current president with questions or comments about The President’s Message please address your e-mail to president@aacei.org. To engage in other discussions, check out AACE International’s online Communities at communities.aacei.org.

¹ I know some individuals are offended by this term of endearment. If you find it belittling, you aren’t my people.
Simplifying Change Management

BY RICH PLUMERY

Managing change does not have to be an arduous ordeal, but it needs to be performed and communicated effectively and rapidly. In order to do so, certain simple steps need to be addressed. Therefore, this simplifying approach to change management is offered to ensure all the fundamental steps are addressed in an easy to follow process.

SIMPLIFY CHANGE MANAGEMENT

Change management process steps (these steps may overlap in certain cases).

Identify – Identifying and managing scope change is essential to proper risk management and cost and schedule performance management. Therefore, it is important for everyone on the project team to be aware of the contract terms, planned scope and schedule. An individual’s independent view is important in managing changes to the project’s contracted and planned execution of scope, because those “on the front lines” of the execution are usually the most capable of seeing change as it happens. It is important that it be broadcast to every member of the project team that (like safety) anyone can and should identify a potential deviation to plan to the Project Manager (PM). Along with the identification, some high level of quantification of the impact (including any collateral impacts) by the identifier is generally required as well.

Classify – Then the responsibility of the PM is to classify the identified potential deviation as an internal or client change or not a change at all. In some cases, parts of the identified potential deviation may be divided among the different categories. Internal changes should be sub-classified to help contractors understand weaknesses in estimating and/or pricing errors or omissions—versus poor choices in planning and/or means and methods. External or client changes are also sub-classified to assist with forensic and historical analytics.

Notify – If this is determined by the PM to be a potential client change, then the PM must promptly notify the client of this perceived change. This notice is almost always required contractually to be in written form but should be done so in any case.

Quantify – Along with the client notification, the PM and their team should develop and convey a rough order of magnitude estimate to quantify the impact of this change so the client can make an informed decision on whether to proceed with the change as scoped and estimated.

Clarify – The PM must clarify the scope of the change with the client and receive the client’s validation that this is the correct scope to be executed and also if they are authorized to proceed with that change order or if a more definitive estimate needs to be performed before the work can proceed.

Solidify – The PM must then communicate the plan to their team and solidify the client’s agreement by developing a more precise estimate of the impacts and getting the negotiated changed scope, costs and schedule into the contract.

Try incorporating these six simplify actions into your change management procedure to keep everyone aware and on point for managing change.

Editor’s Note: This is part of a continuing series of short articles provided by members of the AACE International Technical Board.
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In a response to recommended changes and request for eligibility clarification, the Certification Board unanimously approved updates to the DRMP certification eligibility requirements at its February 23, 2019 meeting in Denver. They include:

- A break-down of the full 8 years of experience to account for 4 years of industry-related experience (general) and the required 4 years of experience directly related to decision and risk management (specific).

- The 4 years of experience directly related to the field of decision and risk management does not need to be continuous but must include at least 18 months of recent experience when applying. For example: applying for DRMP on June 1, 2019 would require the candidate to demonstrate direct DRM experience from January 1, 2018 to June 1, 2019 (18 months or 1.5 years), in addition to 2.5 years of direct DRM experience throughout his/her career.

- Letters of recommendation must:
  - Describe the complexity of the project
  - Describe the type of risk management implemented on the project
  - Describe the candidate’s role in the project
  - Specify duration in tasks

- Work products must demonstrate:
  - The candidate is/was the primary author of the work product
  - The candidate is/was a senior-level practitioner on the project

THE FULL LIST OF DRMP ELIGIBILITY REQUIREMENTS, EFFECTIVE IMMEDIATELY SHALL BE:

- 4-year college or university degree*
- 4 years of industry-related experience
- 4 years of experience (does not need to be continuous) directly related to the field of decision and risk management, with at least 18 months of recent experience required, demonstrated by providing any combination of the following:
  - Three (3) letters of recommendation from a client (past or present) describing the complexity of the project, type of risk management implemented on the project, and the candidate’s role in implementing or providing such risk management services. All letters submitted must include the duration of time the candidate actually spent in tasks related to decision and risk management. If 3 letters of recommendation and no work products are submitted, those durations must sum to 4 years of combined experience.
  - Three (3) work products personally produced by the candidate that demonstrates having performed any aspect of the risk management work (decision analysis, schedule and cost risk analyses, implementation of risk management programs, risk workshops, etc.) on his or her projects to sum 4 years. The candidate must demonstrate that he or she was the primary author/contributor in developing the work product. Merely being a junior-level participant or member of a larger team without being the lead is not adequate demonstration of a senior-level practitioner.

Note: A candidate may provide a total of three (3) letters of recommendation or three (3) work products, or combine two (2) letters of recommendation and one (1) work product, or one (1) letter of recommendation and two (2) work products, etc.

Depending on the combination that works for your application, keep in mind that at least one recommendation letter or one work product must demonstrate recent experience within the past 18 months.

*Applicant may substitute a 4-year of college degree with an additional 4 years of industry related experience or one of the following professional certifications: AACE’s CCP; CEP; EVP; PSP; Certified Construction Manager (CCM); Certified Professional Constructor (CPC); Professional engineer (PE); Registered Architect (RA); or Chartered Surveyor.
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The Region 10 Second Latin American Congress on Cost Engineering was organized by the Bolivia Section March 27 to March 29 at Santa Cruz Bolivia. The congress is sponsored to promote the competitiveness of companies through the tools and strategies of cost engineering.

The conference sessions were at UTEPSA University and featured certified international speakers in the disciplines of costs, earned value, project management, and programming. Simultaneous English translation was available for the presentations. The congress has been referred to as the “Congress of Latin American Integration,” and it brought together speakers and participants from Bolivia, Brazil, Chile, Colombia, Mexico, Peru, and the United States.

The Congress opened on March 27 with a presentation by the Kelar Company, specialists in application software for cost estimates and cost control in projects. Nine workshop sessions opened on Thursday, March 28. Some 175 participants attended the workshops, and this exceeded expectations. Organizers believe the workshops were a total success.

On March 29, the Congress featured magisterial conferences with experts from the above listed seven countries participating. It is estimated that at least 200 attended this event. Nelson Bonilla, a Past President of AACE International, spoke on the theme of the, “Project Control Engineer as Leader, Business Person, and World Citizen.” Other international speakers included: Piero Anticona, President of the Peru Section; Juan Contreras, President of the Chile Section and President of the Latin American Task Force; Felipe Gutierrez from Brazil, Senior Vice President at JS HE LD LLC; Fernando Hernandez from Costa Rica, Senior Risk Consultant and Trainer at PALISADE; Antonio Iribarren from Chile, Managing Director at QDR Solutions; Carlos Ortega, President of the Colombia Section; Oscar Siles from Bolivia, Founding President of the Bolivia Section and Director-Elect of LATAM Region 10; and Manuel Rodriguez Suarez from Mexico, Coordinator at the National Board of Directors of the Mexican Chamber of the Construction Industry.

