

UPCOMING EVENTS

**107th Annual BSCES Student Night—
Two Towers, One Structure**
April 4, 2019

2019 John R. Freeman Lecture
April 10, 2019

**TD Garden New Development
Construction Tour**
April 30, 2019

[Further Details Inside](#)



Precision Planning and Design Enabled the Replacement of the MBTA Historic Shore Line Railroad Bridge in Four Days

by Phineas N. Fowler PE, Deputy Structural Group Manager, Louis Berger and Elizabeth I. Ozathil PE, Principal Engineer, Louis Berger, and Steven Bedford, PhD, Director of Historic Preservation, Louis Berger

Replacing a historic 1898 railroad bridge was a study in accelerated bridge construction (ABC) techniques, commuter and freight rail coordination on and below the bridge with no disruption, reuse of abutments, utility coordination, and maintenance, as well as cost, budget and schedule restrictions. Louis Berger was the lead design consultant providing the Massachusetts Bay Transportation Authority (MBTA) with overall project management, including structural, civil, environmental, and cultural design, quality control/quality assurance, and construction phase services.

The MBTA Shore Line Bridge No. B-16-475 is located on the southerly side of the Readville commuter rail station in the City of Boston and carries the Fairmount and Franklin commuter lines, and CSX freight service. The historic structure spanned 140 feet over three mainline tracks that form Amtrak's Northeast Corridor, servicing high-speed Acela trains powered by a



The Shore Line Bridge constructed in 1898 was all that's left of what was had been a five-track crossing

high-voltage overhead contact system and MBTA Shore Line regional commuter rail.

This bridge was a 140-foot steel single-span, six-panel, pin-connected eyebar, Baltimore through truss. It had a width of 18 feet with a 56-degree skew. Multiple eyebars provided the load-resisting capacity. The deck was open with tracks supported

2018-19 Society Sponsors:



Louis Berger



earthsoft

AECOM

CDM Smith

on timber ties, and timber planks were used as a walkway on each side of the single track.

The historic substructure contained a gravity abutment constructed of granite masonry blocks. The east and west abutments are approximately 170 feet and 154 feet long, respectively. The backs of the abutments are

[continued on page 2](#)

President's Report

by Geoffrey B. Schwartz, PE, Sr. Project Manager, GZA



Dear Members,

Hope everyone is doing well—Opening Day is here, our Red Sox are gearing up to defend the championship, and it's finally shorts weather! Equally as exciting are the flurry of

BSCES events that we are putting on this Spring! Please check the events calendar and the twice a week email blast that we send out for the

latest information. Also, keep your eyes out for our Annual Awards Dinner invitation, currently slated for this June.

I would like to take this opportunity to let everyone know that we are looking for volunteers for several great activities and committees we are trying to champion, including the following:

- preparation of a Massachusetts State Infrastructure Report Card;

- involvement in the Western Massachusetts Committee;
- involvement in a Diversity and Inclusiveness Committee;
- willingness to become either a Mentor or a Mentee to fellow BSCES members;
- involvement in our other committees.

Please don't hesitate to reach out to me if you are interested in any of these endeavors, we could certainly use assistance!

[continued on page 8](#)

2018–19 BSCES Board of Government

President: Geoffrey B. Schwartz, PE

President-Elect: Richard D. Maher, PE

Secretary: Christopher P. Hersey

Treasurer: Gregory L. Mirless, PE

Assistant Treasurer: Anthony M. Richardson, PE

Senior Vice Presidents: Bruce L. Jacobs, PhD, PE;
Shallan C. Fitzgerald, PE

Vice Presidents: Ronald K. Burns, PE; Michael R. Cunningham, PE

Past President: Malek A. Al-Khatib, PE

Western MA Branch Vice President: Vacant

Institute Chapter & Technical Group Chairs

COPRI Boston Chapter: Bryan N. Jones, PE

Construction Institute Boston Chapter: Sean M. Homem, PE, SE

Engineering Management Group: Cody M. Gibb

EWRI Boston Chapter: Kathryn Swanson, PE

Geo-Institute Boston Chapter: Lucy C. Jen, PhD, PE

SEI Boston Chapter: Nathan L. Rosencranz, PE, SE

T&DI Boston Chapter: Cara N. Pirkey, PE

Younger Member Group: Brian P. Paula, PE

BSCES Newsletter Editorial Board

Chair: Bruce L. Jacobs, PhD, PE, bruce.jacobs@earthsoft.com

Bonnie Ashworth, bmcash@aol.com

Ronald K. Burns, PE, LSP, rburns@arcadia-tec.com

John C. Cavanaro, PE, JCavanaro@cavanaroconsulting.com

Bryon Clemence, PE, bclemence@verizon.net

Michael R. Cunningham, PE, MCunningham@kleinfelder.com

Annahid Dastgheib-Beheshti, EIT, annahidb@gmail.com

Jessica DeBellis, PE, jdbellis@geiconsultants.com

Ana Guedes, anaclaudiaeg2@gmail.com

Christopher P. Hersey, christopher.hersey@skanska.com

Sean Horan, EIT, sean.horan@gza.com

Richard F. Keenan, rkeenan@engineers.org

Angus J. O'Leary, PE, GOleary@kleinfelder.com

Geoffrey B. Schwartz, PE, Geoffrey.Schwartz@gza.com



Boston Society of Civil Engineers Section/ASCE

The Engineering Center, One Walnut Street, Boston, MA 02108

Phone: 617/227-5551, Fax: 617/227-6783

Email: bsces@engineers.org, Website: www.bsces.org

BSCES' newsletter, *BSCESNews*, is designed to provide information and opinion in regard to the subject matter covered. BSCES and its Board assume no responsibility for statements made or opinions expressed in this publication. It is published with the understanding that the Board and the authors are not engaged in rendering legal, accounting or other professional services. If assistance is required, the services of a competent professional should be sought. The Newsletter Editorial Board encourages reproduction of *BSCESNews* with appropriate acknowledgment. © 2019 BSCESNews.



Boston Society of Civil Engineers



MBTA Historic Shore Line Railroad Bridge

continued from page 1

vertical, not battered as is typically the case for historic structures. Both abutments had a constant width of approximately 10 feet over their heights except at the toe where the overall width increases to 13 feet and 11 feet for the east and west abutments, respectively. The height of both abutments was approximately 18 feet measured from existing grade to beam seat. The embedment depth at the abutment toe was approximately 6 feet and 5 feet for the east and west abutments, respectively. The height of the back wall at both abutments was approximately 3 feet. Wing walls were present at three of the abutment corners.

Shore Line Bridge History

The Shore Line Bridge was originally constructed at this location as part of a project to eliminate at-grade crossings for the lines approaching Boston from the south as mandated by legislation from 1896.

Located in the middle of the abutment, the bridge carries what was once the center track of a five-track crossing over the Shore Line. The five-track crossing was supported by six trusses, as evidenced by the lengthy abutment and described in contemporary accounts. The two trusses that comprise the bridge are the sole remnants of the original six-truss bridge. A closer examination of the structure revealed that each truss once provided support for the adjacent tracks using continuous floor beams. Evidence of this method of construction is clearly seen in the cut-off ends of each floor beam. Cut-off gusset plates below the floor beam indicate that bottom lateral bracing was shared across the bridge.

Rehabilitation Versus Replacement

Bridge replacement versus rehabilitation alternatives were governed by numerous constraints, but the guiding requirement was "No Disruption to mainline MBTA and Amtrak revenue service." This left five hours (maximum) of non-revenue time for work windows. MBTA track outage on the bridge was allowed on weekends except for late Sunday CSX freight trains.

In addition, 25,000-volt Amtrak overhead catenary wires, spanning between portals on independent foundations outside the bridge envelope, were supported on the underside of the bridge. The presence of these high-voltage catenary wires limited the means to perform repairs on the existing bridge. Furthermore, the presence of MBTA's Fairmount Line Readville



The Mommoe LR11000 Crane was shipped from Europe to handle the removal of the historic bridge.

Station outside the bridge restricted any changes to the horizontal and vertical alignment of the track on the bridge.

Historic and cost evaluations were prepared to assess rehabilitation versus replacement options. Evaluation of the existing gravity abutments showed inadequate capacity to meet current American Railway Engineering and Maintenance-of-Way Association standards. The bridge superstructure was at the end of its useful and safe life and displayed asymmetrical and excessive loading, material fatigue, and cracking/rusting in the steel. It was determined that replacing the bridge in its entirety was the cost-effective option.

Bridge Design and Planning

The designers planned for the replacement of the bridge to take place over a weekend shutdown to the Fairmount Line Readville Station and within the five-hour mainline windows leading up to the shutdown. The Sunday CSX train was rerouted to the mainline, and busing was required on Monday between Fairmount Line Readville Station and the next station.

The completed subsurface investigation program included test pits to explore the underground cables. Several cables were identified and relocated during construction. In addition, an underground storage tank (UST) was found close to the bridge abutment that could have impaired the heavy lifting operation during bridge removal and construction. The UST was abated and filled with concrete.

