BSCES NEWS

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VOL. 39 | NO. 3 | NOVEMBER 2014 SEI Institute Boston Chapter/Structures

SHRP2 Solutions—Rhode Island Warren Avenue Bridge Over I-195 Showcase

by Aboud Alzaim, PE, Senior Vice President, Louis Berger, (Project Manager), Phineas Fowler, PE, Structural Task Lead, Louis Berger, John Fitzgerald, PE, Senior Structural Engineer, Louis Berger, and Daniel O'Keefe, PE, Structural Engineer, Louis Berger

On October 30, the Federal Highway Administration (FHWA), American Association of State Highway and Transportation (AASHTO), and Rhode Island Department of Transportation (RIDOT), hosted a showcase highlighting the bridge replacement of the I-195 Westbound on Ramp (DR-2) over Warren Avenue in East Providence, Rhode Island. The showcase was done as part of the second Strategic Highway Research Program (SHRP2). SHRP2 has undertaken more than 100 research projects and is promoting innovative solutions that improve aging infrastructure, provide faster project delivery, and improve safety by limiting the duration of worker and public exposure to dangerous construction zones.

The showcase of RIDOT's first complete bridge replacement included a presentation by RIDOT, Louis Berger (the engineer of record), and Aetna Bridge Company (the contractor), and was followed by a site visit. The presentation focused

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Implementing Agency: Rhode Island Department of Transportation (RIDOT)

Design Consultant: Louis Berger

Contractor: Aetna Bridge Company

Project Name: Accelerated Bridge Construction (ABC) of Bridge No. 465 Replacement, I-195 Ramp (DR-2) over Warren Avenue

Project team during SHRP2 presentation, left to right: Jeffrey Bostock (Aetna), Chip Mainelli (Aetna), Phineas Fowler (Louis Berger), Aboud Alzaim (Louis Berger), John Fitzgerald (Louis Berger), David Fish (RIDOT), Jessica Rodas (RIDOT), Anthony Pompeii (RIDOT), Rahmat Noorparvar (RIDOT), Daniel O'Keefe (Louis Berger)

President's Report

by Ali Touran, PhD, PE, Professor, Department of Civil and Environmental Engineering, Northeastern University

The theme for this issue of *BSCESNews* is *Structures*. The featured group, the ASCE Structural Engineering Institute (SEI) Boston Chapter is one of BSCES' most active groups, the same way that the SEI is one of the most vibrant institutes of ASCE. In fact, many of us who went to school some time ago thought of civil engineering as structural engineering, or something close to it! Some of the intriguing questions facing structural engineers today include what will the structural engineering profession be like in the future and what are the qualifications a structural engineer should possess? SEI released a report titled "A Vision for the Future of Structural Engineering and Structural Engineers: A Case for Change" that tries to answer several such questions, identifies challenges ahead and proposes a road map for achieving the profession's full potential. The report is available on ASCE's website and makes for thoughtful and interesting reading. Look for several articles in the area of structural engineering in this issue of *BSCESNews*.

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UPCOMING EVENTS

Western Massachusetts Branch Event
November 20, 2014

ASCE and BSCES Sponsored Seminar
November 20-21, 2014

BSCES and MALSCE Sponsored Seminar
November 21, 2014

Southeastern MA Committee and Geo-Institute Boston Chapter Event
December 3, 2014

ASCE and BSCES Sponsored Seminar
December 11–12, 2014

15th Arthur Casagrande Memorial Lecture
December 16, 2014

Younger Member Group Holiday Party
December 17, 2014

2014 Karl R. Kennison Lecture
January 8, 2015

BSCES Program Committee Sponsored NHI Training
January 13–15, 2015

BSCES Program Committee Sponsored NHI Training
January 27–30, 2015

Engineering Management Group Event
January 29, 2015

ASCE and BSCES Sponsored Seminar
February 19–20, 2015

BSCES Program Committee Sponsored NHI Training
February 23–March 6, 2015

Further Details Inside

2014–15 Corporate Sponsors:

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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
Executive Director: Anthony M. Puntin, PE

SHRP2 Solutions

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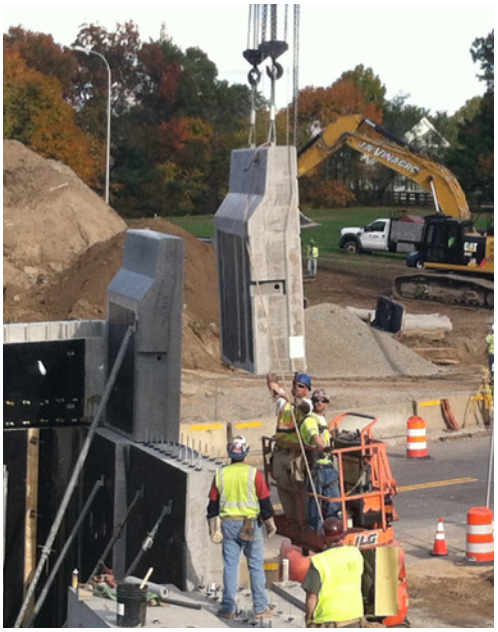
on the project scope, Accelerated Bridge Construction (ABC) techniques, project planning and ABC design and construction. After the presentation, a short animation video produced by Louis Berger was shown, which narrated the entire construction duration. The video is available on YouTube.

During the site visit, participants from many DOTs were able to see the placement of the last precast concrete wingwall elements. At the time, both substructures were near completion and since they were not backfilled, all components and details were visible. In addition, the prefabricated superstructure modular units had been constructed adjacent to the site and viewed by the participants.

The existing structure, constructed in 1959, was a three-span, simply supported bridge, with an overall length of approximately 123 feet that carried the I-195 Westbound On-Ramp (DR-2) over Warren Avenue in East Providence, Rhode Island. The existing roadway width was 23 feet curb to curb and carried one lane of traffic. The existing superstructure consisted of prestressed beams for the center span and reinforced concrete beams for the south and north end spans. The existing substructures consisted of reinforced concrete piers and abutments supported on piles. The existing piers were shored with timber cribbing due to their advanced stage of deterioration. This structure was posted for 10 tons.

During the design process, Louis Berger followed FHWA's Framework for Decision-Making for prefabrication construction, and recommended that ABC systems should be used for the project. A single-span, steel multi-beam superstructure spanning 84 feet was selected to replace the existing three-span structure. The entire existing substructure was replaced with new prefabricated abutments and wingwalls on



South Abutment, Placing Wingwall Precast Concrete Element (PCE), 10/30/2014

prefabricated spread footings. An entire substructure replacement was selected because the existing abutments were not adequate to carry the required design loads. The new single span design allowed for easier implementation of ABC techniques.

The narrow existing roadway width and girder layout eliminated the option of staged construction. Therefore, the bridge replacement required the complete shutdown of the I-195 on-ramp (DR-2). Detour routes were identified to provide travelers connection to I-195 westbound while the ramp was closed, as well as eastbound/westbound access for two weekends of closure on Warren Avenue.

The proposed bridge design implemented a variety of ABC techniques, which in their totality were new to RIDOT, such as Precast Concrete Elements (PCEs), Prefabricated Superstructure Modular Units (SMUs), the use of crushed stone for foundation support and

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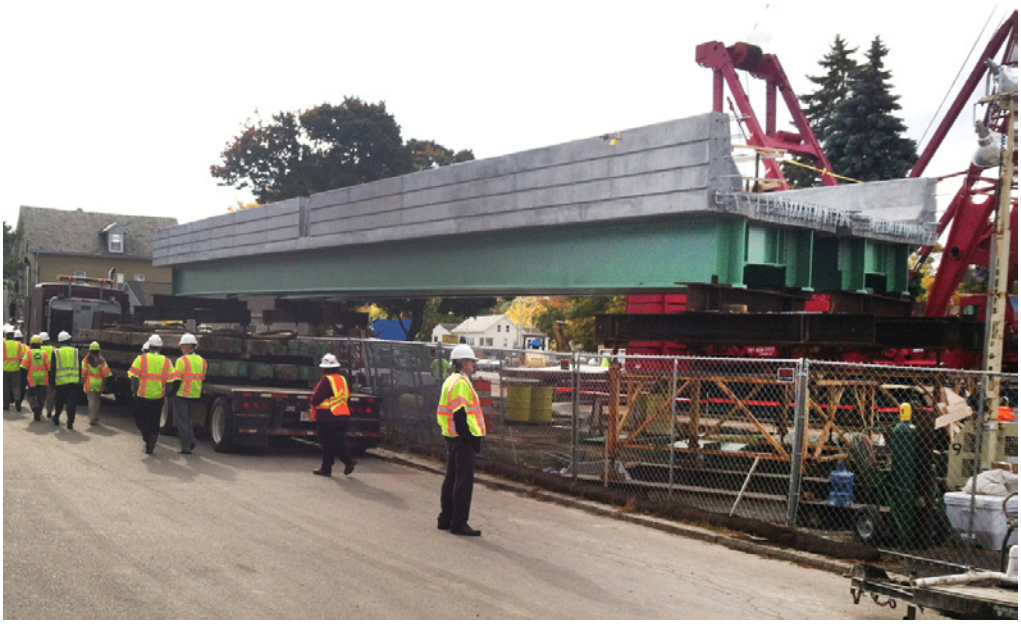
backfill, and Systems and Structure Erection Techniques. The combination of these techniques resulted in a significant reduction in bridge closure time and reduced impact to traffic and the public.