The theme of the congress revolved around claims management, control accounts, cost estimation classes, creation of strategic assets based on Total Cost Management (TCM), EVM in projects, forensic analysis of schedules, quantitative risk modeling, risk management, and others.

Exhibitors were another of the attractions of the congress. The exhibitors showed their products and services related to control, cost engineering, estimation, simulations, software, etc. Some of the exhibitor companies included Energy Press, EPCM, Kelar LLC., Palisade, QDR Claims, and UTEPSA University.

The Latin American Congress is the first event organized by the Bolivia Section. Organizers say there was high interest and participation in this year’s event, and that experts in different areas of cost engineering came to Bolivia to share their knowledge.

The Bolivia Section made its best efforts to be hospitable with all the friends that came to the country, including the speakers, sponsors, and participants. At the end of the event, the Section representatives made available a city tour of Santa Cruz and shared a delicious steakhouse meal at the headquarters of the Society of Engineers of Bolivia (SIB). The organizers believe this event is of great importance for the LATAM Region and that it will continue to mark milestones in further section development.
Throughout his childhood, he aimed to become the best athlete he could through hard work and dedication. As Craig grew older, math and science eventually replaced basketball, and Craig turned to civil engineering for his path to success, where he attended the University of Delaware to pursue his goals.

After graduating from the University of Delaware, Craig started his career at URS Corporation (now AECOM) as a design engineer, working on roadway and site designs for local jurisdictions. After working a few years, Craig realized that job wasn’t in-line with his long-term goals and started taking night classes at University of Loyola-Maryland to pursue a master’s degree in management. Once Craig had his master’s degree, it opened up more opportunities that better aligned with his overall career goals of leading large-scale projects.

In 2013, Craig started working for Exponent as a construction consultant where he was introduced to AACE International and soon realized there was an association whose goals and career development styles aligned well with his own. Through advice passed down by his mentor and supervisor, Robert Freas, a former AACE Section President, Craig made AACE International his number one place for continued education. Today, Craig’s bookshelf is stacked with binders of printed and highlighted publications, Recommended Practices, and past presentations of everything ranging from risk management, project controls, cost estimating, and critical path scheduling.

Craig has used these tools to help him with his current position, from working on a schedule analysis for a large construction claim, to putting together a risk management plan for a project or managing costs for large-scale utility programs. Whatever the situation, AACE International has helped provide him the skills needed to succeed.

AACE has also helped with building his network. In 2017, when Craig relocated to bring Exponent’s construction practice to Boston, Craig relied on his existing AACE network to help expand into a new city. After just one year of being introduced to Boston, Craig managed to become the current president of the AACE Boston Section and become an active member of the AACE Northeast Symposium Planning Committee.

What’s next in Craig’s career – time will tell. But with the help of AACE, Craig will have the tools and skills to succeed. Michael Jordan once said that “if you put in the work, the results will come.” Craig lives by that motto every day, setting goals for any situation and realizing that hard work and dedication eventually pay off. Craig states that ‘anything worth having is worth the struggle along the way, although having the right tools always helps.’

“Anything worth having is worth the struggle along the way, although having the right tools always helps.”

— CRAIG STEIGERWALT
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FOR MORE INFORMATION AND TO REGISTER: http://bit.ly/2019ConEx
An Effective Approach to Delay Analysis When Schedule Updates are Missing

BY EMAD MOFAREJ KOUCHAKI, CCP PSP AND CHRISTOPHER W. CARSON, CEP DRMP PSP FAACE

ABSTRACT
Most contracts require periodic schedule updates; however, sometimes contractors fail to provide these updates. This could be for a variety of reasons; perhaps concealing delays because recovery is anticipated, loss of scheduling staff, or because of a high workload. However, missing schedule updates make it much harder to isolate, identify, and analyze delays that occur during those update periods, as well as dramatically increasing risk to both the contractor and the owner. This article provides guidance to an owner that will facilitate a collaborative and effective analysis of delays, and resolution of time extension entitlements. This proven approach is aligned with AACE International Recommended Practice No. 29R-03, “Forensic Schedule Analysis,” and ensures that the analysis will not create any pitfalls later should the issues require more formal dispute resolution. This process has been successfully implemented on multiple projects, and this article includes a case study of a similar problem that was resolved for the Massachusetts Department of Transportation (MassDOT).

INTRODUCTION
When dealing with a potential impact prospectively, most analysts agree that the best approach to analyze the delay impact is the Time Impact Analysis (TIA). However, there is no consensus among practitioners as to which method is the best approach to analyze delay impacts retrospectively. There is an abundance of forensic (retrospective) analysis methods, as in some cases up to 14 distinct forensic methods have been categorized. These are then further subdivided by at least 58 common names. Additionally, different methods may lead to different results. This makes selecting the best method for forensic analysis one of the most crucial decisions of the analysis.

AACE International developed and published Recommended Practice No. 29R-03, “Forensic Schedule Analysis,” which was the first publication of its kind to provide a taxonomy of forensic analysis methods. The purpose of the Recommended Practice was to "provide a unifying reference of basic technical principles and guidelines for the application of critical path method (CPM)
scheduling in forensic schedule analysis." [1, page 9] This publication determined that there are nine distinct methodologies for forensic schedule analysis, and other proposed analysis methods fall into one of these approaches. This Recommended Practice was produced and peer reviewed by the Claims and Dispute Resolution Subcommittee of AACE, a group of expert practitioners of approximately 60 members, in addition to holding a public peer review and incorporating and/or responding to that broader review.

Of all the factors involved in the forensic analysis method selection, availability of required data, as identified in the AACE* Recommended Practice 29R-03, "Forensic Schedule Analysis (FSA-RP), minimum recommended implementation protocols, plays one of the most significant roles. It is safe to say that an unavailable or unverifiable contemporaneous schedule update will significantly impact the method selection.

In the case of missing contemporaneous update information (monthly updates), following the AACE FSA-RP Method Implementation Protocols (MIP) is less reliable, may require the reconstruction of updates, or may be subject to high rates of error, to implement, as noted below:

a. Retrospective TIA (MIP 3.7): The Retrospective TIA relies on the approved schedule of record as closely as possible but before the date of impact. It is very challenging to implement a retrospective TIA without having a validated schedule update before the impact.

b. Contemporaneous Period Analysis (MIP 3.3, MIP 3.4, MIP 3.5): Performing a Contemporaneous Period Analysis (CPA) without the contemporaneous update (or updates) also becomes more complicated. The analyst could either use a longer period, which creates a new challenge of dealing with potential additional concurrency and is less likely to allow accurate identification of causation tied to specific events and activities. Or, in the case of a rejected schedule update, the analyst might modify the contemporaneous data as stated in Reconstructed Update Analysis (MIP 3.5), which could be challenged by the opposing party. The Bifurcated Contemporaneous Period Analysis (MIP 3.4) (BCPA) may be the best approach, since it provides a valuable insight into what happened during the last period by splitting the progress-only performance from non-progress-related revisions.