The most cost-effective bridge solution was to construct new abutments on drilled shaft foundation in front of the existing abutment. This would shorten the bridge span to 116 feet, reducing the superstructure lifting weight and

continued on page 3

MBTA Historic Shore Line Railroad Bridge

continued from page 2

eliminating the need to rehabilitate the existing abutments. However, the bridge's 56-degree skew remains unchanged. The design proceeded with the following construction sequence activities:

1. Construct new independent foundations to support the Amtrak new catenary poles.
2. Relocate high-voltage wires from the underside of the existing bridge to new portals outside the bridge envelope.
3. Relocate cables identified as interfering with construction.
4. Erect a safety shield system and support of excavation between the Northeast Corridor tracks and the existing abutments. After these are erected, the contractor can perform the substructure work without encroaching on railroad operation.
5. Construct proposed abutments, each with two, 6-foot diameter drilled shaft footings approximately 100 feet deep, supporting concrete walls 55 feet wide in front of each existing abutment. The new abutments were designed with the assumption that the existing abutments act as a fill with no soil retaining capacity. Also, the number and locations of the drilled shafts were selected in such a way that the contractor could perform the work from the bridge superstructure level over weekends.
6. Assemble steel superstructure in the shop, disassemble, ship to the site, and reassemble it in a staging area adjacent to the bridge. The



The new superstructure was assembled in a staging area to minimize traffic disruption.

bridge was designed as pre-fabricated bridge elements.

7. Ship precast backwalls to the site.
8. Construct precast approach slabs in the staging area.
9. Replace the existing bridge in one long weekend shutdown to the Fairmount Line.

Bridge Construction

The contractor followed all construction stages that were developed in the design phase except for the lifting method. A single-crane versus multi-crane lift was considered during the design phase and it was decided to assume multi-crane lift due to the availability of such a large size crane. The contractor decided to use a single-lift crane that was shipped from Europe in time to meet the project schedule.

On a selected Friday in November 2016, a long weekend outage was implemented for MBTA

commuter rail and the replacement progressed as follows:

- By mid-day Friday, the Fairmount Line was shut down at the bridge, and busing was provided between Readville Station and Fairmount Station.
- The contractor stripped all nonstructural elements from the existing truss and prepared the truss for pickup.
- Friday night, after the last Amtrak Acela train passed, the catenary lines were de-energized.
- The massive Mommoet LR11000 Crane lifted the existing 470,000-pound truss and relocated it to a designated area in roughly two hours.
- The catenary was re-energized, and Amtrak trains resumed on schedule.
- On Saturday, the team returned for the preparation of bearings backwalls and all incidentals.
- Overnight on Saturday, the new superstructure weighing 615,000 pounds was lifted and placed into position and completed the installation in two hours.
- The contractor extended the four-day schedule and installed the westerly precast approach slab, ballast, and track to open the bridge for service the following weekend.

The collaborative efforts of Louis Berger, MBTA, Amtrak, CSX, Keolis, and the contractor Barletta Heavy Division ensured the successful completion of this project. [Click here](#) to check out an animated view of the process.

Louis Berger

Visit www.louisberger.com to explore our Solutions for a better world.

Louis Berger's engineering experience is derived from **65 years of experience** in the planning and design of projects worldwide. Louis Berger provides engineering, architecture, program and construction management, environmental planning and science, and economic development services and has employees in more than 50 countries.

2018 Global Construction Disputes Report—Do We Learn from Our Mistakes?

by David M. Ponte, PE, Principal Project Director, Arcadis

Construction programs today are fast paced, complex and involve a multitude of parties, creating numerous points at which a dispute can occur. For the eighth consecutive year, Arcadis' Contract Solutions team facilitated a survey and compiled research to gather key themes and insights into the global construction disputes market. Finding that the industry continues to struggle with implementing proactive measures to protect their projects, the 2018 report was titled "Does the Construction Industry Learn from its Mistakes?"

The 2018 Global Construction Disputes Report revealed that both dispute values and the time taken to resolve disputes increased noticeably in 2017. The research conducted by Arcadis reiterates 2017's results and the need for better contract administration, more robust documentation, and highlighted the need for employers, contractors and subcontractors to better understand their contractual obligations.

Overall Highlights

- The global average value of construction disputes *increased \$43,400,000*
- The time taken to resolve disputes *increased by 1 month to 14.8 months*
- The *highest value* dispute handled by Arcadis in 2017 was worth *\$400 million*
- *Failure* to properly administer the contract still ranks as the *#1* cause of disputes
- Percentage of a Joint Venture that experiences a *dispute—35.7%*
- Party to party negotiation remain the *#1* method of alternative *dispute resolution*
- Over *70%* of disputes were *resolved* prior to trial proceedings

Global Results

The top three causes, globally, for disputes in 2017 were:

1. Failure to properly administer the contract
2. Poorly drafted or incomplete/unsubstantiated claims
3. Employer/Contractor/Subcontractor failing to understand and/or comply with its contractual obligation

These causes echo the same findings from 2017's report, with failure to properly administer the contract at number one, for the fifth year in a row. As the industry continues to struggle with these issues, the need for involved parties to understand the important nature of contract administration continues to be a critical factor

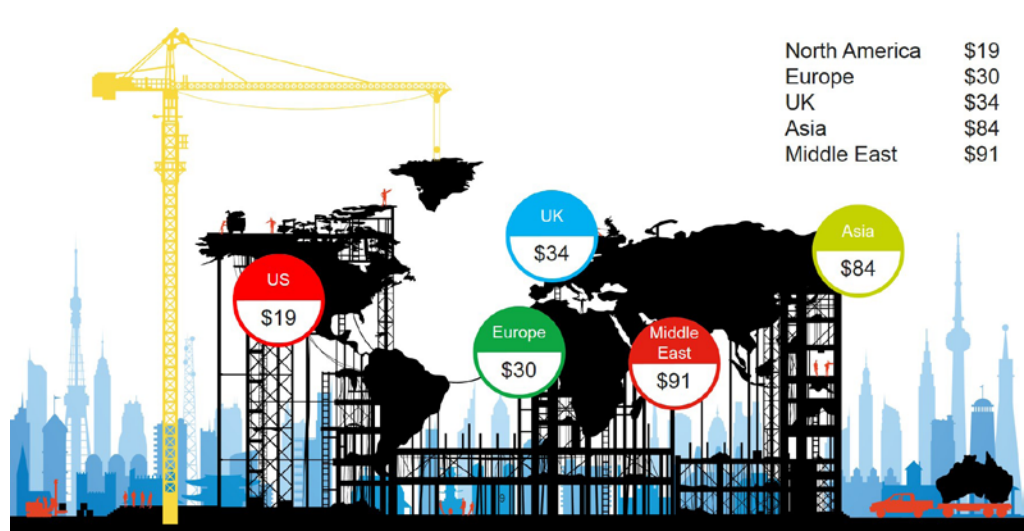


Figure 1: Average Value (US\$ millions) of Disputes by Region

in avoiding, mitigating and resolving disputes.

Three Key Factors that are Common Amongst Disputes Around-The-World

- Human factors are the main drivers in disputes
- Managing expectations is the key element in determining the successful outcome of a dispute
- *Party to party* negotiation is still the most common form of *resolving disputes*

The 2018 Global Construction Disputes Report revealed that both dispute values and the time taken to resolve disputes increased noticeably in 2017. The report research reiterated 2017's results and the need for better contract administration and more robust documentation, as well as highlighted the need for employers, contractors and subcontractors to better understand their contractual obligations.

Summary of Findings

The volume of disputes Arcadis contract solutions experts handled in 2017 remained consistent with 2016 numbers, however both the time it takes to resolve disputes and the value of these disputes increased. This demonstrated the trend of larger and more complex disputes than seen in previous years.

North American Results

The 2018 report indicated that while the average value of disputes in North America had dropped slightly for the fourth consecutive year and is well below the average value in other regions, the average time it took to resolve disputes continued to rise and is among the highest globally. In 2017, the North American Contract Solutions team predicted a decline in both the

value and duration of disputes, which begs the question and theme of the 2018 report, is the industry learning from its mistakes when it comes to disputes?

- The US team handled roughly the same number of disputes in 2017 as 2016
- The US team expected the number of disputes to stay the same or increase throughout 2018
- Average value of disputes decreased to \$19 million (\$21 million in 2016)
- Time taken to resolve disputes increased slightly to the average of 1 year and 5.7 months (1 year and 3.6 months in 2016)
- Largest claim amount was \$300M in 2017

Top Three Causes of Disputes in 2018

1. Errors and/or omissions in the Contract Document
2. Failure to properly administer the contract
3. Owner / contractor / subcontractor failing to understand and/or comply with its contractual obligation

As many cities across the nation are investing in much-needed infrastructure and larger and more complex projects materialize, project teams will need to work with claims professionals to more proactively assess, avoid and mitigate risk, as well as improve the early dispute resolution process. Additionally, addressing the human factors such as failure to understand contracts or tenuous relationships between parties will remain key to decreasing the value and amount of time spent on disputes.

continued on page 5

2018 Global Construction Disputes Report

continued from page 4

Conclusion & Insights

How can the global construction industry handle their projects in order to avoid future disputes? From years of experience in avoiding, mitigating and resolving disputes with clients, Arcadis compiled the top three effective ways to proactively avoid conflict.

1. Employ risk management techniques early in the project lifecycle

Construction projects typically have a well-defined goal. Whether it be the opening of a highway or the completion of a high-rise building, in a perfect world everything proceeds according to plan. However, it never does. Every construction project has some type of impact, which could be differing site conditions, contaminated material, third party impacts or the weather itself. How the project team plans for these potential impacts will make or break a project. With the certainty that every construction project will face impacts of some kind, it is recommended that a comprehensive risk management plan is developed at the beginning of the project. A comprehensive risk management plan requires a high level of expertise and a very thorough analysis of the project as the most successful risk management plans cover the complete lifecycle of the project. A comprehensive plan should focus on these three elements:

- **Recognizing the Risk**—You may not be able to recognize every risk on your upcoming projects but do your best to recognize the most threatening ones.