The two prefabricated SMU's consisted of a reinforced concrete deck with two rolled steel beams. They also include safety barriers, which were cast onto the modular units before each unit was lifted in place. Once both SMU's were in place, they were connected by a 2-foot-4-inch closure pour.

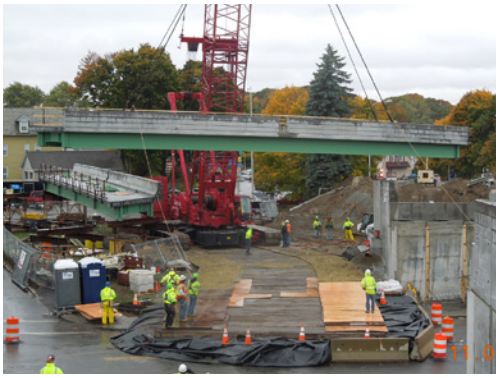
The geotechnical ABC techniques included the use of reinforced crushed stone to support the foundation and approaches. The reinforced crushed stone provided a much needed improved bearing capacity, thus eliminating the need for pile supported foundation. The reinforcement consists of structural geogrid that is placed at every one-foot of compacted crushed stone depth. Additionally, the use of crushed stone backfill eliminated the constraints of the typical gravel borrow fill and requires less compaction time. A significant amount of rain fell on the site during the first week and the use of crushed stone backfill prevented any delays. The new bridge abutments and wingwalls consist of precast stems and footings which are founded on the reinforced crushed stone.

Louis Berger designed and detailed this bridge to be constructed in 30 days or less, with two weekend closures of Warren Avenue traffic in the impacted area near the bridge. The contractor's 30 day window counted from the demolition of the existing structure to the reopening of Ramp DR-2. The first weekend closure marked the beginning of the 30 day period and was used for the demolition of the existing structure. This first weekend closure occurred successfully on October 18th through October 19th. The contractor then had two weeks to complete the excavation and construction of the new substructure. The second weekend closure was scheduled to occur halfway through the 30 day period which was used to place the SMU's. This event successfully occurred on October 31th through November 2nd, and was highlighted by being accomplished in only three hours to place the SMU's. The contractor has the remaining time in the 30 days to reopen Ramp DR-2.

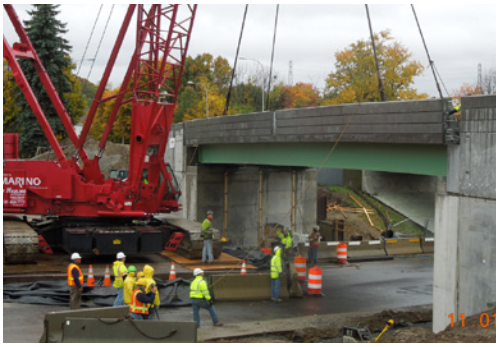
There were significant time savings as a result of using ABC techniques over conventional construction methods. RIDOT completed a similar-sized bridge (#464) adjacent to this bridge using conventional construction for superstructure replacement and substructure modification only. The closure of Bridge 464 (from demolition to traffic opening) was 10 months. It is estimated that the full superstructure and substructure replacement of Bridge 465 using conventional construction would have taken approximately 12 months. The anticipated Contractor's revised schedule for completing this bridge (from demolition to traffic opening) is expected to be 21 days triggering a contract provision allowing the contractor to collect incentives.



Prefabricated Superstructure Modular Units (SMUs), 10/30/2014



Crawler Crane Walking with SMU-1, approx. 10:30 am 11/1/2014



Completed Placement of SMU-2, approx. 1:00 pm 11/1/2014

The estimated cost increase from applying ABC techniques is approximately 20% to 25% when compared to conventional construction techniques.

Road user costs were considered in looking at the benefits of ABC techniques, as well as to establish the incentive/disincentive associated with the contract milestones. The incentive/disincentive used were quantified using guidance from the U.S. Department of Transportation (USDOT) "Revised Departmental Guidance on Valuation of Travel Time in Economic Analysis" dated September 28, 2011.

Public reaction and interest regarding the project has been positive. Throughout the design process, Louis Berger and RIDOT met with the city engineer planner to gain their approval and support, held many meetings with the city's police department to ensure that they understood the project scope, and presented the project to the City Council and to the public. The project team's approach was to explain ABC construction techniques as "Lego pieces", which best explained the concept and value of the techniques to the community. Louis Berger's 3-D model video was also presented to the public to further assist in visualizing the project components. The public subsequently approved the ABC construction approach and supported the structure replacement.

Longfellow Bridge Being Upgraded and Restored to Former Grandeur

by Bonnie Ashworth, Quincy, MA

The Longfellow Bridge, the iconic structure spanning the Charles River between Boston and Cambridge, is in the midst of a major rehabilitation, improvement, and restoration project. Historic though the bridge may be, it's also a major thoroughfare, signed Rt. 3, with 90,000 Red Line rapid transit users, 28,000 motor vehicles, and over 1,000 pedestrians and bicyclists traveling it daily. Vehicular traffic from Boston to Cambridge is detoured for the length of the project while inbound traffic is limited to one lane, which is open to buses-only at some times. The Red Line is expected to experience 25 weekends of interrupted service. MassDOT (Massachusetts Department of Transportation) provides helpful traffic advisories and lane closure updates on its web site and via email subscription.

Looking toward Cambridge, ongoing work on the Longfellow Bridge shows the salt and pepper shakers on the upstream side removed to street level.

The history of a bridge across the Charles River in the area dates back to 1793 when private investors financed construction of a wooden bridge to replace the ferries that had plied the route since the mid-1600s. Named the West Bridge, it was originally a toll structure with a drawbridge. It was rebuilt in 1854; horse-driven street railway service across the bridge commenced in 1856; ownership transferred to Cambridge in 1857, and the tolls were dropped in 1858. In 1889 the street cars became electrically powered, and within five years traffic jams were an ongoing problem.

It was evident that a new bridge was needed, and the Cambridge Bridge Commission was created to undertake the job. It took an act of Congress and the signature of President William McKinley in 1900 for construction of a new bridge, without the draw feature, to move forward. The commission strove to erect a beautiful structure. William Jackson, chief engineer, and Edmund Wheelwright, consulting architect, toured Europe to study bridges, and Wheelwright was further inspired by the 1893 Chicago World's Fair. Thus you see a steel and granite structure of 11 steel arch spans, on ten masonry piers and two abutments, with four central towers that resemble salt and pepper shakers and lend the bridge its nickname, the Salt and Pepper Bridge, decorated with the city seals of Boston and Cambridge as well as carvings of Viking ship prows.

The 1907 dedication ceremonies for the elegant new Cambridge Bridge were attended by tens of thousands of people. In 1912, rapid transit began using the bridge and the Charles/MGH Red Line Station was built in 1932. The bridge was renamed the Longfellow Bridge in 1927 in honor of Henry Wadsworth Longfellow, whose 1854 poem, "The Bridge," begins: "I stood on the bridge at midnight, As the clocks were striking the hour, And the moon rose o'er the city, Behind the dark church-tower."

The bridge was extended in 1956 at the Cambridge end and underwent repairs to the superstructure in 1959; since then there had been a series of inspections and stopgap measures. MassDOT took over ownership and management of the bridge in 2009 from the Department of Conservation and Recreation (DCR). Governor Patrick signed an accelerated bridge bond bill in August 2008 to enable the repair or replacement of hundreds of dilapidated bridges across the state, and the $3 billion funding included $255 million for the Longfellow Bridge.

It's been a long-anticipated project. Firms involved in the design process have been Rosales + Partners, Jacobs Engineering Group, and STV Inc. MassDOT brought in the joint venture of J.F. White Construction Company, Consigli Construction, and Skanska USA for the work to replace deteriorated structural elements of the bridge, including addressing seismic considerations, and to clean and restore its historic beauty. Construction started in the spring of 2013 on a complex six-stage process over a three+-year period. This being New England, it kicked off with an ice breaker clearing the way for a barge-mounted crane to remove the granite blocks of the upstream towers to sidewalk level and move them to a staging area for repair and cleaning. Google "MassDOT Longfellow Bridge Construction Animation" to see an informative YouTube video overview of the phases of the project.