The lack of validated contemporaneous schedule updates, along with other factors such as different levels of time and staffing, level of legal acceptability, and the analyst’s familiarity with the method, sometimes result in the lack of a good option to proceed with the analysis.

Although it is tempting to simply ask the contractor to submit the missed or rejected update, and possibly ask for the recovery update as well, this is not a viable option for two main reasons:

1. It opens the possibility of the contractor manipulating the schedule by changing means and methods, adding discretionary logic, changing scope, forcing a critical path, sequestering/suppressing float, concurrent delay creation, or concealing lack of contractor progress.

2. The contractor may suggest a hypothetical recovery method. Hypothetical recovery methods are generally not useful and not considered in the forensic analysis. The forensic analysis is dealing with what happened, unless the contractor gained the time during that missing schedule period, the delay was not recovered.

Although lack of a contemporaneous schedule update limits forensic scheduling options, there are still other important considerations for method selection. While asking the contractor to submit the missing schedule may not be feasible, re-creating the missing schedule can help to gain perspective on what happened compared to the contractor’s plan.

This article explains why validated contemporaneous schedule updates are important, and what the alternatives are when this critical piece of information is not available. The idea of re-creating two types of interim schedules will then be introduced, and the benefits of each type of re-created schedule will be pinpointed. The subject case-study project will be introduced, and the reason why observational forensic analysis methods, and specifically BCPA (MIP 3.4), were the superior methods in our sample project will be discussed.

### FORENSIC SCHEDULE ANALYSIS METHODS ACCORDING TO AACE INTERNATIONAL FSA-RP

AACE International Forensic Schedule Analysis Recommended Practice 29R-03, as a unifying technical reference, first distinguishes timing between prospective (predicted delays) and retrospective (absorbed delays), then divides retrospective analyses into two broad categories of approach: Observational and Modeled. These are further divided into four major families: Observational Static Logic (As-Planned vs As-Built), Observational Dynamic (Contemporaneous Period Analysis), Modeled Additive (Retrospective Time Impact Analysis), and Modeled Subtractive (Collapsed As-Built).

FSA-RP then further breaks down methods into nine distinct Method Implementation Protocols (MIPs) based on various factors, such as: whether to calculate impacts using periods or windows; whether to use the schedule as is, or isolate logic modifications; or whether to modify or recreate the contemporaneous schedule updates.

While this was done to standardize the methods, FSA-RP [1, p.125] also provides 11 factors that the forensic scheduler should consider while selecting a method:

1. Contractual Requirements
2. Purpose of Analysis
3. Source Data Availability and Reliability
4. Size of the Dispute
5. Complexity of the Dispute
6. Budget for Forensic Schedule Analysis
7. Time Allowed for Forensic Schedule Analysis
8. Expertise of the Forensic Schedule Analyst and Resources Available
9. Forum for Resolution and Audience
10. Legal or Procedural Requirements
11. Custom and Usage of Methods on the Project or the Case

These factors include technical, legal, and practical considerations. Although FSA-RP recommends considering all of these factors for method selection, some of these factors are much more important, or cannot be ignored. One of the most important technical factors is the “Source Data Availability and Reliability,” and as noted earlier and in a 2011 paper by Kelly and Carson [2, p.6], if the source data is flawed, the analysis is likely to fail. The source data which is most likely unavailable...
or unreliable in delay analysis is the validated contemporaneous data, or more specifically, approved schedule updates.

**VALIDATED CONTEMPORANEOUS DATA**

One of the important pieces of information that would significantly impact the AACE FSA-RP Factor No. 3, “Source Data Availability and Reliability,” and hence method selection, is availability of validated/agreed-upon contemporaneous data. It is important to find out if the contractor used prospective schedules for understanding the contemporaneous critical path, explaining their effort to manage the critical work, and for planning work at the time in question. The “contemporaneous understanding of criticality,” or what the contractor believed (and acted on) to be the critical path, is the key information from the perspective of the contractor. This includes the means and methods of construction at the time. The contemporaneous schedule also represents a reasonable approach to scheduling all work outside the contractor’s responsibility and represents actual history at the time.

The authors, and many practitioners in this field, believe if validated contemporaneous data exists, using this data and observing the contemporaneous critical path, as it was suggested in FSA-RP MIP 3.3 (Contemporaneous Period Analysis As-I) would significantly reduce subjectivity. This would likely reduce potential disputes, as it leads to a more defensible analysis. These methods simply “observe” what the contemporaneous schedules show, without making any changes, or making limited corrections which do not rise to the level of recreations. This means there should be no challenge to the use of these schedules, as long as they were used on the project. The only challenges will likely be with the research results in the implementation of this MIP.

By using modeled forensic analysis methods, contrary to observational approaches, the analyst is typically identifying delays from the documentation and interviews rather than simply allowing the contractor’s schedules to identify the delays. This makes observational methodologies much less subjective and subject to fewer challenges than the modeled approaches.

Unfortunately, as previously stated, contemporaneous schedules are not always valid or may not exist. There are multiple reasons why validated contemporaneous schedules may not exist.

Schedule updates could be rejected for not correctly reflecting the contractor’s intended means and methods. Or this may be as a result of manipulation of the updating process, such that the results do not appropriately reflect reality or field conditions. This could also result from lack of scheduling experience. The problems, and these may be unintentional, include incorrect or missing scope and logic (missing activities, relationships, relationship types, lags), incorrect or manipulated activity durations, inappropriate or incorrect calendars, float sequestering or suppression techniques, stacked trade work (unreasonable production rates), forced critical paths, incorrect or unlikely client’s, third-parties’, vendors’, or contractual activity durations, concurrent delay creation, or concealment. These schedules are unsuitable for forensic analysis because they do not correctly reflect the contractor’s plan at the time.

Often, when the projects are under stress, the contractors intentionally or inadvertently skip a schedule update, possibly because they are busy with recovering the lost time, or they are hoping that they can recover the delay somewhere in future, in some cases the contractor is far behind or has exhausted all of the meaningful recovery options, and simply gives up submitting an acceptable recovery schedule.