- **Assessing the Risk**—It is important to take the time on your project to assess the potential impact of the risk the project may face such as third-party issues, staging changes, potential differing site conditions, etc.

- **Planning for the Risk**—The lesson here is the more planning done ahead of time, the easier it will be to manage the risk.

2. Know the contract

The contract should not be either a hammer or a shield but a guide for all the project participants. Many project participants are only concerned with the provisions they believe affect them, if they are interested at all. This lack of understanding the big picture can lead to conflict. Fully understanding the responsibilities of everyone involved with the project clears up confusion among all parties involved.

3. Learn how to communicate with project participants

Projects, like life, involve many different parties and personalities who communicate in different ways. Some people prefer talking face-to-face or on the phone while other people prefer the written word. There is one thing for certain, every project that experienced a major dispute also experienced poor communication. You can find a plethora of resources specifically on this topic, but one effective tip is to communicate regularly and intentionally. Take the time to have discussions with project participants where you look each other in the eye and discuss your position. It may be more uncomfortable than sending an email, but in the end, it is far more effective.

KEY HIGHLIGHTS for NORTH AMERICA



The average value of construction disputes **decreased** to **\$19,000,000 USD**



Time taken to resolve disputes **increased** by more than **2** months, up to **17.7** months



Errors and/or omissions in the contract documentation were the **#1 cause** of disputes



82% of disputes settle before trial when using an **alternative dispute resolution** method



Party to party negotiation is the **#1 method** of alternative dispute resolution

Figure 2: Key Highlights for North America. Source: Arcadis

As the 2018 Global Construction Disputes survey results indicated, human factors continued to play a large role in the success of a project. Project participants need to work together with claims professionals and proactively be a part of the overall avoidance and resolution process. It's completely possible to successfully employ dispute avoidance on projects globally, but it can only happen when the team understands and accepts that there may be an issue in the first place.

**MASTER'S
DEGREES FOR
THE CAREER
YOU WANT**



MERRIMACK COLLEGE



**Civil Engineering, M.S.
Engineering Management, M.S**

- Evening classes
- Scholarships & Assistantships
- Create your own area of focus

► merrimack.edu/gradengineer

The Cranes Tell the Story

by Bruce Jacobs, PE, PhD, Bunker Hill Community College and BSCES Senior Vice President

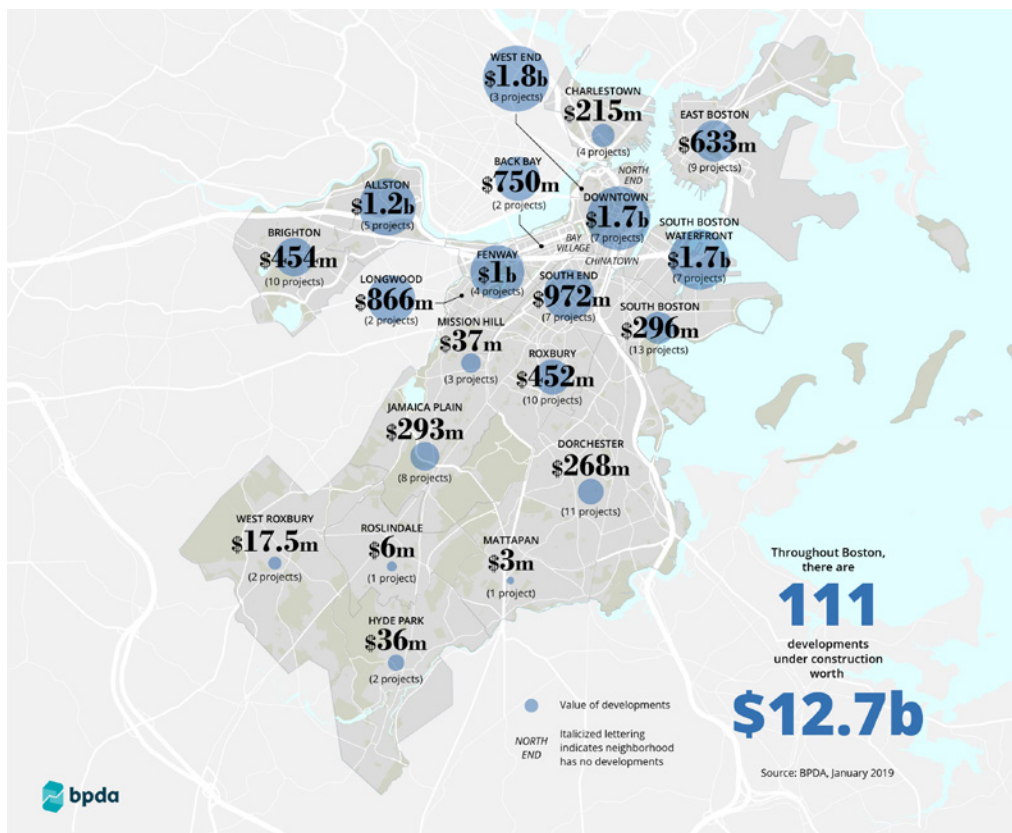
It's difficult not to notice the multitude of cranes popping up all over Boston that tell the story of construction growth in the Boston area. Dodge Data & Analytics reports \$9.2 billion in 2018 Boston area commercial building and multi-family housing construction starts. This is third in the nation behind only New York and Washington DC. This statistic does not include "institutional building projects," including educational facilities, hospitals, casinos and other projects. Each of these uncategorized categories have scored big wins in the Boston area. Note the recent appearance of cranes over Wentworth, Harvard, MIT and the Encore Casino. The 2018 Boston area building starts of \$9.2 billion represents a 72 percent increase over the 2017 construction starts, in part making up for a 27 percent decline in 2017.

The multifamily housing starts by themselves increased by 71% over 2017. This includes seven multifamily projects of \$100 million or more started in 2018. Included in these seven projects are the residential portion of Winthrop Square Tower (\$580 million), the Garden Garage Apartment Building (\$215 million), and the 159 Washington Street multifamily complex (\$188 million).

The Boston Planning & Development Agency's 2018 report on the Boston Economy reaffirms the strong state of the construction market, noting that "Construction employment is approaching levels close to the Big Dig era of the early 2000's." That's saying a lot. They reported 3.8 million construction hours in 2017 for projects passing through the Article 80 review process. That's a year-over-year increase of 19.8 percent. A Boston Planning & Development Agency (BPDA)-prepared map showing the value of projects under construction boasts of 111 developments worth \$12.7 billion as of January 2019.

Plenty More in the Pipeline

Curbed Boston highlights 18 notable Boston-area developments that are leading the way. A number of these are under construction. Others are a gleam in the eye of some developer. The locations of these developments highlight the fact that not all new construction is downtown or Seaport-related. Notable projects are included in places not typically associated with new large-



Value and location of the 111 developments approved by BPDA board under construction as of January 2019 (Map prepared by BPDA Office of Digital Cartography & GIS. Data analysis by BPDA Research Division.)

scale construction including Brighton, Somerville, Dorchester, and East Boston.

- Boston Landing in Brighton—14-acre, 1.76 million square feet, including New Balance headquarters (250,000 square feet), Bruins practice facility, 175-room hotel, and 650,000 square feet of additional office space;
- Mass + Main in Cambridge—308 apartments in Central Square;
- Fenway Center in Fenway—consisting of 650 housing units, 16,000 square feet office space, and 50,000 square feet of retail space;
- Pierce Boston in Fenway—30-story building consisting of 240 apartments and 109 condos;
- Union Square, Somerville—2.3 million square foot mixed use development (\$1 billion!) around the future Green Line stop;

- MIT Volpe Center, Kendall Square—1.7 square feet of commercial space and 1,400 housing units;
- 252 Huntington Avenue—32-story building consisting of 426 apartments and a refurbished Huntington Theatre;
- One Dalton Street, Back Bay—at 61 stories, soon to be New England's tallest residential building.

Other projects listed by Curbed Boston include Back Bay Station Towers, Cambridge Crossing, South Bay, Hub on Causeway, Bullfinch Crossing, Washington Village, Seaport Square, 399 Congress Street, Echelon Seaport, and Clippership Wharf. Take a look at the Curbed Boston article. You'll be amazed.

Streamlining and Standardizing Project Workflow Through Use of a Lean Project Dashboard

by Luciana Burdi PhD, Intl. Assoc. AIA, CCM, Deputy Director, Capital Programs and Environmental Affairs, Massport and Ryan Couto, PE, LEED AP, Assistant Vice President/Senior Technical Principal, WSP

Massport's Capital Programs and Environmental Affairs Department (CP&EA) develops and delivers Massport's Capital Program, including construction at Logan International Airport, Boston's Seaport District and maritime facilities, Hanscom Field, and Worcester Airport. Massport's Capital Program is a prioritized list of infrastructure projects selected to optimize Massport's infrastructure investments while allowing the operating departments to remain competitive in their delivery of services.