Sensitivity to the historical and architectural significance of the bridge dictated the use of materials and techniques similar to those used on the original 1908 bridge. For instance, the vertical steel columns under the bridge are being assembled with rivets; not only did the rivets have to be custom made, the workers had to learn how install them. Duplicating the paint color of the old bridge involved painting swatches on sections of the iron sidewalk railings, streetlight poles, and steel arches under the bridge to determine the best match in the federal government standard. The Rockport granite proved to be another challenge. Large blocks were required and there is no new product to quarry, only "used." After scouring New England, a source was found nearby in Wakefield at Olde New England Granite. The company happened to have bought 3,000 tons of Rockport granite that came from reconstruction of the Hines Memorial Bridge in Amesbury.

The construction is well under way with a projected end date in 2016. Although the bridge is open for use by emergency responders, Red Line rapid transit or bus service, bicyclists, and pedestrians throughout the project, lane closures to accommodate deleading and repainting, as well as bridge construction and modification of local access roads continue. The familiar towers on the upstream side will be reassembled on the bridge and then the downstream towers will be dismantled and removed for restoration as part of the final construction phase. When it all wraps up, the Longfellow Bridge will have improved "structural integrity and capacity, meet modern codes, including ADA accessibility, and create a safer configuration for more modes of travel," according to MassDOT.

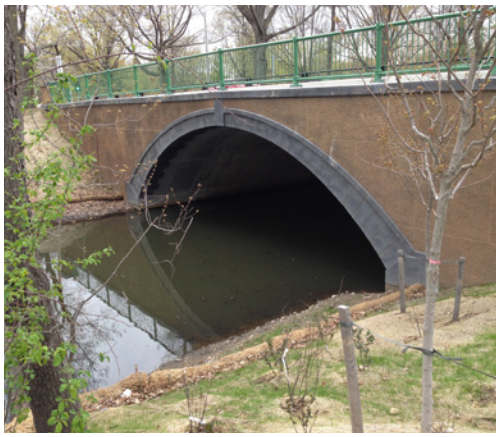
MassDOT Accelerated Bridge Program Update: Year Six

by Ronald Burns, PE, Principal Engineer, CHA Consulting, Inc.

The MassDOT Accelerated Bridge Program (ABP) is now in year six of its projected eight year life span. This program was funded with three billion dollars from a mix of gas tax revenue and bonds. The program was started in 2008 in the heart of the Great Recession with the hope of providing much needed jobs and repairing structurally deficient bridges in the wake of the disastrous failure of a bridge in Minnesota. In 2008, the state of Massachusetts had 543 bridges listed as structurally deficient (out of a total bridge inventory of greater than 5,000). This number was projected to grow to 700 at the then current (2008) maintenance budget. The ABP program goal was to not only stop the growth in structurally deficient bridges by performing much needed maintenance but to also repair and replace as many as 250 to 300 bridges within eight years.

As of April 2014, MassDOT had repaired or replaced up to 127 structurally deficient bridges or 23% of the 543 structurally deficient bridges. MassDOT plans by 2016 to complete repair/replacement of over 200 bridges. In addition to the direct reduction in structurally deficient bridges MassDOT has performed over 39 preservation and maintenance projects that reduced the projected growth in structurally deficient bridges. The secondary goal of providing much needed jobs has been also been tracked by MassDOT. As of August 2014, the ABP has created or sustained 27,800 construction contractor jobs.

Mystic Valley Parkway Bridge Restoration Project



Mystic Valley Parkway Bridge Restoration Project

The $3 billion in funds for the ABP are almost spent. As of April 2014, advertisements for projects totaling $2.26 billion have been done. The remaining approximately $750 million has been allocated to projects that are through design but have not yet been advertised for bid. These will be advertised in the coming year.

President's Report

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On October 14th we held our 166th Annual Awards Dinner at the Museum of Science. This event, which was hosted by past-president Reed Brockman, attracted an attendance of more than two hundred. As you may know, the awards dinner also serves as the annual meeting of BSCES. This was an occasion to honor the awardees for their service to the society and the civil engineering profession and to reflect on BSCES activities during the past year. Although in selecting it we were forced to start activities an hour later than usual, the Museum of Science proved to be an exciting and appropriate venue and guests enjoyed the museum environment and the program. I want to use this opportunity to thank BSCES staff members Audrine Ellard, Aiilina Keers, Rich Keenan, Tony Puntin and Elizabeth Tyminski for their tireless effort to make this event a huge success.

Tony Puntin, our Executive Director and I had the opportunity to attend and represent BSCES at the ASCE Annual Conference in Panama. The four-day event, October 7–11, was an opportunity to celebrate the centennial of the Panama Canal with technical sessions dedicated to the history and the engineering aspects of this impressive project. Boston featured significantly in the conference program as the Central Artery Project (the Big Dig) was covered in a few technical sessions. Glenn Bell, the CEO of Simpson Gumpertz & Heger and member of BSCES, was the recipient of ASCE's Edmund Friedman Professional Recognition Award, and the Northeastern University EWB Chapter was named as the premier EWB Student Chapter for 2014.

On a final note, as I also mentioned in my talk during the Awards Dinner, I have a request for all of you. I think we can do better in recognizing our members and engineering colleagues with a more energetic BSCES Section and Employer Recognition Awards nominating process. For example, we have not receive nominations for several BSCES awards these past couple of years including our 2014 Small Employer Recognition Award. Nominations for our 2015 awards are due in May 2015. You will get ample notice regarding the due date, award descriptions and requirements through *BSCESNews* and I will remind you as well. Please consider nominating a deserving colleague, mentor, mentee, or firm and let's celebrate their accomplishments together!

In closing, I would like to thank this issue's corporate sponsor, Louis Berger, and encourage you to read the lead article, which the firm submitted, entitled "SHRP2 Solutions—Rhode Island Warren Avenue Bridge Over I-195 Showcase." I also want to thank Louis Berger for hosting our successful 2014 ASCE Student Chapter Officers' Caucus Fall Kick-Off Meeting at their offices on October 20.

Submit an Article to BSCESNews

The BSCES Newsletter Editorial Board invites BSCES members to write and submit an article for publication in *BSCESNews*. Typically 400 to 800 words, *BSCESNews* featured articles are about technical topics or professional matters of interest to civil engineers. The January 2015 issue of the newsletter for example, will highlight the BSCES Engineering Management Group and feature one or more articles on the topic of Project Delivery.

Email your article in Microsoft Word format to BSCES Newsletter Editorial Board Chair Mike Cunningham at mcunningham@kleinfelder.com or BSCES Association Manager Rich Keenan at rkeenan@engineers.org.

Featured Group

ASCE Structural Engineering Institute, Boston Chapter

by Todd Warzecki, PE, Senior Project Engineer, BETA Group, Inc., and SEI Boston Chapter Chair

The SEI Boston Chapter is comprised of structural engineers with building, bridge, and academic backgrounds and interests. The goal of the group is to offer in-depth and varied technical content to our membership, giving you the opportunity to learn about new practices, cutting edge research, and other developments that you can use in your practice. We meet monthly to plan several lunch and dinner meetings throughout the year along with our bi-annual lecture series.

We typically hold three dinner/lunch meetings per year. Three events have been held thus far in 2014 and are as follows:

1. Structures Congress 2014 (April 2–5, 2014)
The 2014 Structures Congress was held in Boston. SEI national established a local host committee co-chaired by Glenn R. Bell of Simpson Gumpertz & Heger Inc. and Matt A. Card of Benesch. Many members of the SEI Boston Chapter participated on the local host committee, including Peter Babaian, Dennis Baker, Brian Brenner, and Mehrdad Sasani. The Structures Congress was a successful event as judged by attendance, presentation quality, sponsorship, and exhibitors.

2. Doing Business with the MBTA's Design and Construction Department (May 7, 2014)
This formal dinner meeting featured a keynote address by Erik Stoothoff, the chief engineer of the MBTA, presenting procedures for procuring professional services. He also provided overview descriptions of some of the recent and currently active projects, and of some of the potential future projects that are being considered and planned to be managed by MBTA's Design and Construction Department. Approximately 80 people attended this dinner meeting.

3. MassDOT LRFD Bridge Manual Workshop (October 10, 2014)
This all day workshop was geared towards younger practicing member's currently designing bridges for the MassDOT. It focused on how to design bridge elements using the newly released MassDOT LRFD Bridge Manual. The workshop provided an overview of the significance, and the rationale behind significant manual changes including: new methods for dead load distribution, seismic design, bearing design, and integral abutment design. This event was held at the Transportation Building in Boston and had a maximum registration limit of 60 people. The event was sold out and very well received.