Lack of approved contemporaneous schedules puts the owner and the contractor at risk for additional time and cost to handle disputes, since there is no approved basis from which to measure delays. Also, the contractor’s ability to prove entitlement to time extensions resulting from owner-caused or third-party-caused delay or disruption is greatly reduced. It is in the interest of both parties to work together to get an approved schedule, and mitigate these risks as soon as possible. While having an approved schedule ensures that the appropriate planning is done, provides a basis for analysis and completion predictions, as well as improvements from owner review, this will also contribute to project success through easier development and support in resolution of future disputes, and fewer disagreements.

**ANALYSIS OPTIONS WHEN CONTEMPORANEOUS SCHEDULE UPDATES ARE NOT AVAILABLE**

**Using Methods That Do Not Rely on Contemporaneous Schedule Updates**

There are six methods that do not completely rely on the contemporaneous view of criticality. However, none of these methods are necessarily good substitutes for contemporaneous period analysis methods.

The first group of analysis methods rely on the As-Planned schedule (Approved baseline) and does not take into account contemporaneous revisions during the project, especially at the time delay occurred, since in both methods, “the comparison remains between the as-built and baseline or original as-planned schedule.” [1, page 45] (e.g. As planned vs As-Built MIP 3.1, MIP 3.2). Besides that, each of these methods has its other specific shortcomings as well. For example, in the Impacted As Planned method (MIP 3.6) or Retrospective TIA (MIP 3.7), the analyst is expected to create and insert the fragment or fragments after the fact, which is a subjective process. The opposing party could argue that the results in these methods are already decided before starting the analysis as the analyst identified and modeled the delays subjectively, as well as by the selection of delays to model.

The second group of analysis methods create and rely on a newly created schedule and/or schedule series, (AKA collapsible as-built schedule). This will be done by using the As-Built data (MIP 3.8, MIP 3.9) combined with the analyst’s hindsight judgment, which was most likely not closely related to the project parties’ judgment during the project. This will disregard the contemporaneous evidence, and party’s perspective which explains why and what happened back in time. Because of this shortcoming, and the analyst’s extensive subjective decisions required to create a collapsible as-built schedule, the methods that rely on the collapsible as-built schedule do not carry a good record of successful litigations. Neither of these approaches sounds promising.

**Using Longer Periods Combined with Bifurcated Contemporaneous Period Analysis**

The bifurcated contemporaneous period analysis as classified in the AACE RP-FSA under the MIP 3.4 observational/dynamic/contemporaneous/split, is going a step further from contemporaneous period analysis (MIP 3.3), as illustrated by a 2017 paper by Nagata and Carson [4, p.25]. This method relies on the approved baseline schedule logic, or previous schedule update, as it procedurally separates progress revisions from non-progress and possibly disputable modifications, and ultimately makes it easier to determine the
Recreating the Progress-Only Update to the Missing Interim Data Date

Since missing schedule updates create lots of challenges in the forensic analysis, one possible solution is to build one, and do it subjectively, to reduce the possible disputes. This can be done by starting with the acceptable and available procedure which is already presented in RP-FSA MIP 3.4 Subsection K.4 “Bifurcation: Creating a Progress-Only Half-Step Update” [1, p.62]. However, the data date for the re-created interim progress-only update is not an official schedule, it can represent the as-built condition at mid-point, so there is real value in performing the bifurcation.

This schedule can be used to help gain perspective on what happened against the contractor’s plan. Although the original MIP 3.4 “Observational/Dynamic/Contemporaneous Split” (aka BCPA) method covers and recalculates schedules for the period including the missing data date, recreating and emphasizing the missing schedule data date is very important. This special day, which represents the update data date of the missing schedule, is the important piece of the puzzle that shows the probable progress-against-plan perspective that the opposing party intentionally or un-intentionally skipped.

Recreating the De-Progressed Schedule

In response to the re-created progress only update, the opposing party may argue that the re-created interim progress-only update does not correctly reflect project status back in time. The reason is that the re-created schedule is missing the critical non-progress modifications, reflecting changes of means and methods, the recovery effort, or missed scope, etc.

It is important to point out, the forensic analysis focus is on what happened, instead of hypothetical recovery methods, or un-attempted, neither discussed nor proposed changes in means and methods.

However, if an actual non-progress change took place during the missing project update period, it should have been included in the next available schedule update as well. In this case, these logic modifications should be considered and accounted for in the forensic analysis.

One possible workaround is backward-looking modifications or de-progressing schedule based on the next available update. This process was explained in “Introducing the Zero-Step Schedule” by Ronald M. Winter [3]. The only difference in this case is that the de-progressing is only continued until it reaches the missed schedule data date.

The analyst can then follow the same MIP 3.4 Bifurcated CPA procedure, comparing the zero-step recreated schedule with the half-step re-created schedule and apportion any additional delays or gains in time to the responsible party.

By de-statusing the next schedule update to the missed schedule data date the analyst may very well find that it gives support for a consistent story about performance.

No matter who creates the missing schedule, if there is decent contemporaneous documentation, it is possible to get very close, and if both parties can agree on a recreated update, and the documentation supports the update, it could help resolve any disputes.

The de-progressed schedule often falls right in line with what’s happening on the project and lends a convincing perspective on their problems — regardless of whether it is official or not. Even if the parties are unable to agree on the de-statused schedule, the de-statused schedule can align closely with the documentation, and when matched with BCPA analysis, it can provide additional clarity to the project problems.

**CASE-STUDY PROJECT AND SCHEDULE**

The case study involves a cantilever sign replacement project. The project included the replacement of cantilever signs along the interstate highway and minor guardrail replacement. The project scope consists of submittals, new sign foundation construction, fabrication, delivery, and installation of new signs, and fabrication, delivery, and installation of new guardrails. The available information for the project includes a baseline schedule, and schedule updates #1 through #6, excluding schedule update #5, since it was skipped by the contractor.

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<th>Remaining Duration</th>
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**FIGURE 1** Baseline Schedule
In the baseline schedule (Figure 1), milestone Activity M100 “Project Start” has a start-to-start relationship to its successors (P&S Soil Boring subcontractor, and P&S Guardrail Shop drawing). Also, Activity C950 “Punch list” has a finish-to-finish relationship with its successor milestone Activity M990 “Project Finish.” Every other relationship in the baseline schedule is finish-to-start with no lag. Durations are in months, and project is expected to finish in 18 months, which is two months less than the contract duration.

The project contains two major paths of work. First float path or longest path, which has two months of project float, starts with prepare and submit, and review and approve guardrail shop drawing followed by fabricate and deliver guardrails and install guardrails. This path then merges to join the first float path at a common successor activity (construct overhead foundations).

The second float path, which has four months of float, starts with prepare and submit, and review and approve guardrail shop drawing followed by fabricate and deliver guardrails and install guardrails. This path then merges to join the first float path at a common successor activity (construct overhead foundations).