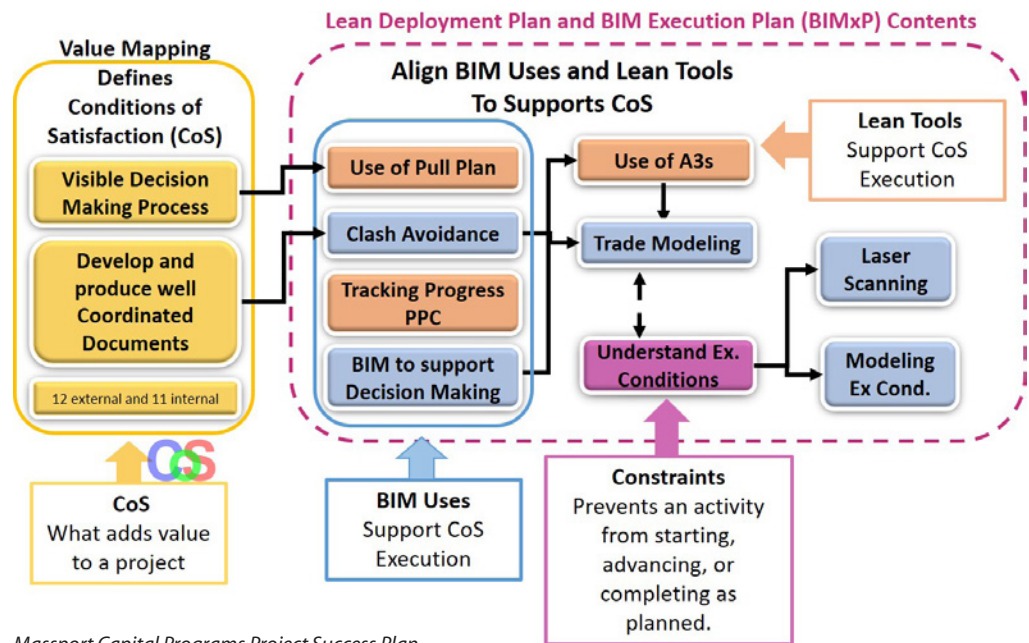
Massport CP&EA delivers a range of projects, from routine capital maintenance, to transit facilities, to complex terminal projects. Airport projects present particular challenges since they involve a myriad of external and internal stakeholders, legacy facilities, complex design and construction challenges, and operational and security constraints.

In 2013, Massport CP&EA embarked on a *Lean Implementation Strategy* to apply a Lean Construction/Building Information Modeling (BIM) combination to public sector project delivery. Lean construction, also known simply as "Lean" is an operational strategy that prioritizes flow efficiency over resource efficiency. The focus of this strategy was on the CM@Risk projects, where the design team was selected at the outset or at an early project stage. Massport selected CM@Risk projects as a starting point because they were the most complex, had the highest dollar risk, and provided a delivery method that permitted collaboration between designers and constructors.

The *Lean Implementation Strategy* focused on four initiatives: first, rolling out Lean approaches and tools to project teams on a pilot basis; second, combining Lean and BIM processes and practices; third, looking at process improvement project delivery support systems; and fourth, serving as a catalyst for other Massport departments to adopt the same approaches to their lines of business.

Project Success Plan Approach

Using a *Project Success Plan (PSP) Approach*, selected CP&EA project teams applied the Lean principles of collaborative and cross-organizational teamwork to select Lean Approaches and Tools customized to the needs of the project. The *Project Success Plan Approach* starts with establishing Conditions of Satisfaction (CoS)—the metrics by which a project will be considered a success. The project team then selects the Lean



Massport Capital Programs Project Success Plan
© Dr. Luciana Burdi, 2019

and BIM Approaches and Tools that will best deliver the project-specific Conditions of Satisfaction. The *Project Success Plan Approach* is presented graphically above.

Based on the project team's assessment of the most applicable Lean Approaches and Tools, the team develops a Lean Deployment Plan (LDP) for the project. Throughout the lifecycle of the project the project team updates the Conditions of Satisfaction and the Lean Deployment Plan as needed.

Using the Project Success Plan to Drive Lean Project Approach

Using the *Project Success Plan approach*, Massport drove its Lean transformation in three primary areas:

1. **Collaborative Work Planning**—utilizing the Last Planner System® and pull planning exercises to help its teams develop and maintain a living work plan
2. **Decision Making**—utilizing tools such as A3s and Choosing-By-Advantages at key decision points within its projects to help facilitate better informed and more timely decision making
3. **Continuous Process Improvement**—utilizing tools such as Plus | Delta and Retrospectives to instill the mindset of continuous improvement into its project teams

As Massport began to introduce these tools and processes on some of their projects, its project teams began to see how these tools and processes could best bring value to different project types and different project phases. The teams were making progress, but Massport Capital Programs was still looking for a way to bring consistency to its project delivery.

One way in which Massport Capital Programs brought consistency to its project delivery was through the development and maintenance of a *Weekly Project Dashboard*. By including weekly updates with respect to the project team's *Actions, Variances, Percent Plan Complete, Constraints, Key Decisions, and Conditions of Satisfaction*, this Dashboard would help to better align all members of the project team—from the Director of Capital Programs to each design consultant or construction contractor. Depending on the project phase, this Dashboard will differ slightly with respect to content. In the design phase, the focus will more so be on the production plan and major outstanding design decisions, while during construction, the focus will be more into buy package logs and major construction activities and sequencing.

The major elements of the Dashboard will come directly from the team's pull planning sessions,

continued on page 8

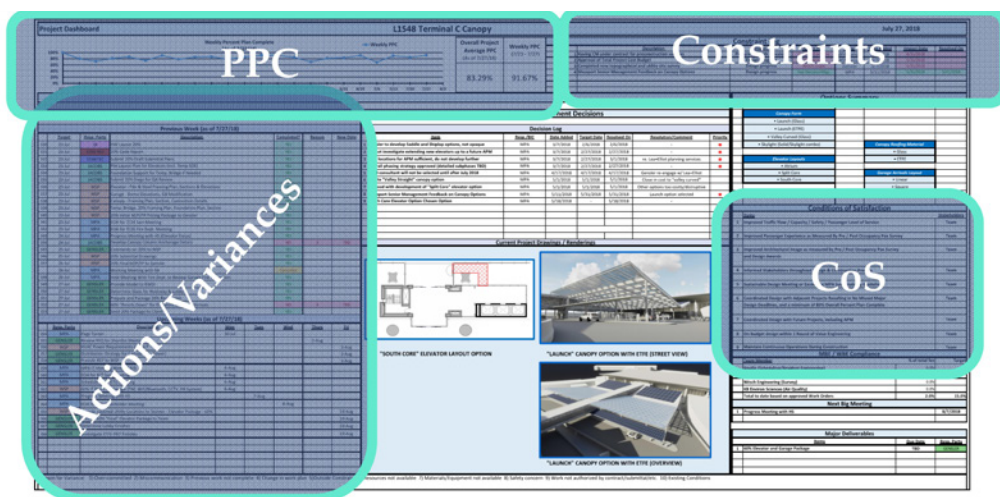
Streamlining and Standardizing Project Workflow

continued from page 7

wherein they develop the production plan, identify constraints, and map out the key project decisions. The Dashboard is a way to drive alignment across the project team following the team's weekly check-in where they review that week's activities to confirm they have been completed as planned and look-ahead to next week's activities to confirm they are on track, or make-ready those work plan items as needed. Additionally, the Weekly Project Dashboard allows for the consistency of work planning across the many Massport Capital Programs Projects, so that Directors, Project Managers, and Assistants alike are quickly able to understand the weekly project status across all of their projects.

Results

The Lean Dashboard provides senior management with a number of benefits: First, it ensures that each project team is consistently using Lean Approaches and Tools. Second, it provides senior management with a real time progress report based on key performance indicators. Third, it allows project teams to communicate project progress and challenges to senior management, so that senior management can



The weekly project dashboard provides a quick overview of the project status to all stakeholders.

take actions and make decisions that enhance project delivery.

The positive results of these Lean initiatives include: greater collaboration and communication within project teams at all levels; robust stakeholder engagement to develop common goals and expectations consistent with scope and

budget constraints; more reliable schedules and production plans; more reliable cost estimates and budget tracking; more collaborative decision making, with direct stakeholder engagement; decreased process waste by challenging teams to be efficient; and a continuous improvement atmosphere that encourages innovation.

President's Report

continued from page 1

Additionally, I want to let everyone know that our current BSCES fiscal year ends June 30, and the new year begins on July 1. There will be a nominations email sent out soon for the upcoming Board. Also, if there are thoughts or comments that anyone has, we would love to hear from you, and now is the time as we start thinking about goals for next year.

The March *BSCESNews* theme is Construction and its featured group is the Construction Institute Boston Chapter. Please read the

featured group article on page 10 by CI Boston Chapter Chair Sean Homen, PE, SE, Senior Staff II—Structures at Simpson Gumpertz & Heger Inc. and Secretary Artur Lebedev, an Assistant Construction Manager at Hines. If you are interested in submitting an article, please contact our Newsletter Committee chair, Bruce Jacobs, at sr.vp1@bsces.org.

I'd like to once again thank our Society Sponsors especially Louis Berger, which is the sponsor of this month's newsletter. I would encourage you

to read Louis Berger's page 1 article entitled, "Precision Planning and Design Enabled the Replacement of the MBTA Historic Shore Line Railroad Bridge in Four Days."

Please do not hesitate to reach out with comments, questions, and feedback, so that we may continue to serve you.