For the remainder of the 2014/2015 season we will be busy planning additional dinner and/or lunchtime meetings for early 2015. One event is anticipated for February 2015 and has an emphasis on engaging younger members. The event will likely be held at a local university and begin with an interactive bridge building contest followed by a lecture.

In addition to event planning we will be focusing on the upcoming Bi-Annual Fall Lecture Series. Our Fall Lecture Series is a six-week event with the next one starting October 2015. While past series topics and speakers have typically come from a broad range of backgrounds, the upcoming series will have a more "local" flavor highlighting local projects, speakers, practices, and lessons learned.

If you have a question regarding SEI Boston Chapter, want to attend an event, or get involved in planning future events, contact any member of the current executive committee leadership:

Todd Warzecki, chair—TWarzecki@BETA-Inc.com

Peter Keeping, vice-chair—PKeeping@HNTB.com

Dennis Baker, clerk—djbaker@hntb.com

Massachusetts Engineers and Architects Emergency Response (MEAER) Committee and Good Samarian Law

by Mehrdad Sasani, PhD, PE, Associate Professor, Northeastern University and MEAER Committee Chair

In 2006, Jeffrey Struble, Boston Association of Structural Engineers (BASE) and Structural Engineers Association of Massachusetts (SEAMass), initiated an effort to develop the Massachusetts Structural Engineers Emergency Response (MA-SEER) Program, which was met with enthusiasm. The main obstacle, however, that prevented the development of the program was the lack of a Good Samaritan law in Massachusetts, which would have protected volunteers.

The American Council of Engineering Companies of Massachusetts (ACEC/MA) filed a Good Samaritan bill for design professionals and contractors (S.795) during the 2014 legislative session. This bill, sponsored by State Senators Karen Spilka and Mike Rush, State Representative William Pignatelli, and several other legislators, is designed to provide liability protections to design and construction professionals who volunteer during a declared local, state, or federal emergency at the request of public officials. As part of this effort, ACEC/MA Executive Director Abbie Goodman formed a coalition and organized a panel to testify in support of the bill in front of The Joint Committee on the Judiciary in the State House on October 22, 2013. The panel included Glenn Bell, CEO of Simpson Gumpertz & Heger Inc., Mike Herlihy, executive vice president, Ames & Gough and myself (see testimonies at: http://MEAER.org).

In parallel with the new push for Good Samaritan legislation for secondary responders in Massachusetts, and building on the previous experience with MA-SEER effort, in April 2013 the MEAER Committee was formed to include architects alongside engineers to participate in post disaster response. The committee is in the process of establishing the MEAER Task Force, whose mission is "To provide rapid mobilization of volunteer design professional disaster responders from the private sector to assist state emergency management agencies in responding to disasters of such a magnitude that the technical capacities and resources of the government organizations are overwhelmed." The MEAER Committee and Task Force will form a standalone organization, which needs and seeks support from engineering and architecture organizations such as BSCES, Massachusetts Chapter of the American Institute of Architects, SEAMass, and the ASCE SEI Boston Chapter as well as emergency response organizations such as the Department of Public Safety (DPS), Massachusetts Emergency Management Agency (MEMA), Massachusetts Federation of Building Officials, Fire Chiefs Association of Massachusetts, and MA Task Force-1 (FEMA Urban Search & Rescue). The requirements for eligibility to the MEAER Task Force have not yet been finalized.

The MEAER Committee has met eight times so far at Northeastern University. As part of the coalition, the committee helped rally support for the Good Samaritan legislation, which was eventually passed in August 2014. The committee organized a two-day training session on Post-Disaster Safety-Assessment Program in September 2013, which was led by Michael Fillion and taught by David Grandpré, Robert Leach, and Jeffrey Hatcher (all from our sister organization RI Architects & Engineers Emergency Response, AEER) along with John M. Looney (MA Task Force-1). About 50 engineers and architects attended the training session, in which Tom Gatzunis (commissioner of DPS) gave an opening talk.

As a group of trained engineers and architects, the MEAER Committee is in the process of seeking advice from MEMA and DPS to best train, prepare, and organize a task force. Since MEMA and DPS will ultimately be the organizations leading this group during an emergency, their involvement is integral to the success of this effort. We do need and want MEMA and DPS to be in charge throughout this process.

BSCES

Boston Society of Civil Engineers Section
American Society of Civial Engineers

Orange is the New or the Future of the BSCES Journal

A few enthusiastic engineers are needed, especially younger ones! Here's the "problem." For about the last 30 years, the orange covered publication, "Civil Engineering Practice: Journal of the BSCES," has published peer reviewed papers in traditional paper format. But is this what will serve members best going forward?

Help solve the problem and form the future. What should the content be? Peer reviewed practice-oriented papers only as it has been or something else? In what format(s) should this publication be presented? Paper or web-based? The printed word, audio, video? If you would like to be part of the "solution" click on the following link OrangeWillBe/BSCESJournal, provide your contact information and let's talk.

Phased Construction Helps Deliver World's Largest IFAS System Upgrade $1.5 Million Under Budget and One Year Early

by Edward V. DiSalvio, PE, Project Manager and Principal Structural Engineer and David Peterson, PE, Project Professional, Kleinfelder

Like many other water and wastewater treatment plant owners and operators, the Narragansett Bay Commission in Rhode Island faces ever tighter permitting requirements.

Case in point, a supplemental NPDES permit required that operators at the Field's Point Wastewater Treatment Facility in Providence reduce total effluent nitrogen to 5 mg/L or less on a seasonal basis, which will subsequently help to protect water quality in the region and reduce the amount of nitrogen flowing into Narragansett Bay.

The Field's Point WWTF currently treats an average daily flow of 50 million gallons per day. It can provide secondary treatment for up to 77 MGD and primary treatment for an additional 123 MGD for a total wet weather capacity of 200 MGD. Wastewater is treated from the City of Providence, the Town of North Providence, the Town of Johnston, and parts of the Town of Lincoln and the City of Cranston.

With little space on the Field's Point WWTF site for additional equipment or structures to accommodate nitrogen removal systems, a tight budget and looming permit deadlines, the Commission opted to go with a $65 million overall facility upgrade that included the implementation of the largest Integrated Fixed Film Activated Sludge (IFAS) biological nutrient removal process in the world.

Regulatory agencies stipulated that the wastewater treatment plant operate at peak efficiency and within required treatment limits throughout the four-year modernization and construction effort, which was completed under budget and one year ahead of schedule in 2013.

New and Renovated Buildings and Structures

The upgrade included three new buildings as well as renovations to 12 existing buildings and tank structures.

The primary structures included:

- New Operations and Administration building: 25,000 square foot, three-story; designed to meet the U.S. Green Building Council LEED Silver standard; steel framed with a cast-in-place concrete foundation system; lateral load resisting system steel braced-frames; non-load bearing masonry infill walls.
- New Carbon Feed Building: 1,200 square foot, single story; adjacent chemical tank farm; steel framed with cast-in-place concrete foundations; non-load bearing masonry exterior walls; vertical steel braced frames.
- New Screening and Caustic Building: 4,400 square foot, single story; steel framed with cast-in-place concrete foundations; non-load bearing masonry exterior walls; vertical steel braced frames; gable roof using steel trusses.
- The Aeration Tanks: 10 existing cast-in-place tanks subdivided using new cast-in-place concrete walls and FRP walls; new walkways around the top of the tank walls; each tank is approximately 73 feet x 104 feet x 20 feet; new equipment for the IFAS system was installed within the tanks.
- Screw Pump Lift Station: the existing screw pump machinery needed to be replaced; structural investigation and condition assessment; phased design and construction; new concrete equipment supports and foundations;
- Blower Building: existing 2,100 square foot, 2 story masonry building; structural investigation and condition assessment; second floor system strengthened in order to support new equipment loads; modifications and strengthening of existing masonry walls to provide new equipment openings; pipe supports.

Phased for Efficiency

An additional challenge for the design team was to develop a construction phasing plan that would keep the wastewater treatment plant operating within required treatment limits throughout the four-year modernization and construction effort. The clear and comprehensive construction phasing plan put in place prior to construction included approaches to minimize operating disruptions and optimize construction schedules.

Three specific examples of phased construction—the aeration tank conversion, screening and caustic building construction and the turbo blower conversion—exhibit how the project was phased for efficiency.

In the case of the aeration tanks, permit limits required that the plant's 10 aeration tanks be converted to the IFAS process a few at a time. However, for efficient and cost-effective conversion, it was important that the contractor could move directly from one aeration tank to the next with little to no downtime. This required coordination between the owner, engineer, general contractor and subcontractors to ensure that tank conversions went smoothly and without risking process upsets, or permit violations. The 10 biological process reactors were converted from activated sludge to the IFAS process over a period of two years. In late 2012, all 10 basins at Field's Point WWTF were converted to the IFAS process, started up, and operational. By September 2012, the total nitrogen concentration dipped to below 5 mg/L with no optimization of internal recycle rates and no alkalinity feed or carbon dosing.