The first schedule update is presented in Figure 2. Schedule update 1 covers the first five months of the project. As of the schedule update 1 data date, the project was expected to complete on time. However, the available two months of project float in the baseline schedule were lost. Also, the additional two months of float on the secondary float path were consumed. The original duration of Activity E110 “P&S Soil Boring Subcontractor” was two months, while it took four months for the contractor to submit. This resulted in loss of two months of project float. Also, the contractor did not complete Activity E300 “P&S Guardrail Shop drawing” at the end of first month, as was originally planned. According to the contractor’s schedule this submittal is ready at the end of the fifth month, with zero days of remaining duration. This potential delay consumed all available float in the near critical path and the remaining activities on the near critical path became critical.

The second schedule update is shown in Figure 3. Schedule update 2 projected two parallel critical paths. The first path started with the perform soil boring which was progressed according to plan during the schedule update 2 period. The second critical path starts with P&S guardrail shop drawing (submittal), with an incorrect expected remaining duration of zero days. It appears that the contractor was trying to mitigate the potential delay by reducing the remaining duration of P&S guardrail shop drawing submittal, as this activity was still pending.

According to schedule update 2, while the critical Activity E300 “P&S Guardrail Shop drawing” delayed for an additional one month, the project was still expected to finish on time. To investigate further, the half-step schedule update 2 was created (Figure 4). The half-step schedule update 2 indicates the project lost one month because of activity E300 “P&S Guardrail Shop drawing” lack of progress. The contractor mitigated this potential delay by proposing expedited guardrails fabrication (Activity E320 “F&D...
Guardrail") from a two-month original duration to a one-month expedited duration.

The contractor's schedule update 3, as shown in the Figure 5, did not predict any project delay. According to the approved baseline logic, Activity C500 "Install Guardrails" was the direct predecessor of Activity C600 "Construct OD Foundations" with a finish-to-start relationship. This mandatory logic tie was because of the site condition in several locations, where it was required to have the guardrails installed before proceeding with the overhead foundation construction. However, the contractor changed this logic to finish-to-finish with two months of lag. The contractor proposed a change in its means and method, to start the foundation construction in locations that did not require the guardrail installation. This logic modification recovered the contractor's progress delay and shifted the critical path to overhead sign shop drawing submittals followed by anchor bolts fabricate and deliver.

The half-step schedule update 3 (Figure 6) indicates an overall delay of one month to the project finish, which occurred during the schedule update 3 period. The loss of time as stated before was because of the contractor's Activity E300 "P&S Guardrail shop drawing" lack of progress, which was still pending. It is also important to note that Activity E200 "P&S OD Signs Shop drawing" incorrectly shows a zero-day remaining duration. It appears the contractor was trying to mitigate the potential delay by reducing the remaining duration of this activity to zero days, while it was still pending. Any additional delay on this activity would impact the project finish date. In other words, the contractor managed to propose a recovery method for its lack of submittal progress, which delayed the project for a month, to predict on-time completion (from a total delay of three months).

The contractor's schedule update 4 also predicts no delays (Figure 7). Analysis of the half-step schedule (Figure 8) indicates a one-month delay to the project finish because of the contractor's Activity E200 "P&S OD Signs Shop drawing" lack of progress. The contractor proposed a recovery method to mitigate this potential delay. The proposed recovery method consists of increasing the foundation construction crew size and assuming a higher production rate for Activity C600 "Construct OD Foundations," According to the baseline schedule this activity was expected to compete in five months. However, the contractor is now expected to complete this activity in four months. In other words, the contractor's proposed recovery method recovered its lack of submittal progress, which delayed the project for a month, to predict on-time completion (from a total delay of three months).
The calculated update 4 half step schedule was used to determine performance during the schedule update 4 period and it indicates a one-month delay resulting from contractor progress.

The contractor skipped the Schedule Update 5 (Month 9). According to the engineer's record, critical Activity E200 "P&S OD Signs Shop drawing" submitted one month later than expected at the end of Month 9. This activity took two months longer than expected to complete. Also, Activity E300 "P&S Guardrail Shop drawing" was still in progress with three months of duration overrun. Although, the schedule update 5 was never received, it was evident that the project lost some additional time.

In the last day of Month 10 the contractor received a suspension of work notice for the next two months (Months 11 and 12). The contractor submitted the schedule update 6 (Figure 9) projecting the two-month delay. "Construct OD foundations" prevents the start of construct overhead foundations on Month 11 as well, since the guardrails are not expected to deliver to site until the end of Month 12. This delay is also because of the contractor's Activity E300 "P&S Guardrail Shop drawing" lack of progress.

To investigate further half-step schedule update 6 (Figure 10) was created. According to the half-step schedule update 6, the project was already one month behind before the insertion of the delay fragnet. The half-step schedule update 6 critical path starts with fabricate and deliver anchor bolts for overhead footings, followed by construct overhead foundations, install structure/signs, remove old foundations and punch list.

Combining this with the previous findings, which point out the contractor’s continuous loss of time, because of the lack of submittals progress (total of three months) in the past three submitted schedule updates, it was safe to conclude that the client was not the only responsible party for the projected two months delay to the project finish.

While the available information is substantial and hardly disputable, the analyst can go a step further by recreating the skipped schedule update 5, to have a better perspective of the project and delay status at the missing schedule update 5 data date. The re-created progress only schedule update 5 was created by following AACE FSA- RP MIP 3.4 K.4 "Bifurcation: Creating a Progress-Only Half-Step Update" procedure. The data date for the recreated schedule was the end of Month 9 (missing schedule update 5 data date) and the progress data was updated to this date (Figure 11).
As expected, the recreated schedule update 5 was one month behind. This delay was because of the contractor’s lack of progress of Activity E200 “P&S OD Signs Shop drawing.” According to the re-created schedule update 5, Activity C600 “Construct OD Foundations and Activity C500 “Install Guardrails” were expected to start at the beginning of Month 11. In other words, one month before the notice, the contractor anticipated a one-month delay, and expected to start construction at the beginning of Month 12. This one-month delay was solely the contractor’s responsibility, hence subject to recovery.

The contractor argued that he was able to recover schedule update 5 delay. This notion is easily refutable, since the forensic analysis is based on what happened, rather than failed hypothetical recovery efforts.

This schedule shows that the recreated de-progressed schedule update 5, or zero-step schedule update 6 to schedule update 5 data date, is identical to recreated progress-only schedule update #5. This means that no actual recovery effort or changes in means and method were ever proposed, expected, planned, or materialized. This was expected since no non-logic changes occurred other than the additional client fragment which was introduced in the schedule update 6. It appears the contractor was not able, or did not intend, to recover its lack of progress delay during Months 9 and 10. The contractor is responsible for the one month of project delay, while the client is responsible for an additional one month of delay for suspension of work. This finding is in line with the previous BCPA findings that indicate a continuous loss of time resulting from the contractor’s lack of progress.