Respectfully submitted,
Geoffrey
president@bsces.org

Suggest a Seminar Topic

Is there an engineering topic that you would like BSCES to feature in an upcoming seminar? If so, members of the BSCES Program Committee would like to hear from you.

Charged with developing technical training programs that address members' professional development needs, the Program Committee oversees the Society's National Highway Institute training, spring and fall Professional Engineer Refresher Courses and other topical workshops. If you have a technical topic that you would like the Program Committee to consider, send your suggestion to BSCES Program Committee Chair Jeff Lewis at jlewis@garofaloassociates.com or BSCES Association Manager Rich Keenan at rkeen@engineers.org.

BSCES Names TWO Legislative Fellows

by Bruce Jacobs PE, PhD, Bunker Hill Community College and BSCES Senior Vice President

Typically, around this time of year BSCES announces the new Legislative Fellow for the upcoming Massachusetts Legislature. This year we have the particular high honor to name not one, but two legislative fellows for the 2019 and 2020 sessions of the Massachusetts legislature: Heather Ford and Nathan Glen Phillips. Our two new fellows join a distinguished list of prior fellows, starting with David Westerling, who served twice, followed by, Anatoly Darov, Tony Centore, Melvin Jones, Heather Ford, Michael Hurley, William Lyons, Sudhir Murthy, Michael Sullivan and most recently, Bryon Clemence. The Legislative Fellow program was established in 2001 to provide technical engineering resources on a broad range of current issues of importance to the engineering profession.

Nathan Phillips

Dr. Phillips is not a civil engineer, but he has worked professionally in areas that are highly complementary and directly related to infrastructure and the concerns and interest of BSCES. Moreover, he is currently engaged in developing a Massachusetts Science Policy Fellowship as part of a larger multi-state effort across more than ten states. He has also previously served as science fellow to the California legislature. In that position, he drafted, analyzed, and staffed bills, organized informational hearings and provided technical expertise. As stated by Dr. Phillips, he and other science fellows “stretched ourselves to go beyond our narrow areas of expertise and employ our critical thinking and analytical skills to other

areas of science and technology.”

Dr. Phillips holds both a Bachelor of Science in physics from the California State University in Sacramento and PhD from Duke University’s School of Environment. He has been a faculty member of the Boston University since the year 2000 and presently serves as a professor in the Department of Earth and Environment. His research interests include Climate Science, Physiological Ecology, Global Change Biology, Natural Gas Leaks, and Infrastructure Ecology. He is the recipient of the Green Decade Newton Environmental Leadership Award in 2014, the Massachusetts Science Hero Award from Clean Water Action in 2013, the Energy Leadership Award from the Mass Energy Consumers Alliance in 2013.

Heather Ford

Ms. Ford has the high distinction of succeeding herself since she previously served as the BSCES Legislative Fellow in the year 2005. In her application for the position, Heather expressed interests in the energy grid and alternative infrastructure, impacts of climate change on cities and waterside infrastructure, rail, mass transit, and air transportation, harbor health and commerce and the built environment. In her first stint as BSCES Legislative Fellow, she became involved in a broad array of issues including the Boston Groundwater Task Force, Boston University’s Level 4 laboratory, City Hall waste storage issues, MassDOT bridge work on aging bridges and the tail end of the Big Dig. Her effectiveness in that role she says was

enhanced by making personal connections with staff of both representatives and senators, who later sought her out for information on outstanding technical questions.

Ms. Ford has sought out opportunities to mentor young engineers through The Boston Club and Northeastern University. She is also one of the founders of an organization that produces the “Tech Up for Women” Conference that encourages women to improve their technical skills and pursue careers in technical professions.

Ms. Ford has had a long and distinctive career. She received both Bachelor of Science and Master of Science degrees from the Northeastern University Department of Civil Engineering. Her initial professional position was in the development of business plans for the startup company SBP Technologies that developed bioremediation and ultra-filtration projects. She worked as a Senior Project Manager at Tetra Tech for 14 years, did her stint for two years as the BSCES Legislative Fellow, and followed with eleven years as Vice President of Engineering and Science at Nobis Engineering. She presently serves as the Managing Director of STEM Programs for the Global Training & Events Group.

BSCES is happy to welcome Nathan and Heather as the newest Legislative Fellows in a line of fellows who have served the organization, members of the legislature, and the residents of Massachusetts.

Become a BSCESNews Contributor

Would you like to contribute to the newsletter of the oldest civil engineering society in the country? The BSCES Newsletter Editorial Board is seeking members who are willing to write articles for publication in *BSCESNews* or to join the Editorial Board.

Typically 400 to 900 words, BSCESNews featured articles are about technical topics or professional matters of interest to civil engineers. The May 2019 issue of the newsletter for example, will highlight the Younger Member Group and feature one or more articles on the theme of Outreach & Volunteerism.

Editorial Board members meet monthly via conference call to plan upcoming issues of the newsletter. They also solicit, write and/or review newsletter articles.

For more information on how you can become a BSCESNews contributor contact BSCES Newsletter Editorial Board Chair Bruce Jacobs at sr.vp1@bsces.org or BSCES Association Manager Rich Keenan at rkeenan@engineers.org or at 617/305-4110.

Featured Group

A Great Year for the Construction Institute–Boston Chapter

by Sean M. Homem PE, SE, Senior Staff II – Structures, Simpson Gumpertz & Heger Inc., and Chair, Construction Institute Boston Chapter and Artur Lebedev, Assistant Construction Manager, Hines and Secretary, Construction Institute Boston Chapter

Over the last decade, Boston and surrounding cities have seen a surge in development. The Seaport District alone has been transformed from a sparsely populated parking area to a vibrant neighborhood with a number of new restaurants, bars, shops and apartment buildings. Greater Boston area projects have consisted of numerous building types: office, residential, hotels, hospitals and lab spaces. In addition to the growth in commercial development, there are also large ongoing public infrastructure projects such as the MBTA's Green Line Extension Project, which will extend the existing Green Line to Somerville, Cambridge, and Medford.

To stay consistent with our mission, the Construction Institute (CI) Boston Chapter has continued the tradition of hosting project site tours to provide an inside look into the projects surrounding us. These site tours serve as a forum to learn about the latest state of construction technology, equipment, and techniques. Last year, the CI group organized a tour of the Longfellow Bridge. Attendees were able to learn how the project addressed the structural deficiencies of the bridge while restoring its distinctive historic architectural features. We encourage our fellow industry members to take advantage of opportunities to get a firsthand look at these groundbreaking projects changing the landscape of our area.

The Construction Institute Boston Chapter hosted a full-day summit on November 30, 2018 that attracted over 110 members, guests and exhibitors. Our intent was to build on the success of the inaugural 2016 CI Day-Summit and to develop a program that provided presentations across the multiple disciplines that the CI represents, while providing ample time for networking and vendor-attendee interaction.

The presentations included case studies of project delivery methods, legal aspects of construction, design, campus planning, and technical innovations. Luciana Burdi, Deputy Director of Capital Programs and Environmental Affairs, Massport, and Ryan Couto (WSP) opened the day with the Morning Keynote presentation on Streamlining & Standardizing Project Work Flow & Decision-Making Through the Use of a Lean Project Dashboard. Anne Gorczyca, Director of Design Build Project Management, MassDOT, with Alex Murry (Mass DOT), Gary Bua (HNTB), and Tim McLaughlin (SPS New England), delivered the afternoon Keynote Presentation on the Interstate 495 (NB & SB) over Merrimack River Project that they had collaborated on. Their presentation highlighted the successes of the Design-Build delivery method for this MassDOT project. In addition to the presentations, 15 vendors attended and provided exhibits within the seminar room for the attendees to visit during networking

times. This program has become a staple in the BSCES roster of events and we envision even more growth in attendance in 2020.

We were extremely fortunate to have the several National Construction Institute Board members in attendance at the CI Day-Summit. Two of the presentation teams will represent BSCES at the National CI Summit in Atlanta, which commences on March 7, 2019. Anne Gorczyca and her team will deliver their presentation and Paul Pardini (Skanska) and Kristopher Landry (Skanska) will deliver their presentation on Expanding the Use of Virtual Design And Construction.

We are excited for the sold-out 30th Annual Francis M. Keville Scholarship Dinner on Wednesday, April 24 at the Revere Hotel Boston Common. Steve Poftak, General Manager, Massachusetts Bay Transportation Authority, will be the keynote speaker for the evening and will be introduced by Joseph Aiello Chair, Fiscal & Management Control Board, Massachusetts Bay Transportation Authority. In addition, a scholarship will be awarded to a Northeastern University student. We hope to see you there!

If you are interested in joining the Boston Chapter of the Construction Institute or have ideas for future events or meeting topics please contact Sean Homem at smhomem@sgh.com or 781/907-9356.

The Aldrich Center—where history and technology meet on Beacon Hill...



Two blocks from the State House and overlooking Boston Common, the Aldrich Center is the perfect venue for your next event. This historic building accommodates private functions and business meetings. BSCES members receive a 20% discount off our room rental rates.

Visit www.aldrichcenter.org
for more information.

Aldrich Center
ONE WALNUT STREET
Beacon Hill Boston, MA

Recent News and Updates

2019 Bertram Berger Young Engineer Award Submission Deadline is May 10, 2019

Until Friday May 10, the Transportation & Development Institute Boston Chapter is accepting nominations for the 2019 Bertram Berger Young Engineer Award. This annual award serves to recognize an outstanding younger member of the Boston Society of Civil Engineers Section/ASCE for his or her professional achievements and service to the community. To learn more about the requirements, please see the insert at the end of the newsletter.