The second example of phased efficiency was realized in the construction of the Screening and Caustic Building. Due to site constraints, the Screening and Caustic Building was constructed directly above two live 60-inch diameter PCCP gravity pipelines connecting primary treatment to the screw lift pump station. To maintain flows and avoid costly bypass pumping the building was designed with three distinct foundations and a series of temporary bulkheads that could be staged in such a way as to always have one of the 60-inch lines on line. Once the new screening process was installed, the remaining 60-inch line was demolished and the remainder of the building was constructed. While a bypass pump system was installed as a standby system it was never required to operate other than to exercise the equipment.

The third example of phased efficiency occurred during the installation of the turbo blowers. The new IFAS process requires approximately double the aeration capacity as the former process. Through the selection of innovative turbo blower technology, a total of nine new turbo blowers were installed in the footprint that was formerly occupied by the intake filter boxes for five centrifugal blowers. Due to the small footprint and high efficiency of the turbo blowers, it was possible to provide additional aeration capacity without a building expansion. Also, a new electrical room and storage area was able to occupy the space formerly taken up by the centrifugal blowers. Finally, the flexibility of the technology allowed for installation in phases, while keeping full aeration capacity to the plant during construction.

Ultimately, designing the buildings for phased construction eliminated the need to use bypass pumping which saved the client $1.5 million and completion of the project one year ahead of schedule. This project exhibits how advanced planning can facilitate efficient construction, while limiting process interruptions and saving cost.

Edward V. DiSalvio, PE, is a project manager and principal structural engineer with Kleinfelder. He can be reached at 617/498-4609 or EDiSalvio@kleinfelder.com. David Peterson, PE, is a project professional with Kleinfelder. He can be reached at DTPeterson@kleinfelder.com.

A Snapshot of AD/CHP Activities in Massachusetts

by David Peterson, PE, Senior Professional and Mark Thompson, PE, Senior Project Manager, Kleinfelder

There has been a renewed interest in Anaerobic Digestion with Combined Heat and Power (AD/CHP) projects in Massachusetts. Fueling this interest further has been the roll out of the Commercial Food Waste Disposal Ban (effective October 1, 2014). This regulation (310 CMR 19.00) is aimed at diverting food waste from large generators (more than one ton per week) away from landfills and into facilities designed to extract and utilize the energy within the food waste.

Benefits of AD/CHP

The benefits of AD/CHP are clear. The anaerobic digestion process has been proven to be a stable, low cost and relative easy to operate process. The process consumes the majority of the volatile solids content of sludge. By reducing this fraction of solids, the volume of remaining sludge for disposal is minimized, reducing the costs for disposal. In addition, digestion produces a valuable digester gas, with a heat content of approximately 620 BTU/CF, or two-thirds the heat value of methane. After cleaning, digester gas is readily useable in a CHP facility to produce electricity and heat.

Historical hurdles to implementing AD/CHP projects are being knocked over by a flood of investment. These days, there is no shortage of private and public investors and stakeholders willing to fund sustainable, economically viable AD/CHP projects. The drivers for these projects are numerous and include (1) the State Renewable Portfolio Standard which establishes a demand for renewable energy sources; (2) the REC market which is a possible revenue source for selling renewable energy credits; (3) the Commercial Food Waste Disposal Ban; and (4) the favorable economics of these types of projects.

Who is Installing AD/CHP Facilities?

As a wastewater professional, I would like to suggest that our municipal treatment plants have been leading the charge of implementing AD/CHP projects. However, that is not completely the case. In fact, only two of the six wastewater treatment plants in Massachusetts that have digesters are actively generating heat and electricity from Digester Gas (MWRA's Deer Island plant and the City of Pittsfield, MA). Fairhaven's AD/CHP facility was constructed in 2012. Earlier this year, the facility was enduring several start-up issues; however, at this time the digester is in operation.

Beyond these three facilities, the true pioneer in AD/CHP installations in Massachusetts has been the private sector. AD/CHP installations are currently operating at numerous farms in Massachusetts. Perhaps the most notable installation is located at Jordan Dairy Farms in Rutland, MA. This installation was started in June 2011 and was received with much aplomb by a visit from Governor Deval Patrick. Moreover, three of these farms are already accepting organic food waste in their AD/CHP operations. These include the aforementioned Jordan Dairy Farms, Barstows Longview Farm (Hadley, MA), and Pine Island Farm (Sheffield, MA).

Private AD/CHP installations are not limited to farms, however. Recently, the Commonwealth Resource Management Corporation (CRMC) Dartmouth Bioenergy Facility ribbon cutting facility was on October 7, 2014. This pilot facility accepts 3,000 gallons per day of organic food waste, organic sludges, and fats, oils and grease (FOG) in its digester. Ultimately, the facility is planned to expand to 30,000 gallons per day and is expected to generate 0.8 megawatts. The digester gas is utilized in the facility's pre-existing landfill gas-to-energy facility. This is the first facility of its kind to be sited at an operating landfill in Massachusetts.

As part of the ban on organic food wastes, the Commonwealth is planning to procure design-builder teams to develop three state AD/CHP facilities. The proposed sites for these facilities include MCI Norfolk, MCI Shirley and at UMass Amherst. The completion date for these facilities is not readily known.

While wastewater treatment plants may not be on the forefront of AD/CHP projects, there are numerous facilities that are actively studying its implementation. For instance, according to MassDEP, the Greater Lawrence Sanitary District (GLSD), Brockton, Plymouth, Northampton, Barnstable, Ayer and Easthampton have all studied implementation of AD/CHP to varying degrees.

Where Can You Get Technical Assistance/Grants?

Many POTWs studying the feasibility of AD/CHP projects are taking advantage of numerous funding programs available. Possibly the best known program is the Massachusetts Clean Energy Center's (MassCEC) Organics to Energy program that offers assistance for research, design and construction.

There exists a valuable resource on the Executive Office of Energy and Environmental Affairs website that consolidates all available funding sources. This information can be found here.

Will the Commonwealth's objective for diverting organics from landfills into AD/CHP installations be met? Will the state be able to leverage existing digestion capacity to assist with this objective? Certainly there appears to be a burgeoning community of interested stakeholders such as investors, consultants, engineers and public officials seeking to make it happen.

Local Students Focusing on Building a Network and Giving Back

by Aleece D'Onofrio, PE, Senior Engineer, Fay, Spofford & Thorndike (FST) and TJ Liveston, EIT, Geotechnical Engineer I, Hatch Mott MacDonald

Students are hitting the halfway mark in their fall semester and getting ramped up for a year full of events. Over the last couple years, BSCES and the Younger Member Group (YMG) have made it a priority to regularly engage local students through a variety of activities. For the students, networking is crucial as it guarantees a smoother transition to the professional world. Since this summer, the YMG has hosted and planned a number of events for professionals and students alike including:

- **August**—Participated in a half mile kayak trip down the Charles River in Newton.
- **September**—Co-hosted a kickball game with Tufts University and was well attended by students and YMGers.
- **October**—Held the Annual Bocce Tournament on the Boston Common.
- **November**—Organized a food drive for Thanksgiving and is planning to donate to the Boston Food Bank.
- **December**—Planning the annual toy drive and holiday gathering at Sacco's Bowl Haven in Somerville.
- Other YMG events in the works include the Annual Engineers Week Billiards Tournament in February and a couple of Red Sox outings in the spring.

The 2014 ASCE Student Chapter Officers' Caucus Fall Kick-Off Meeting was held on October 20, 2014 at Louis Berger's offices in Needham. This event brought students and professionals together for a night of socializing and discussion of current events in the engineering community. It's not all business for the students, but also a time for the students to showcase their activities and accomplishments. Our student chapters participate in so much more than just the steel bridge and concrete canoe competitions and should be recognized for their hard work. Some of the activities these student chapters are currently coordinating and participating in include:

Massachusetts Institute of Technology (MIT):

- Introducing new programs to students (i.e. a graduate-undergraduate mentoring program and a job shadowing program).
- Hosting career fairs, industry panels and networking events.

Merrimack College:

- Focusing on recruiting new members to their student chapter, while hosting fundraising events, alumni panels and other social outings.
- Continuing the community service initiative by participating in Hope for Haiti, Relay for Life, Mack Gives Back and Habitat for Humanity.