CONCLUSION
Most contracts demand specific timelines and intervals for schedule updates. However, occasionally contractors skip schedule updates either intentionally to conceal a delay, or through lack of enforcement. This raises risk to both the contractor and the owner. The owner should strive to obtain an accurate recreation of the skipped schedule. If there is decent contemporaneous documentation, it is possible to agree on a recreated update which could help resolve any disputes. In case of the contractor’s obstruction or schedule rejection, the owner’s re-created interim progress-only schedule, as well as de-progressed interim schedule, should give support for a consistent story about performance and can be used as augmentation to the bifurcated contemporaneous period analysis method. This study confirms why the bifurcated contemporaneous period analysis combined with the re-created interim progress schedule was a superior method in the sample case.

REFERENCES

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Elaine Biech shares best practices for staying successful (and sane!) as you get your consulting practice off the ground. Adopt these habits today—you’ll thank yourself a year from now. Here are a few tips to help you get started on the right foot.

**MANAGE YOUR HEALTH — BOTH PHYSICAL AND MENTAL**

Get a healthy lifestyle established now—It’s not easy to eat well and exercise when you’re working 60 to 80 hours a week. If you don’t make it a priority, you’ll find yourself grabbing fast food and living at your desk. The first step is to get mindful: Do your eating habits need improvement? Schedule regular exercise (add a 20-minute walk to the end of your lunch break). Also get plenty of sleep both at home and on the road, with the help of an eye mask, cozy pajamas, and earplugs.

Find ways to manage stress—Take note of what causes you stress and be sure to mitigate those factors as much as possible. If you feel under siege from being on several conference calls back to back, spread them out over the course of a week. Have a game plan for dealing with stress when it does strike. Create some sort of routine to help you relax and wind down, whether it’s practicing yoga, going for a long walk, or meditating.

**MANAGE YOUR TIME**

Prioritize big jobs—Work on several large projects rather than dozens of small projects. You use a great deal of time traveling from one client to another, remembering names, and getting up to speed on a project. Biech advises focusing on large organizations. They have more available work, greater ability to pay, and more chances for repeat work.

Do the hardest tasks first—Do some tasks challenge you more than others? Do you sometimes feel uncomfortable? Do you feel unqualified to complete an action? Well, get used to it. You will be expected to do many things that are not easy. Suck it up. Just do it. Do the hardest thing first.

Manage cash flow with timely invoicing—“Timely invoicing is the only solution to cash flow dilemmas,” says Biech. “To be paid, you must invoice your clients in a timely manner. The same day isn’t too soon. In the beginning, it is likely that you will not have staff to invoice your clients; it will be your job. Keep an invoice template on your computer for clients who will incur repeat billings. Keep a generic template for all other clients; it will be your job. Keep an invoice template on your computer for clients who will incur repeat billings. Keep a generic template for all the rest. It saves the time of starting a new one each time.”

Adopt some time management “best practices”—Set your priorities first thing in the morning; identify your best time for writing, best time to make telephone calls, and so forth; use waiting and travel time to make lists, listen to podcasts, balance your checkbook; handle each piece of paper only once; set deadlines; take short breaks often; minimize interruptions; set deadlines.

**ESTABLISH GOOD BUSINESS HABITS**

Charge what you are worth—Know what you are worth and make that amount your rate. If you are not charging what you are worth, make adjustments sooner rather than putting it off. (Just give your current clients a six-month advance notice before changing your fee structure.)

Track your spending—Track expenses carefully either with an app or begin with a simple filing system for paper receipts. (No, your pockets do not qualify as a good filing system.) This ensures that you will always know where the receipts are located and you can prepare invoices.

Market all the time—Marketing ensures that you maintain an adequate flow of clients to keep you in business. In the beginning, you may need to market yourself tirelessly. The great news is that there are plenty of marketing tactics that are simple to execute and either free or very close to it. “Marketing is a 24/7 thing,” adds Biech. “Every experience with every client, every conversation with a colleague, every visit to a professional meeting, every comment to a friend is a marketing event. You are always selling yourself.”

Delight your clients—Always provide more than you promise. Build trust by being transparent, accurate, and dependable. Send books or articles you think they will enjoy. Mail greeting cards for no particular occasion. These are all ways to let your clients know that you value them and their business. Your projects will end, but the relationships will continue.

Add copyrights to all original documents—“There may come a time when you will find your original work floating around in an organization or being used by another consultant,” says Biech. “If your integrity is ever questioned, a dated copyright on your material protects you and your work.”

**TAKE ADVANTAGE OF BEING YOUR OWN BOSS**

Create balance in your life—Once you become your own boss, figure out what’s most important to you and make time for those things. Maybe it’s family, or spirituality, your social life, or even elements of the work itself. The key is to arrange your life so that no important part of your life is overlooked in the name of work.

Make up your own rules—This helps you maintain the balance you strike between work and the rest of your life. Create rules that help you keep your business in perspective. Tell yourself, If it’s not done by 6 p.m., it can wait until tomorrow. Or make it a rule that you always spend Saturday morning with your children.

Find ways to enjoy working from home—Take a walk in the late afternoon; eat lunch on your picnic table in the backyard; work from your deck while you enjoy a glass of iced tea; go for a midday gym workout.

Identify other interests besides work—Don’t let work consume your entire life. Make time to take up a new hobby or learn a new skill. Go hiking. Take a gourmet cooking class. Write poetry. Refurbish a classic car. Study your heritage and develop your family tree.

**ABOUT THE AUTHOR**


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**DOTTIE DEHART**

**DEHART & COMPANY PUBLIC RELATIONS**

**SOURCE**

**JUNE 2019**

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**CONNECTICUT SECTION**

On Tuesday, March 12, the Connecticut Section was treated to an excellent presentation by Jim Liddick, Turner Construction’s New England Regional Lean Manager. The “lean” approach to construction includes trying to do every job better, every day. All project participants, from the project manager to the tradesperson in the field, are taught to develop a mindset that focuses on accuracy and efficiency, and bringing up potential problems before they occur, allowing for correction and continuous improvement. Techniques include finding and eliminating waste, delivering just the amount of materials needed, when they are needed. More efficient modularization and pre-assembly of materials off site is encouraged. Jobsite cleanliness and organization of materials also improve efficiency. Respect among all team members for ideas and suggestions leads to a more engaged team and better cooperation among the trades. There is a strong emphasis on the using the Last Planner System® along with data and analysis. What work was planned? Did it finish when scheduled? If not, why not? Potential constraints to job progress are identified on boards in the field offices, with the corrective actions also listed, so the entire team knows what needs to get done and in what timeframe. Many other tools were mentioned: including Make Ready Plans, Weekly Work Plans, Daily Huddle and Pull Plans. The expression “Slow is Smooth and Smooth is Fast” sums up the approach. All members of the Turner Team receive a considerable amount of training in lean principals and Last Planner and it has become a key differentiator for Turner, giving owner’s a better building built by a happier and smoother running team with more reliable and predictable schedules. In addition to drawing a large audience, there was an extensive question and answer period following the presentation. The presentation and dinner were at the Esca Restaurant in Middletown, CT. The event was attended by 20 of the CT Section’s membership. Thank you to the Section’s Treasurer, Brian Fraczkiewicz, PSP, for organizing the speaker.