Ernest A. Herzog Award Submission Deadline is May 10, 2019

The Transportation & Development Institute Boston Chapter will be accepting papers for consideration for the 2019 Ernest A. Herzog Award through May 10, 2018. Submitted papers should present an infrastructure project, innovation or idea in which the author was actively involved in as an owner, advocate, engineer, or end-user. The paper must address specific benefits to current professional practices, lifestyle, and/or sustainability through the application of existing or innovative technologies or methods. Areas of application may include design, construction, operation, maintenance, management or financing of infrastructure components or systems. For more details about this award, please see the insert at the end of this month's newsletter.

Northeastern Student Selected as ASCE 2019 Collegiate New Face of Civil Engineering

The BSCES Board of Government would like to congratulate Jude Arbogast, a senior at Northeastern University, for being chosen by ASCE to be one of their 2019 Collegiate New Faces of Civil Engineering. Arbogast has been elected to numerous leadership roles, many with the school's ASCE chapter, including com-

munity service liaison, program coordinator, vice president, and ultimately president. Arbogast is driven to make an impact. Working as a project manager at Suffolk Construction through Northeastern's co-op program satisfied his yearning to make a physical impact on Boston by building schools, hospitals, affordable housing, and luxury high-rises. BSCES would like to congratulate Jude on this remarkable achievement.

New ASCE Purpose Statement Approved at February Board Meeting

Help you matter more, and enable you to make a bigger difference.

This new purpose statement was formulated by the Board of Direction during its December retreat and approved at last month's Board meeting. ASCE will be guided in all of their actions and decisions by this statement. ASCE sees it as doubling down of their commitment to providing members with support that helps them have more effective, successful careers.

ASCE 2020 President-Elect Candidate Information

The election for 2020 ASCE president-elect is set. Jean-Louis Briaud, Ph.D., P.E., D.GE, Dist.M.ASCE, and Dennis D. Truax, Ph.D., P.E., DEE, D.WRE, F.NSPE, F.ASCE, are the official nominees, as chosen by the Board of Direction Nominating Committee. [Click here](#) to read what each says they would bring to the table as president-elect, and as president in 2021. Be sure to vote in May, and encourage your colleagues who are members in good standing to vote.

Take a Survey to Support the Global Day of the Engineer

You are invited to take part in the first survey of the global engineering community, conducted by DiscoverE for its Global Day of the Engineer, April 3. The broad-based survey asks you to share the influences that led you into

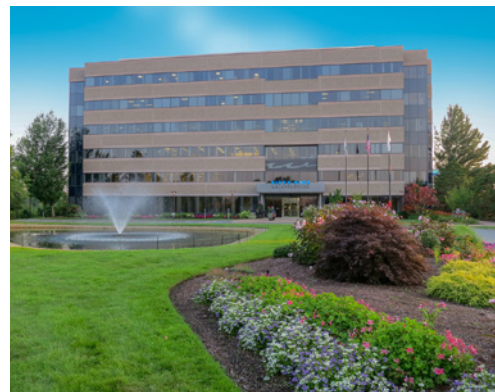
engineering. DiscoverE will reveal the results on Global Day and use them to inspire the future workforce. The survey takes only 5–10 minutes, and entrants can win a \$100 gift card just for participating. [Click here](#) to take the survey and share it with your members.

Renew Your BSCES Membership Today!

As an ASCE member you received a notice to renew your society membership. When renewing your ASCE membership, please don't forget to also renew your BSCES membership to continue to receive the numerous member benefits that BSCES has to offer and be among the leaders of your profession who make a difference. Thank you for your contribution.

Weston & Sampson Moves to New Reading Office

Weston & Sampson is pleased to announce that the firm has relocated its corporate office from Centennial Park in Peabody, MA to 55 Walkers Brook Drive in Reading, MA. This new location for the firm's headquarters provides space for 200 employees with plenty of room for growth and features modern architecture, furnishings, and amenities. Weston & Sampson employs 600 professionals located at offices in Massachusetts, Connecticut, Florida, New Hampshire, New York, South Carolina, and Vermont.



55 Walkers Brook Drive, Suite 100, Reading, MA, 01867

Upcoming Events

For more information and to register for events, please visit www.bsces.org

To register online for an event at the BSCES member rate you must login using your BSCES assigned username and password.

If you do not know your BSCES member login information, call 617/227-5551.

107th Annual BSCES Student Night: Two Towers, One Structure

Sponsored by the BSCES Younger Member Group
Student Chapter Committee, Northeastern ASCE
Student Chapter, and Simpson Gumpertz & Hager Inc.

Thursday, April 4, 2019

Northeastern University, Raytheon
Amphitheater, Boston, MA

5:30 PM Social/Registration

6:30 PM Dinner

7:30 PM Presentation

Patrick Regan, SE, Associate, WSP

This presentation will examine China's tallest steel-framed structure. The Hanking Center in Shenzhen rises 70 stories and 1,140 feet, with over 1,000,000 square feet of office space above six levels of retail. Architects at Morphosis conceived the building as two towers separated by narrow, 35-foot long sky bridges. The primary tower houses a wide-open office space with views in all four directions, while the elevators and restrooms are located in a separate service tower. The resulting challenge for engineers at WSP was to structurally link the two towers, taking advantage of their larger combined footprint to resist overturning forces, without compromising the visual separation that is so critical to the architectural form.

Please see the Insert at the end of this month's newsletter for further details.

2019 John R. Freeman Lecture: The Role of Models in the Design of the Lower Mississippi River—Research Talk and Physical Model Open House

An Environmental & Water Resources Institute
Boston Chapter Special Fund Event

Wednesday, April 10, 2019

Alden Research Laboratory, Holden, MA

6:00 PM Reception, Physical Models

7:00 PM Lecture

Dan Gessler, PhD, PE, D.WRE Vice President,
Alden Research Laboratory, Inc.

Between 1932 and 2010 the state of Louisiana has lost about 2,006 square miles of land due to a combination of subsidence, sea level rise, and management of the Mississippi River. The Barataria and Breton Basins have experienced some of the largest land loss – almost 700 square miles. The Coastal Protection and Restoration Authority (CPRA) is a single state entity with the authority to protect and restore the lands of coastal Louisiana. Their \$50 billion coastal master plan includes restoration and risk reduction projects including the design and construction of unprecedented sediment diversions for the Barataria and Breton Basins. After briefly discussing the history of the land loss, this presentation will focus on the numeric and physical modeling required to design the major diversion features. There will also be an opportunity to view the two 1:65-scale, live-bed physical models Alden is constructing to test performance and effectiveness of the diversions.

Please see the Insert at the end of this month's newsletter for further details.

TD Garden New Development Construction Tour

Sponsored by the Younger Member Group

Tuesday, April 30, 2019

TD Garden, Boston, MA

3:00 PM Tour, Followed by a Social at Tavern in
the Square North Station

Tour Leader: Chris Maher, Delaware North

Come join the Younger Member Group and get a first look at the new development of TD Garden! Hard Hats and Vests will be provided. Space is limited! RSVP as soon as possible!

Please see the Insert at the end of this month's newsletter for further details.

Save the Date!

Wednesday, June 12, 2019

**2019 Bertram Berger Seminar
Leadership in the Storm
Combating Climate Change in the Bay State**

A Transportation & Development Institute Boston
Chapter Special Fund Event

University of Massachusetts Club, Boston, MA

8:00 AM Registration

9:00 AM Panel Discussions & Social

12:00 PM Luncheon & Keynote Address

An Examination of the plans and policies in place to prepare Massachusetts for climate projections and geographical vulnerabilities, as well as resilient transportation projects that have shifted the narrative from planning to action.

Please see the Insert at the end of this newsletter and look to future BSCES emails for more information.

ASCE Webinars

ASCE WEBINARS

SUPPORT OUR SECTION

Use WEBBOSSEC to have
20% of your purchase
donated to our Section.

ASCE | CONTINUING
EDUCATION

Are you planning to take an ASCE webinar? Sign up with the code WEBBOSSEC and 20% of your registration fee will be donated to the Boston Society of Civil Engineers Section/ASCE.

For a full listing of ASCE Webinars, [click here](#).

2018–2019 BSCES Program Sponsors

Alfred Benesch & Co. | CIANBRO | Dewberry | Eastern Topographics | GEI Consultants, Inc. | Green International Affiliates, Inc.
Haley & Aldrich, Inc. | Hayward Baker, Inc. | HNTB | Helical Drilling | Horsley Witten Group | Howard Stein Hudson | Hoyle, Tanner & Associates
Jacobs | Kleinfelder | McMillen Jacobs Associates | Nitsch Engineering | Department of Civil and Environmental Engineering, Northeastern University
Patrick Engineering Inc. | Perry Associates | PMA Consultants | Skanska | Stantec | Subsurface Constructors, Inc. | Tighe & Bond | TranSystems
Tufts University | VHB | Wentworth Institute of Technology B.S. and M. Eng. in Civil Engineering Programs | Weston & Sampson | WSP



TRANSPORTATION
& DEVELOPMENT
INSTITUTE
Boston Chapter

2019 Bertram Berger Young Engineer Award Nomination Form

The Transportation & Development Institute Boston Chapter is now accepting nominations for the **2019 Bertram Berger Young Engineer Award**. The annual Bertram Berger Young Engineer Award serves to recognize an outstanding younger member of the Boston Society of Civil Engineers for his or her professional achievements and service to the community.