Northeastern University:

- Hosting a weekly lecture series for students, annual social activities and monthly site visits to an active construction site on campus.
- Continuing community involvement by participating in Backseat to Bicycles, Future Cities Mentoring, installing a sixty foot pedestrian bridge, and joining forces with Mass Audubon to construct a raised planter bed accessible garden in Belmont.

Tufts University:

- Focusing on preparing students for grad school or the industry by offering mock interviews and continuing education through alumni guest lectures.
- Participating in community service projects teaching children about engineering concepts with fun activities and hope to be involved in a Habitat for Humanity project this year.

University of Massachusetts Lowell:

- Focusing on promoting professional development and industry awareness by organizing mock interviews and resume building workshops on campus.
- Introducing a new Pilot Capstone Program, expanding the K–12 outreach program, hosting guest lectures and increasing alumni relations.

Wentworth Institute of Technology:

- Participating in community service projects including building a security gate for the Mission Hill Community as well as school run community service days.

Worcester Polytechnic Institute (WPI):

- Focusing on expanding their chapter and engaging members by offering training opportunities (for example, welding and proper lab usage).

Recent News and Updates

BSCES Honors 2013 Award Winners
At the 166th BSCES Annual Awards Dinner on October 14, 2014, the BSCES Board of Government honored the following award winners:

2014 BSCES Section and Employer Recognition Award Winners

Citizen Engineer Award
Olivia Richards, Associate Engineer, Gill Engineering, for her tireless efforts in K–12 outreach

Government Civil Engineer Award
Sara E. Campbell, PE, Engineering Superintendent, Town of Greenfield, MA, for her advocacy of state and federal infrastructure investment

Clemens Herschel Award
Indrani Ghosh, PhD, Project Engineer, Kleinfelder, for her numerous publications relative to translating the uncertainty of climate change impacts into engineering design criteria

Ralph Horne Award
William A. Doyle, PE, Founding President, Doyle Engineering, Inc., for his years of service on the Waltham Conservation Commission

Journalism Award
Dan McNichol, for calling attention to the state of America's infrastructure

Pre-College Educator Award
Stephanie Cross, Lawrence Family Development Charter School, for inspiring students to pursue careers in STEM industries

Younger Member Award
Olivia Richards, Associate Engineer, Gill Engineering, for her contributions as a member of the BSCES Public Awareness & Outreach Committee and Younger Member Group

Large Employer Recognition Award
Simpson Gumpertz & Heger Inc. (SGH), for encouraging its engineers to actively participate in ASCE and BSCES. SGH Chief Executive Officer Glenn R. Bell, PE, accepted the award on the company's behalf

President's Award
Bruce L. Jacobs, PhD, PE, Vice President, HydroAnalysis, Inc., for offering creative solutions to the communications challenges confronting BSCES

Alyssa S. Marino Medina, PE, Civil Engineer & Urban Planner, for her efforts to ensure BSCES is a diverse and inclusive organization

$5,000 BSCES Jonathan B. Golden Fund Scholarship Deadline is February 6, 2015
The ASCE Environmental & Water Resources Institute Boston Chapter is accepting applications for the 2015 Jonathan B. Golden Scholarship. The Jonathan B. Golden Fund was established by BSCES in 2002 in honor of Jon Golden to recognize his many contributions to the environmental engineering profession, particularly his genuine commitment to the mentoring and training of young engineers.

The purpose of the Golden Fund is to provide financial assistance to a graduate environmental engineering student at an accredited college or university. Applicants must be enrolled in a graduate Environmental Engineering program (or related field) during the fall 2014 semester and be committed to continuing in full-time graduate study through at least the spring 2015 semester.

The scholarship award amount is $5,000. Scholarship applications are due by Friday, February 6, 2015. Please see the insert at the end of this newsletter for more information.

Engineers Without Borders USA WPI Chapter is Seeking Donations
Since 2009, the Engineers Without Borders (EWB-USA) Worcester Polytechnic Institute student chapter has been working with the rural, impoverished community of Guachtuq, Guatemala to improve water security for families who currently rely on a politically-contentious, contaminated water basin to meet all water needs. The EWB-USA WPI team works with these families to design and build home-scale rainwater harvesting systems that help alleviate the people from water poverty. Over the past two years, twelve rainwater harvesting systems have been built. The team is planning to construct an additional 25 in May 2015. Currently, EWB-USA WPI is planning for the May trip and a preparation trip scheduled for this coming January. The trips will cost between $45,000 and $50,000. To make a donation or for more information, please contact ewb-execs@wpi.edu or visit the EWB-USA website.

Congratulations are in order for ASCE Past-President (and new BSCES member) Andy Herrmann for being selected by ENR for inaugural Legacy Award. Andy has been a longtime advocate for continued investment in our infrastructure. Prior to his term as ASCE President, he was the chair of ASCE's Committee on America's Infrastructure and was responsible for leading the efforts in production of the Report Card on America's Infrastructure. Andy has been cited in major newspapers, quoted in several books and even testified before Congress about the urgency of the nation's infrastructure problem. A new resident to Massachusetts, BSCES is excited to have Andy as a new member.

Are you interested in serving the Commonwealth? The Department of Housing & Community Development (DHCD) has a vacancy on the Designer Selection Committee (DSC). The Designer Selection Board permits the Department of Housing and Community Development DSC to insure the fair and open procurement of architects, engineers and programming services for all state-funded projects, including modernization and new construction projects for public housing funded by DHCD. The DSC meets the 3rd Wednesday of the month at 1PM at the DHCD, 100 Cambridge St, Boston and the meetings usually run 2 hours. The projects being heard at the monthly meeting are sent to the committee one week prior to the meeting for review requiring about 1 additional hour of effort. There isn't any compensation; however, lunch is provided for the committee and parking reimbursement if necessary. The term of this position would run from 11/2014 to 11/2016 with a possible reappointment until 2018. If interested, please submit your professional resume with contact information and work history for consideration. For more information contact Gail Cassarino Administrative Support Unit Supervisor at gail.cassarino@state.ma.us or 617/573-1164.

When making funding decisions under constrained budgets, it is tempting to place high importance on the up-front costs and pay little attention to costs in the future. The US needs to begin thinking more strategically about how it manages, maintains, and operates its transportation network by using tools like life cycle cost analysis (LCCA) to ensure sustainability of future budgets and better management of our vital infrastructure. A new report by ASCE and the Eno Center for Transportation, *Maximizing the Value of Investments Using Life Cycle Cost Analysis*, was recently released. The document reviews the current use of LCCA and how it might be used in the U.S. to make decisions about future projects and costs.

BSCES wants to connect with you! As the forms of communication continue to expand, BSCES is trying to keep up with all of the social media outlets. Follow, like, connect, and subscribe to BSCES on Twitter, Facebook, LinkedIn, and YouTube. These sites, in addition to the BSCES homepage, will provide information on upcoming events and highlight BSCES accomplishments.

As a volunteer based organization, BSCES relies heavily on the time, effort, and financial support of individuals and companies within the civil engineering industry. BSCES Executive Director Tony Puntin would like to thank you for your time and dedication. As always, please feel free to contact him at apuntin@engineers.org if you have any thoughts as to how BSCES can better serve you.

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.

Western Massachusetts Branch Event

Thursday, November 20, 2014
UMass Amherst Conference Center
Amherst, MA

5:30 PM Registration/Cocktail Hour
6:30 PM Dinner
7:00 PM Program

Design Challenges and Behavior of High Capacity Piles for the New NY (Tappan Zee) Bridge

Robert J. Palermo, PE, and Robert D. House, PE GZA GeoEnvironmental, Inc.

The construction of two new bridges that will replace the existing 60-year-old Tappan Zee Bridge is currently underway. The new river crossing will consist of two multi-span, 3.1-mile-long bridges that cross the Hudson River between Rockland and Westchester Counties in New York. An overview of the project will be presented that describes the impact of the ground conditions on the selection of bridge foundations and the challenges associated with the design of the high capacity pipe piles. The results of the extensive pile load testing program will also be addressed.

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

Register Today!

Wednesday, December 17, 2014

BSCES Younger Member Group Holiday Party

Sacco's Bowl Haven, 45 Day St., Somerville

6:00 PM Social

7:00 PM Bowling

This holiday season join the Younger Member Group for a fun and festive night of candlepin bowling! We will be supporting the Toys-for-Tots Foundation this year. Please bring a new and unwrapped toy for all ages.

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

ASCE and BSCES Sponsored Seminar

Thursday–Friday, November 20–21, 2014
Courtyard Marriott Boston Cambridge
777 Memorial Drive, Cambridge, MA

8:30 AM – 4:30 PM

Bridge Rehabilitation

Jim J. Zhao, PhD, PEng, PE, F.ASCE, Technical Lead and Manager of Bridge Engineering, AMEC

With rapid aging of the national highway infrastructure, state and local governments are spending more and more money on bridge rehabilitation. Bridge rehabilitation design differs from new bridge design in many ways. This two-day seminar covers subjects such as structure condition evaluation, bridge load rating and rehabilitation analysis, state-of-the-art rehabilitation techniques, alternative analysis models, new material applications, construction methods and constructability analysis, and project lifecycle cost analysis.