**GREATER CAIRO SECTION**

Throughout March and April, the Greater Cairo Section actively engaged in several events. On March 16, Ahmed Afifi, Director Technical, gave a presentation at Hill International in Cairo on the topic of termination by employers in construction projects, with a focus on the termination practice in the United Arab Emirates. Hossam Eid, EVP, Director Marketing, presented the topic of schedule evaluation systems for major projects at the 58th Western Winter Workshop in Lake Tahoe, Nevada, from March 21 to 24. On April 1, Waleed El Nemr, President, conducted a presentation at ValueMetric Consultants (VMC) to a number of commercial professionals, major developers, and consultants on the topic of cost/contracts challenges in the Egyptian construction industry. The

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challenge discussed was the “missing BOQ items” phenomenon in unit price contracts. He was joined by Cost Consultant Ayman El-Ghazzawi, the managing director of VMC. Two days later, on April 3, Waleed El Nemr and Hossam Eid, EVP, presented at the American University in Cairo to construction engineering graduating seniors. The presentation introduced AACE International and its Greater Cairo Section to the graduating class and provided an introduction to forensic delay analysis.

Ahmed Afifi (white jacket), shown seated above at left, presents a technical program on the topic of termination by employers in construction contracts on March 16 to attendees at a Greater Cairo Section meeting at the Hill International office in Cairo.

Attendees at a Greater Cairo Section program pose for a group photo after the presentation of cost/contracts challenges in the Egyptian construction industry on April 1 by Waleed El Nemr (2nd from the left) and Ayman El-Ghazzawi (6th from the right).

Hossam Kandil is shown above presenting on March 23 at the Western Winter Workshop on the topic of schedule evaluation systems for major projects.

LEFT Waleed El Nemr is shown above presenting at the American University in Cairo on April 3 to the graduating construction engineering students about AACE International and its Greater Cairo Section.

LEFT Hossam Eid, EVP, is shown above presenting the topic of scheduling challenges and introduction to forensic planning at the American University in Cairo on April 3 to the graduating construction engineering students.
MONTREAL SECTION
On March 12, the Montreal Section welcomed Susan Klucinskas, P.Eng., Senior Consultant at Revay and Associates, who presented some of the new features of the Ontario’s new Construction Act which were put into force in July 2018, with the bigger changes coming into effect in October 2019. Susan presented to an audience of 27 attendees followed by a question and answer session on the subject at hand. She went into detail about Ontario taking the lead on reforms to the construction lien act and how other provinces were following suit, including Quebec. She emphasized how these changes represented the biggest overhaul to the construction payment framework in over 30 years. Susan discussed prompt payment and what effect mandatory adjudication might have on construction projects in Ontario as well as in Quebec and across Canada. Other highlights of the session included discussion on the process and timelines stipulated, Quebec’s Bill 108 and potential sticking points.

QATAR SECTION
On Saturday Feb. 23, the Qatar Section combined forces with the Filipino Planning Engineers Association, ANCOP, Qatar Foundation and the Quranic Botanic Garden in a community service event to plant trees in Education City in Doha, Qatar. Since the landscape of Qatar is mostly desert, where temperatures can rise to 134 F in Summer, this event was designed to benefit our environment and make Qatar ‘greener’ and more suitable for generations to come. This event brought the whole community together and was attended by officers, members, friends and family. It helped to bridge cultures in inspiring an appreciation for nature and foster responsibility for our environment. All participants had something to contribute, where adults enjoyed planting trees, the younger ones were introduced to planting smaller plants, like flowers and basil, in small pots. The event was attended by more than 100 participants and was a huge success.
SOUTHERN CALIFORNIA SECTION

Go Trojans! The Southern California Section organized a tour of the USC Coliseum modernization project. Hathaway Dinwiddie and AECOM Hunt gave a presentation on the project followed by a site tour. The Los Angeles Coliseum is one of four historic athletic stadiums designated as National Historic Landmarks by the National Park Service. It is the only venue in the world to have hosted two Olympiads, two Super Bowls, a World Series, a Papal Mass, and visits by three U.S. Presidents. The Coliseum will also be home to track and field athletic events for the 2028 Olympics. The $270 million modernization of the Los Angeles Memorial Coliseum encompasses well over 1,000,000 total SF. The plans call for replacing every seat in the stadium and installing handrails throughout; adding aisles and repairing steps to enhance safety, widening seats and increasing leg room in many sections, which will ultimately reduce seating capacity from 93,607 to approximately 77,500. Construction also includes adding a new structure on the south side of the stadium that includes multiple suites, loge boxes, club seats, a new concourse, and a new press box; adding new concessions stands; upgrading entry concourses, installing new field and stadium lighting, improving audio and video with two new large screens relocated to the east end of the stadium; updating Wi-Fi throughout the venue; and replacing the electrical, and mechanical and plumbing systems to meet current standards. The project is slated to complete on-time for the 2019 football home opener.

The virtual meeting series continues to be a viable alternative and provide support for the membership. John Kuprenas presented on ‘Multiplier and Utilization: which one to use?’ at the May virtual meeting. The section will take a break over the summer and resume section events in September.

In April, the Southern California Section presented its 2019 Marla Kay Miller Scholarship to Aaron Enriquez. Aaron is a current student at California State Polytechnic University, Pomona and is studying in Construction Engineering. He received his scholarship funds at the section’s April dinner meeting. Shown above members of the SoCal Board presented the award. Congratulations Aaron Enriquez!

Southern California Section President Devang Dedhia, PSP, is shown thanking Ken McBroom, PSP for presenting the technical program for the section’s April meeting.

Attendees are shown at the Southern California Section’s April dinner meeting.
The April Southern California Section dinner meeting was presented by Ken McBroom, PSP, Director of Planning and Scheduling at McCarthy Buildings. McCarthy was selected as part of Oracle Prime’s early adopter program and has been testing and experimenting to provide valued feedback on software rollouts. This meeting took a contractor’s approach to where scheduling software is headed and what we can expect for the future of scheduling.

The Southern California Section’s February dinner meeting provided an overview of Long Beach City College’s $1.5B capital program. The LBCC Bond Management Team along with Cordoba Corporation provided an overview of the program and construction management practices including the use of Bluebeam, Oracle PeopleSoft, P6, and Unifier. The presentation provided lessons learned through the process and highlighted projects expected to go out for bid in 2019. There was lively interaction on the approaches and lessons between the speakers and audience.