The successful candidate should (1) be less than 35 years old on June 1, 2019, (2) have attained exemplary professional achievements as a young engineer, (3) demonstrate leadership in the practice of civil engineering with emphasis on transportation, (4) enhance the stature of civil engineers within the community, (5) be active with professional organizations such as BSCES or similar, and (6) be a registered, or soon-to-be registered, professional engineer.

In addition to recognition within the engineering community, the Award winner will receive a **\$2,500 stipend** to be used for continuing education and/or professional development. The award winner will be notified by the end of May 2019 and will be presented with the award at the upcoming annual BSCES Bertram Berger Seminar and Lunch on June 12, 2019.

To nominate an individual for the 2019 Bertram Berger Young Engineer Award, please fill out the attached form or provide up to a two (2) page narrative statement describing how the nominee meets the above described criteria. Nominations will be accepted until 5:00 p.m. on **Friday, May 10, 2019** and should be submitted via mail or e-mail to:

Bryan Zimolka, P.E., Nitsch Engineering, 2 Center Plaza, Suite 430, Boston, MA 02108
e-mail: bzimolka@nitscheng.com, phone: (857) 206-8706.



TRANSPORTATION
& DEVELOPMENT
INSTITUTE
Boston Chapter

Nomination Form

Name: _____

Age of Nominee as of June 1, 2019: _____ Years of Full-Time Experience in Field: _____

Is the nominee a registered Professional Engineer? (circle one)

1. Yes, registered P.E.
2. Took exam and is waiting for results
3. Eligible for P.E. within a year
4. No, but has passed E.I.T.
5. No, and has not passed the E.I.T.

Please list all professional organizations and length of membership (in years):

Committees served on and length of time served (in years):

Please describe how the nominee has attained exemplary professional achievements as a young engineer:

Please describe how the nominee has demonstrated leadership in the practice of civil engineering (with emphasis on transportation):

Please describe how the nominee has enhanced the stature of civil engineers within the community:

BACKGROUND

Ernest A. Herzog was a nationally recognized civil engineer. During his career, he served a term as president of the Boston Society of Civil Engineers Section and was also a fellow of the American Society of Civil Engineers (1987).

Mr. Herzog began his career with Spencer, White and Prentiss at the atomic energy facility in Oak Ridge, Tennessee. After World War II, he transferred to a Boston-based firm named Chas. T. Main Inc. Eventually, Mr. Herzog joined the firm of Alonzo B. Reed Inc. where he progressed into the highest role of president and remained in that role for 20 years thereafter.

While in the transportation field, Mr. Herzog was actively involved in the design and construction of the monorail used at the 1962 Seattle World's Fair. This monorail, which is still in use today, has served as the prototype for several other monorail systems including those at Disney Land in Anaheim, California, Disney World in Orlando, Florida, and one in Tokyo, Japan. In fact, Mr. Herzog was a strong and persistent advocate of a monorail system to serve Boston's south shore communities to relieve the traffic congestion on the Southeast Expressway.

In 1973, Mr. Herzog co-founded Herzog-Hart, a full-service engineering firm that specializes in the design and construction of research and production facilities for the pharmaceutical and process industries.

Mr. Herzog was well known for his generous support of and encouragement to young college students and young professionals just at the onset of their careers. He lectured at Tufts University, Dartmouth College, University of Massachusetts, and Northeastern University. He also wrote and published numerous papers, particularly concerning the effects of transportation systems on society.

In memory of Mr. Herzog's commendable career achievements, the Ernest A. Herzog Award was established to promote an awareness of and to recognize innovative improvements to infrastructure. This award is given annually to the author(s) whose submitted paper is chosen to best recognize innovation and awareness of infrastructure.

PAPER GUIDELINES

Submitted papers shall present an infrastructure project, innovation, or idea in which the author was actively involved in as an owner, advocate, engineer, or end-user. The paper must be well written and address specific benefits to current professional practices, lifestyle, and/or sustainability through the application of existing or innovative technologies or methods. Areas of application may include design, construction, operation, maintenance, management or financing of infrastructure components or systems.

RULES

- A.** The paper should be original and not be less than 2,000 words and not more than 6,000 words. The paper should clearly describe the project, innovation, or idea and highlight benefits to the current engineering and construction practices. Graphic material including photographs should

be included to highlight specific areas of the project. The paper may have been previously published in a journal.

- B.** Three copies of the papers shall be submitted to:
BSCES/ASCE
The Engineering Center
One Walnut Street
Boston, Massachusetts 02108-3616
Attn: Boston Chapter TD&I
Herzog Award Committee

An electronic copy should also be sent to bsces@engineers.org.

Deadline for submittal: May 10, 2019.

REVIEWERS

The BSCES Herzog Award Competition Subcommittee.

EVALUATION CRITERIA

Topics for the papers shall be related to one or more of the 17 infrastructure systems defined in ASCE's infrastructure report card (see <http://www.infrastructurereportcard.org/>). Papers are evaluated by the reviewers on the basis of the following criteria:

- A.** Technical writing; organization, graphics, grammar, and technical accuracy (30%)
- B.** Benefits to the current design, construction, operation, maintenance, or financing practices of infrastructure (20%)
- C.** Innovation; uniqueness of concepts (10%),
- D.** Benefits to lifestyle of the general public or other end-users (20%)
- E.** Sustainability, life-cycle cost benefits, or cost effectiveness (20%)

AWARD

The recipient will receive a \$500 award, which will be presented at the BSCES Outreach Awards Dinner on May 30, 2019 in Waltham.



Boston Society of Civil Engineers Section
American Society of Civil Engineers



2018-2019
Society Sponsors

AECOM
CDM Smith
EarthSoft
GZA
Louis Berger

2018-2019
Program Sponsors

Alfred Benesch & Co.
CIANBRO
Dewberry
Eastern Topographics
GEI Consultants, Inc.
Green International
Affiliates, Inc.
Haley & Aldrich, Inc.
Hayward Baker, Inc.
Helical Drilling
HNTB
Horsley Witten Group
Howard Stein Hudson
Hoyle, Tanner &
Associates
Jacobs
Kleinfelder
McMillen Jacobs
Associates
Nitsch Engineering
Department of Civil
and Environmental
Engineering,
Northeastern
University
Patrick Engineering
Inc.

Perry Associates
PMA Consultants
Skanska
Stantec
Subsurface
Constructors
Tighe & Bond
TransSystems
Tufts University
VHB

Wentworth Institute
of Technology B.S. and
M. Eng. in Civil
Engineering Programs
Weston & Sampson
WSP

107th Annual BSCES Student Night Two Towers, One Structure

Patrick Ragan, S.E.
Associate, WSP

Thursday, April 4, 2019

Northeastern University

Raytheon Amphitheater, 120 Forsyth St, Boston, MA 02115

5:30 PM Social/Registration; 6:30 PM Dinner; 7:30 PM Presentation



The Hanking Center in Shenzhen is China's tallest steel-framed structure, rising 70 stories and 1140 feet, with over 1,000,000 square feet of office space above six levels of retail. Architects at Morphosis conceived the building as two towers separated by narrow, 35-foot long sky bridges. The primary tower houses a wide-open office space with views in all four directions, while the elevators and restrooms are located in a separate service tower. The resulting challenge for engineers at WSP was to structurally link the two towers, taking advantage of their larger combined footprint to resist overturning forces, without compromising the visual separation that is so critical to the architectural form.

Registration Deadline: Sunday, March 31, 2019

\$12 Student Members; \$12 Senior Members (65+)

\$28 BSCES Members & Public Sector Non-Members

\$25 Public Sector Members; \$35 Non-Members

Information/Registration:

Register to attend this meeting and pay by credit card online at bit.ly/2019StudentNight. To register online for an event at the BSCES member rate you must login using your BSCES assigned username and password. If you do not know your BSCES member login information call 617/227-5551. You can also register for this event by mail or email. To do so, download and complete a [BSCES Event Registration Form](#) and follow the submission instructions. Cancellations received after March 31, 2019 and no-shows will be billed.



Supported by the staff of The Engineering Center Education Trust



Boston Society of Civil Engineers Section
American Society of Civil Engineers



YOUNGER MEMBER GROUP

2018-2019
Society Sponsors
AECOM
CDM Smith
EarthSoft
GZA
Louis Berger

2018-2019
Program Sponsors
Alfred Benesch & Co.
CIANBRO
Dewberry
Eastern Topographics
GEI Consultants, Inc.
Green International
Affiliates, Inc.
Haley & Aldrich, Inc.
Hayward Baker, Inc.
Helical Drilling
HNTB

Horsley Witten Group
Howard Stein Hudson
Hoyle, Tanner &
Associates
Jacobs
Kleinfelder
McMillen Jacobs
Associates
Nitsch Engineering
Department of Civil
and Environmental
Engineering,
Northeastern
University
Patrick Engineering
Inc.