Click here for further details including how to register to attend this course and pay by credit card online.

BSCES and MALSCE Sponsored Seminar

Friday, November 21, 2014
Holiday Inn Mansfield/Foxborough
31 Hampshire Street, Mansfield, MA

8:00 – 8:30 AM Registration
8:30 AM – 4:30 PM Seminar

From the Mountains to the Oceans: How to Build Sustainably and Resiliently in FEMA Special Flood Hazard Areas

Robert DeSaulniers, CPCU, CFM, ANFI, AAI, FEMA Region I

John Grace, FEMA Region I

Peter Richardson, PE, CFM, ENV SP, Boston Society of Civil Engineers Section/ASCE

Richard Zingarelli, Massachusetts DCR

Sea levels are rising, climate is changing, population is growing, risk is increasing and the cost of recovery following floods is becoming unsustainable. Who can the nation turn to deal with this dire situation? Civil engineers of course! Especially civil engineers who understand flood risk and how to design resilient, sustainable infrastructure. This one-day seminar will teach civil engineers about the resources available from FEMA and ASCE that will help them design infrastructure that is resilient and sustainable in regards to flooding.

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

Southeastern Massachusetts Committee and Geo-Institute Boston Chapter Event

Monday, December 3, 2014
Holiday Inn Taunton
700 Myles Standish Boulevard, Taunton, MA

7:00 AM Registration
8:00 AM – 12:00 PM Presentation

Ground Improvement & Aggregate Piers

Mike Pockoski, PE, Eastern Region Lead Engineer, Geopier Foundation Company

Kord Wissmann, PhD, PE, DGE, President and Chief Engineer, Geopier Foundation Company

James R. Wheeler, PE, Principal Engineer, Design/Build Geotechnical, LLC

Kord, Mike, and Jim will discuss the design and construction of Aggregate Pier systems used in New England and will focus on design assumptions, design considerations for organic soils, construction techniques for cemented piers, design of piers used to support floor slabs, and ground improvement for slope stabilization and soil liquefaction.

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

ASCE and BSCES Sponsored Seminar

Thursday–Friday, December 11–12, 2014
Hyatt Regency Cambridge
575 Memorial Drive, Cambridge, MA

8:30 AM – 4:30 PM

Design of Metal Building Systems: Avoid Pitfalls in Specifying and Procuring

Alexander Newman, PE, F.ASCE, Forensic and Structural Consultant, Rimkus Consulting Group, Inc.

Metal Building Systems (MBS), also known as pre-engineered buildings, are designed and

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Upcoming Events (continued from page 12)

produced by their manufacturers. These versatile structures can be found in all kinds of buildings from factories to churches. The seminar provides a step-by-step explanation of ordering MBS. It explains a rather arcane topic of designing light-gage metal framing in simple terms and explores typical challenges facing the specifying engineers. Some heatedly debated and controversial topics, such as selection of a proper lateral-drift and vertical deflection limits, are examined in detail. The seminar concludes with tips on avoiding construction problems with MBS.

Click here for further details including how to register to attend this course and pay by credit card online.

Geo-Institute Boston Chapter Special Fund Event

Tuesday, December 16, 2014
Hyatt Regency Hotel
575 Memorial Drive, Cambridge, MA

5:30 PM Social/Registration
6:30 PM Dinner
7:30 PM Welcome & Introduction
7:45 PM Lecture

15th Arthur Casagrande Memorial Lecture—The Influence of Tunneling on Piled Foundations

Professor Robert Mair, CBE, FREng, FRS, Sir Kirby Laing Professor of Civil Engineering and Head of Civil and Environmental Engineering, University of Cambridge, UK

For underground construction projects in urban areas it is becoming increasingly common for tunnels to be located close to piled foundations as underground space becomes more congested. What are the effects of tunnelling, particularly if the tunnels are located immediately beneath the piled foundations? How will the pile capacity be affected and how can pile settlements be evaluated? This Lecture will focus on recent research and will describe a number of case histories from recent tunnelling projects.

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

EWRI Boston Chapter Special Fund Event

Thursday, January 8, 2015
Revere Hotel/Boston Common
200 Stuart Street, Boston, MA

5:30 PM Social/Registration
6:00 PM Dinner
6:30 PM Presentation

2014 Karl R. Kennison Lecture—Rebuilding Flood Damaged Communities in the Face of Uncertainty – How High do We Go?

Scott Edelman, PE, CFM, Senior Vice President, AECOM

One of the lessons learned from recent disasters such as Hurricanes Sandy and Katrina, is that many people do not realize the risk they face by living near or in riverine and coastal environments. Scott Edelman will describe efforts to better inform the public about flooding risks so they can make decisions accordingly. The end-goal is to motivate knowledge-based decisions that rely on an understanding on the nature of design elevations reported by the engineering community.

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

BSCES Program Committee Sponsored NHI Training

Tuesday–Friday, January 13–15, 2014
Hilton Garden Inn Worcester
35 Major Taylor Blvd, Worcester, MA

8:00 AM – 4:30 PM

FHWA-NHI-130053
Bridge Inspection Refresher Training

The major goals of this course are to refresh the skills of practicing bridge inspectors in fundamental visual inspection techniques; review the background knowledge necessary to understand how bridges function; communicate issues of national significance relative to the nations' bridge infrastructures; re-establish proper condition and appraisal rating practices; and review the professional obligations of bridge inspectors.

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

BSCES Program Committee Sponsored NHI Training

Tuesday–Friday, January 27–30, 2014
Holiday Inn Taunton, 700 Myles Standish Boulevard, Taunton, MA

8:00 AM – 4:30 PM

FHWA-NHI-130091
Underwater Bridge Inspection

The latest changes to the National Bridge Inspection Standards (NBIS), which became effective January 13, 2005, require FHWA-approved bridge inspection training for all divers conducting underwater inspections. One method of meeting this requirement is the completion of an FHWA-approved underwater diver bridge inspection training course. Satisfactory completion of this 4-day course will fulfill the NBIS requirement. Course topics include: methods of underwater inspection, underwater material deterioration mechanisms and inspection techniques, scour inspection techniques, underwater element-level rating, and underwater bridge inspection training.

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

Engineering Management Group Event

Thursday, January 29, 2014
Revere Hotel/Boston Common
200 Stuart Street Boston, MA

5:30 PM Social/Registration
6:00 PM Dinner
6:30 PM Presentation

Building the Olympics: Event Planning and Infrastructure Development for the Olympics, and other Mega-Sporting Events

Michael Szomjassy, Chief Operational Excellence Officer and Chief Delivery Officer, CH2M Hill

Learn about how a mega sporting event, such as the Olympics and World Cup, is managed, planned and what type of infrastructure improvements need to be made to accommodate the event. Also, who the key players in planning, organizing and constructing improvements for the event are. Mr. Szomjassy will speak about these topics and about his program management experience for the London 2012 Olympic Games.

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

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Save the Dates!

Tuesday–Thursday
March 24–26, 2015

FHWA-NHI-130053
Bridge Inspection Refresher Training

Sponsored by the BSCES Program Committee

Hilton Garden Inn Worcester
35 Major Taylor Blvd., Worcester

Upcoming Events (continued from page 13)

ASCE and BSCES Sponsored Seminar

Thursday–Friday, February 19-20, 2015
Hyatt Regency Cambridge
575 Memorial Drive, Cambridge, MA
8:30 AM – 4:30 PM

How to Successfully Use Value Engineering on Capital Projects

Don H. Stafford, PE, President and Senior Project Manager, Robinson, Stafford & Rude, Inc.

This seminar is intended to teach project managers, program managers and design project managers how to use Value Engineering (VE) as one of the tools to better manage costs and performance of the projects for which you, as a project or program manager, are responsible. Value Engineering has proven to be a very valuable tool in stretching both capital and operation and maintenance dollars to achieve the required goals for less cost, both in the public and private sector. VE usually results in improvements in facility performance, even at these lesser costs.

Click here for further details including how to register to attend this course and pay by credit card online.