The SoCal Section has continued offering additional options to the local membership by offering webinars. In February, the SoCal Section organized a virtual meeting on “The Ten Commandments of Risk-Based Project Controls” as narrated by Richard C. Plumery, EVP. The focus is on bringing effectiveness into the equation through a risk-based, objective and engaging approach to bring the best value to all project stakeholders. The presentation offered ten fundamental approaches for project controls staff and other project stakeholders to ensure better odds for success.

Presenters at the February Southern California Section meeting included, shown from left to right: Nicole Soria-Velarde, Stephanie Lightner, Section President Devang Dedhia, PSP, Jose Jimenez and Russell Jones.

The March dinner gathering of the Southern California Section was at the DPR Engineering’s office in Pasadena, CA. Steve Feng, PE, LEED A+P provided an insightful presentation on “Basic Methods of Project Controls Reporting with Power BI.” The hands-on workshop provided attendees a hands-on experience on generating reports using power BI. This presentation was a follow up to the 2018 AACE International Annual Conference & Expo presentation, SK-3015, Data Analysis and Reporting With Power BI.

The Bay Area and Southern California Sections hosted the 58th annual Western Winter Workshop from March 21st to 24th in South Lake Tahoe. This year’s Workshop included two and a half days of capital management and technical presentations showcasing the very latest in project controls tools and techniques. The workshop provided a unique opportunity to network with key decision makers for major capital project delivery organizations as well as owners, executives, managers, engineers and many other industry professionals. The workshop hosted over 50 technical presentations in project controls and PM/CM. This premier event for the region broke records with the highest attendance for the event located in the northern region. Shown above many attendees took to the ski slopes for a day with fellow members and friends.
**TORONTO SECTION**

On March 21, the Toronto Section held a networking and technical event. The highlight of the event was a presentation titled “How to Present an Estimate to your Client” by section board member Ernesto Llorens, CCP from Hatch. The presenter explained how the process to prepare for an effective presentation goes far beyond the numbers and how this tends to be overlooked sometimes. Ernesto also provided the attendees with simple and practical tips that will help design and deliver a successful presentation in general and for a project cost estimate in specific. The event was held at George Brown College Casa Loma Campus in Toronto.

**RIGHT** Speaker and Toronto Section Board Member Ernesto Llorens, CCP from HATCH, presents the technical program at the March Toronto Section meeting.

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**DOES YOUR SECTION HAVE NEWS TO SHARE?** See below for complete instructions for how to submit news and photos from your Section's happenings to be included in the AACE® International Bulletin.

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**SUBMITTING SECTION NEWS** We invite all sections to submit news and updates to be included in the International Bulletin section of each Source issue. Please submit any and all text as a part of the e-mail or as a Microsoft Word file attachment. Please submit any photos as individual attachments in JPG formats. Do not embed photos in Microsoft Word files. For photos to be used, we require either large original files or print size photos at 300 dpi (dots per inch). For photos to be published, they must be in focus, of print quality, and of sufficient resolution.

Please include the names and titles of each person shown in any photos. Please list names from left to right or refer to those shown as being above left or right. For group photos please list names from left to right, beginning with the front row and working to the back. All submissions should be e-mailed to editor@aacei.org. Please use the official name of the Section as approved by the AACE Board when the Section's charter was approved. Within 2 to 3 business days of submitting a “Section News” item, you should receive a return confirmation e-mail that your submission was received at AACE headquarters.

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Source has a submission deadline of two months in advance of the issue date.

**Submission Dates**

| By Dec. 31 | By Feb. 28 |
| By April 30 | By June 30 |
| By Aug. 31 | By Oct. 31 |

| Publication Date |
| February | April |
| June | August |
| October | December |

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Tips to help you get your foot in the door of the consulting industry:

1. Attend professional conferences to network. Take a bundle of business cards. Give everyone two cards: one to keep and one to give away.
2. Join your professional organizations.
3. Plan to meet three new people in every networking situation.
4. Contact your college roommate and ask for an introduction to an organization.
5. Submit press releases to the media regarding your major consulting engagements, awards, published articles or books, or appointments.
6. Agree to be interviewed on a podcast. Share it with potential clients.
7. Write articles for your professional journal.
8. Ask your clients for referrals.
9. Create a mailing list and an email list. They should include everyone you meet in the line of business every day.
11. Invite potential clients to a mini-presentation to get an idea of your expertise and services. Sometimes called showcases, these are often held in local hotels where food and beverages are served.
12. Host a summer picnic. Buy T-shirts for your employees, colleagues, or even clients to wear at the picnic.
13. Create a list of success stories you have had with past clients.
14. Find a reason to call special clients.
15. Every time you meet a potential client, follow up with a personal note.
16. Speak at civic and professional organizations’ meetings and conferences.
17. Collect testimonials from customers, experts, or celebrities and use them to spice up your marketing.
18. Use your email signature line to promote a new service or a published book.
19. When you are not given a project, send a thank-you note saying you appreciated being considered. Compliment them on their choice—your competition.
20. Send articles that will interest your present and potential clients.
22. Tie a client message to a holiday—for example, “We’re thankful to have you as a client” (Thanksgiving Day), “We’re lucky to have you as a client” (St. Patrick’s Day).
24. Send birthday cards for both people and companies.
25. Send “congratulations” cards for promotions.
26. Send personal, handwritten thank-you notes.
27. Pass your extra work on to a trusted colleague. It will come back to you.
28. Help your client locate other consultants who can do work you are not qualified to do.
29. Enter your projects in industry award competitions.
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BY ELAINE BIECH
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11  CMAA DINNER AVIATION ROUNDTABLE
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    Long Beach Marriott, Long Beach, CA

27  CMAA SUBSURFACE UTILITY MAPPING SEMINAR
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JULY

9  CMAA DINNER WITH INDUSTRY EXPERTS
   The LA Hotel Downtown
   333 South Figueroa Street, Los Angeles, CA

18  CMAA SB 1 FUNDING AND UPCOMING PROJECTS
    Long Beach Marriott, Long Beach, CA

24-25  BIM SUMMIT
       Singapore

24-25  8TH ANNUAL MODULAR & PREFABRICATION CONSTRUCTION
       Hotel Fort Canning, Singapore

AUGUST

15  CMAA INDUSTRY EXPERTS FROM CHILDREN’S HOSPITAL OF LA AND ORANGE COUNTY
    The LA Hotel Downtown
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SEPTEMBER

12  CMAA WHAT OWNERS WANT FROM CMS
    Marriott Riverside

19  CMAA HOSTS KEN ROSENTHAL, CSU NORTHBRIDGE
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OCTOBER

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