Perry Associates
PMA Consultants
Skanska
Stantec
Subsurface
Constructors
Tighe & Bond
TranSystems
Tufts University
VHB

Wentworth Institute
of Technology B.S. and
M. Eng. in Civil
Engineering Programs
Weston & Sampson
WSP

107th Annual BSCES Student Night

Thursday, April 4th, 2019

Raytheon Amphitheater, 120 Forsyth St, Boston, MA 02115

5:30 PM – 9:00 PM

Raytheon Amphitheater is located in Egan Research Center (marked in red), off Forsyth St. Northeastern is accessible via the Green and Orange MBTA lines. Along the Green line, alight at the Northeastern stop (the first above ground stop if traveling from downtown Boston, marked in green) and walk along Forsyth St past the law school to Egan Research Center on your left. If taking the Orange line, alight at Ruggles Station (marked in orange), turn left as you exit the turnstiles, exit the station, and Egan Research Center will be immediately to your right. Commuter rail trains connect to the Orange line at Back Bay and North Stations. It is recommended to take public transportation to Northeastern, but parking is available as well at Renaissance Parking Garage at 835 Columbus Ave (marked in blue). From the garage, walk through Ruggles Station to Forsyth St, and Egan will be on your right as you exit the station.



**Sponsored by the BSCES Student Affairs Committee,
Northeastern ASCE Student Chapter, and
Simpson Gumpertz & Heger Inc.**



Northeastern

SIMPSON GUMPERTZ & HEGER

Engineering of Structures
and Building Enclosures

The Role of Models in the Design of the Lower Mississippi River Sediment Diversions

Research Talk and Physical Model Open House

Wednesday, April 10, 2019

Alden Research Laboratory, Inc.

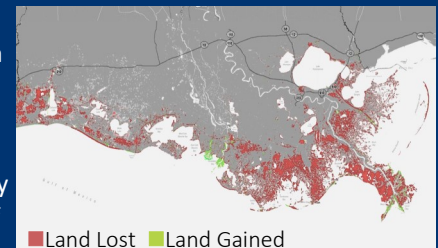
30 Shrewsbury Street, Holden, MA 01520 [Map It](#)

6:00 p.m. Reception, Light Dinner, Physical Models; **7:00 p.m.** Lecture

Presented by Dan Gessler, PhD, PE, D.WRE

**Vice President, Alden Research Laboratory,
Inc.**

Between 1932 and 2010 the state of Louisiana has lost about 2006 square miles of land due to a combination of subsidence, sea level rise, and management of the Mississippi River. Computer models predict a further loss of 1800 to 4200 square miles in the next 50 years, amounting to 55% of the land in Plaquemines Parish and resulting in \$300 million in annual economic damage. Following hurricanes Katrina and Rita, the Coastal Protection and Restoration Authority (CPRA) was formed as a single state entity with the authority to protect and restore the lands of coastal Louisiana.



The \$50 billion coastal master plan includes restoration and risk reduction projects. The restoration projects include barrier island restoration, hydrologic restoration, marsh creation, ridge restoration, sediment diversion, and shoreline protection. The Barataria and Breton Basins have experienced some of the largest land loss—almost 700 square miles. Two sediment diversions are being designed, one for each basin. The sediment diversions connect the Mississippi River to the basins, allowing for the controlled diversion of up to 75,000 cfs of water and sediment to the Barataria basin and 30,000 cfs to the Breton basin.

The design and construction of sediment diversions on the scale proposed for Barataria and Breton is unprecedented. After briefly discussing the history of the land loss, the presentation will focus on the numeric and physical modeling required to design the major diversion features, including the inlet, conveyance, and outlet structures. ***Alden is constructing two 1:65-scale, live-bed physical models to test performance and effectiveness of the diversions. The models are currently under construction and the lecture will include the opportunity to see the completed models.***



Dan Gessler, Vice President, Alden Research Laboratory, has been with the company for over 17 years. As a registered professional engineer, he leads the hydraulic modeling practice and provides technical leadership in numeric and physical modeling—he's particularly interested in modeling efforts that combine the two. Prior to joining Alden, Dan worked as a research scientist at Colorado State University where he also earned his PhD.

This FREE event is funded by the BSCES John R. Freeman Fund as outreach to students and young professionals interested in careers in water resources engineering. All are welcome. **Register online** or at the door. Carpooling is encouraged. Alternately, for those traveling from the Boston area, the MBTA Commuter Rail 4:20 p.m. train from South Station arrives at Union Station in Worcester at 5:45 p.m. Transportation will be provided from Union Station to Alden, and carpooling will be coordinated to ensure a safe return to the Boston area.

2018-2019 Society Sponsors: AECOM | CDM Smith | EarthSoft | GZA | Louis Berger

2018-2019 Program Sponsors: Alfred Benesch & Co. | CIANBRO | Dewberry | Eastern Topographics | GEI Consultants, Inc.

Green International Affiliates, Inc. | Haley & Aldrich, Inc. | Hayward Baker, Inc. | Helical Drilling | HNTB | Horsley Witten Group | Howard Stein Hudson
Hoyle, Tanner & Associates, Inc. | Jacobs | Kleinfelder McMillen Jacobs Associates | Nitsch Engineering | Department of Civil and Environmental
Engineering, Northeastern University | Patrick Engineering | Perry Associates | PMA Consultants, LLC | Skanska | Stantec | Subsurface Constructors, Inc.
Tighe & Bond, Inc. | TranSystems Corporation | Tufts University | VHB | Wentworth Institute of Technology B.S. and M. Eng. in Civil Engineering Programs
Weston & Sampson Engineers, Inc | WSP



Please join us!
**TD Garden New Development
Construction Tour @ TD Garden
100 Legends Way, Boston
Tuesday, April 30, 2019**

April 30, 2019

3:00 pm Tour

**Followed by Social @ Tavern in
the Square North Station**

***Come join YMGB and get a first look
at the new development of TD
Garden! The tour will be lead by
Chris Maher from the
development company Delaware
North.***

***Hard Hats and Vests will be Provided.
Space is limited! RSVP as soon as possible!***

Location:

**100 Legends Way
Boston, MA 02114
(At the East End of the
North Station Concourse)**

Cost:

Students: \$10

Members: \$15

Non-Members: \$20

Registration Deadline:

April 26, 2019

**For more information,
please email:**

YMGB@BSCES.ORG

Register to attend this event and pay by credit card online [here](#). To register online for an event at the BSCES member rate you must login using your BSCES assigned username and password. If you do not know your BSCES member login information call 617/227-5551. You can also register for this event by mail or email. To do so, download and complete a [BSCES Event Registration Form](#) and follow the submission instructions. Cancellations received after Friday, April 26, 2019 and no-shows will be billed.

2018-2019 Society Sponsors: AECOM | CDM Smith | EarthSoft | GZA | Louis Berger

2018-2019 Program Sponsors: Alfred Benesch & Co. | CIANBRO | Dewberry | Eastern Topographics | GEI Consultants, Inc. | Green International Affiliates, Inc. | Haley & Aldrich, Inc. | Hayward Baker, Inc. | Helical Drilling HNTB | Horsley Witten Group | Howard Stein Hudson | Hoyle, Tanner & Associates, Inc. | Jacobs | Kleinfelder | McMillen Jacobs Associates | Nitsch Engineering | Department of Civil and Environmental Engineering, Northeastern University | Patrick Engineering | Perry Associates | PMA Consultants, LLC | Skanska Stantec | Subsurface Constructors, Inc. | Tighe & Bond, Inc. | TranSystems Corporation | Tufts University | VHB | Wentworth Institute of Technology B.S. and M. Eng. in Civil Engineering Programs | Weston & Sampson Engineers, Inc | WSP



Boston Society of Civil Engineers Section
American Society of Civil Engineers



**TRANSPORTATION
& DEVELOPMENT
INSTITUTE**
Boston Chapter

2018-2019
Society Sponsors

AECOM
CDM Smith
EarthSoft
GZA
Louis Berger

2018-2019
Program Sponsors

Alfred Benesch & Co.
CIANBRO
Dewberry
Eastern Topographics
GEI Consultants, Inc.
Green International
Affiliates, Inc.
Haley & Aldrich, Inc.
Hayward Baker, Inc.
Helical Drilling
HNTB
Horsley Witten Group
Howard Stein Hudson
Hoyle, Tanner & Associates
Jacobs
Kleinfelder
McMillen Jacobs
Associates
Nitsch Engineering
Department of Civil
and Environmental
Engineering, Northeastern
University
Patrick Engineering Inc.
Perry Associates
PMA Consultants
Skanska
Stantec
Subsurface Constructors
Tighe & Bond
TranSystems
Tufts University
VHB
Wentworth Institute of
Technology B.S. and
M. Eng. in Civil Engineering
Programs
Weston & Sampson
WSP

Save the Date!

2019 Bertram Berger Seminar

Leadership in the Storm

Combating Climate Change in the Bay State

June 12, 2019

University of Massachusetts Club, 32nd Floor, 1 Beacon St, Boston, MA 02108

8:00am Registration

9:00am Panel Discussions & Social

12:00pm Luncheon, Bertram Berger Tribute, Keynote Address, and Awards

The Bertram Berger Seminar is an annual event focusing on transportation issues as well as state and city-wide projects. This year's seminar, "Leadership in the Storm: Combating Climate Change in the Bay State" revolves around the plans and policies in place to prepare Massachusetts for climate projections and geographical vulnerabilities, as well as resilient transportation projects that have shifted the narrative from planning to action.

Confirmed speakers:

Jeffrey Parenti, Deputy Chief Engineer, DCR
Erik Stoothoff, Chief Engineer, MBTA
Richard A. Dimino, President & CEO, A Better City
Peter Debruin, Climate Mitigation & Resiliency Manager, Massport
Jill Valdes Horwood, Director of Waterfront Policy, Boston Harbor Now

See future BSCES emails for registration information!