BSCES Program Committee Sponsored NHI Training

Monday–Friday, Feb. 23–March 6, 2014
Hilton Garden Inn Worcester
35 Major Taylor Blvd, Worcester, MA
8:00 AM – 4:30 PM

FHWA-NHI-130055
Safety Inspection on In-Service Bridges

This two week course is based on the 2012 FHWA "Bridge Inspector's Reference Manual (BIRM)" and provides training on the safety inspection of in-service highway bridges. Satisfactory completion of this course will fulfill the training requirements of the National Bridge Inspection Standards (NBIS) for a comprehensive training course. This course is not geared towards fracture critical, underwater, or complex structures. All participants must show that they passed either of the following pre-requisite Courses FHWA-NHI-130101 Introduction to Safety Inspection of In-Service Bridges, FHWA-NHI 130101a Prerequisite Assessment for Safety Inspection of In-Service Bridges, or FHWA-NHI-130054 Engineering Concepts for Bridge Inspectors.

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

Classifieds

Gale Associates, Inc.

CIVIL ENGINEER—Gale Associates, Inc., recently rated one of the 2014 "Best Firms to Work For," seeks a civil engineer with 3 or more years' experience in civil/site design, land planning and permitting. The selected candidate would serve as a project engineer on a variety of planning, design, and permitting projects involving industrial, institutional, commercial, multifamily residential, and athletic and recreation facilities development for public and private clients. Qualified candidates will have strong design capabilities (grading, drainage, utilities, etc.), along with solid technical writing and effective communication skills. Expertise in Civil 3D and HydroCAD is essential. State and local permitting experience is preferred. Must hold a BSCE and have passed FE exam, with professional licensure a goal within 2 years. We offer an excellent salary and full array of benefits, we encourage you to learn more about us at www.galeassociates.com. Please send resume and salary requirements to kaf@gainc.com. Gale is an Affirmative Action / EOE / Minorities/ Females / Veterans / Disabled Employer.

Donate Today!

BSCES Younger Member Group Meal Drive

Help the Younger Member Group (YMG) fight hunger this Thanksgiving season with your donation.

Deadline to donate is Wednesday, November 26, 2014

This Thanksgiving YMG is supporting the Greater Boston Food Bank Holiday Meal Drive to help fight hunger in the Boston community. The goal is raise $1,000 in donations for the Holiday Meal Drive which would pay for 250 Thanksgiving meals to families in need in the Eastern Boston area!

Donations can be made at www.gbfb.org/bsce or see the insert at the end of this month's newsletter for further details.

ASCE BOSTON SOCIETY OF CIVIL ENGINEERS SECTION
Western Massachusetts Branch

Thursday, November 20, 2014

Design Challenges and Behavior of High Capacity Piles for the New NY (Tappan Zee) Bridge

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The construction of two new bridges that will replace the existing 60-year-old Tappan Zee Bridge is currently underway. The new river crossing will consist of two multi-span, 3.1-mile-long bridges that cross the Hudson River between Rockland and Westchester Counties in New York.

The geology at the site generally consists of a thick deposit of soft, organic soils overlying glacial lake varved clays up to several hundred feet in thickness. High capacity deep foundations consisting of a combination of end-bearing and friction piles will be used to support the new bridge superstructure.

An overview of the project will be presented that describes the impact of the ground conditions on the selection of bridge foundations and the challenges associated with the design of the high capacity pipe piles. The results of the extensive pile load testing program will also be addressed.

Presented by:

Robert J. Palermo, PE and Robert D. House, PE
GZA GeoEnvironmental, Inc.

UMass Amherst Conference Center – (Hadley Room – Campus Center Room 1001)
Amherst, MA
5:30 PM Registration/Cocktail Hour; 6:30 PM Dinner (buffet selection); 7:00 PM Program

$40 Members, $50 Non-Members,
$30 Public Sector Members, $40 Public Sector Non-Members
$15 Students and Seniors (65+)

The Hadley Room is located on the 10th floor of the Campus Center. Directions to Campus can be found at http://www.umass.edu/visitorsctr/directions and a campus map can be found at http://parking.umass.edu/images/maps/mapVisitorParking.pdf. UMass recommends attendees to park in the parking garage for this event. If you arrive after 5:00 PM, there is a charge of $3 per car ($5 per car if you arrive before 5:00 PM). Parking in a permit required University lot and/or restricted zone or area could result in a ticket and the vehicle being towed. For easiest access to the Campus Center from the parking garage, it is recommended that attendees enter the garage and proceed down one level (to Level 2). There is a walkway on level 2 that brings you directly into the Campus Center.

Registration Deadline: Monday, November 17, 2014

Information/Registration: Register to attend this meeting and pay by credit card online at http://bit.ly/WMB_TappBridgeReg11-20-14. 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, email or fax. To do so, download and complete a BSCES Event Registration Form and follow the submission instructions. Cancellations received after November 17, 2014 and no-shows will be billed.

Supported by the staff of The Engineering Center Education Trust

From the Mountains to the Oceans: How to Build Sustainably and Resiliently in FEMA Special Flood Hazard Areas

Sponsored by the BSCES Program and MALSCE Professional Development Committees

Friday, November 21, 2014

Holiday Inn Mansfield/Foxborough, 31 Hampshire Street, Mansfield, MA (off I-95, Exit 7A)
8:00 - 8:30 AM Registration; 8:30 AM - 4:30 PM Seminar

Sea levels are rising, climate is changing, population is growing, risk is increasing and the cost of recovery following floods is becoming unsustainable. Who can the nation turn to deal with this dire situation? Civil Engineers of course! Especially civil engineers who understand flood risk and how to design resilient, sustainable infrastructure. This one-day seminar will teach civil engineers about the resources available from FEMA and ASCE that will help them design infrastructure that is resilient and sustainable in regards to flooding.

Schedule:

8:00 – 8:30 AM:	**Registration and Breakfast**
8:30 – 8:45 AM:	**Opening Remarks** **Peter Richardson, PE, CFM, ENV SP, Boston Society of Civil Engineers Section/ASCE**
8:45 – 10:00 AM:	**NFIP Overview** **Richard Zingarelli, NFIP State Coordinator, Massachusetts DCR**
10:00 – 10:15 AM:	**Break**
10:15 AM – 12:00 PM:	**Building in Coastal Areas in Compliance with FEMA Regulations** **Overview of FEMA's Coastal Construction Manual** **John Grace, Coastal Engineer, FEMA Region I**
12:00 – 1:00 PM:	**Lunch**
1:00 – 2:30 PM:	**Building in Riverine Floodplains: Overview of FEMA Technical Resources, Buildings in the Floodway and ASCE 24-05** **Richard Zingarelli and Peter Richardson**
2:30 – 2:45 PM:	**Break**
2:45 – 3:15 PM:	**Overview of FEMA Requirements related to Dams and Levees** **John Grace**
3:15 – 3:45 PM:	**Overview of Homeowner Flood Insurance Affordability Act of 2014 and How Engineering Decisions can Future Impact Insurance Premiums** **Robert DeSaulniers, CPCU, CFM, ANFI, AAI, Insurance Specialist, FEMA Region I**
3:45 - 4:15 PM:	**Questions and Answers**
4:15 – 4:30 PM:	**Closing Remarks**

This presentation provides 6.5 Professional Development Hours (PDH)

Supported by the staff of The Engineering Center Education Trust

Speakers:

Robert DeSaulniers, CPCU, CFM, ANFI, AAI, FEMA Region I

Bob DeSaulniers is the Flood Insurance Specialist for FEMA Region I. He interfaces with New England Congressional staff as well as all stakeholders of the NFIP and acts as a resource to insurance agents, lenders, government, and community officials. He has managed New England states & territories for Property & Casualty insurance carriers who sell their products through the Independent Agency system. He also is an experienced operations manager, underwriting manager, field executive, branch manager and marketing manager.

John Grace, FEMA Region I

John Grace is a Coastal Engineer and Certified Floodplain Manager for FEMA Region 1. He works in the Mitigation Division for the Risk Analysis Branch, which is primarily responsible for overseeing FEMA map and flood study production. John also assists constituents and professionals with Letters of Map Changes, floodplain regulations and engineering questions. He has performed countless inspections post disaster to determine the cause and amount of damage, and future mitigation of buildings and structures.

Peter Richardson, PE, CFM, ENV SP, Boston Society of Civil Engineers Section/ASCE

Peter Richardson is the Vice President of Green International Affiliates, Inc. and has over 25 years of experience in floodplain management, most of it working as a FEMA Study Contractor in Region I. He is a licensed Professional Engineer in MA, NH, VT, ME and CT, a Certified Floodplain Manager, a LEED accredited Design Professional, and an Envision™ Sustainability Professional. Peter is a Past-President of the Boston Society of Civil Engineers Section/ASCE and a strong advocate for sustainable infrastructure investment in Massachusetts.

Richard Zingarelli, Massachusetts DCR

Rich Zingarelli is the Program Manager for the Flood Hazard Management Program within the Massachusetts Department of Conservation and Recreation. He has 30 years' experience in water resources and floodplain management with the DCR and the US Army Corps of Engineers. Rich is the State NFIP Coordinator, serving as the primary liaison for Massachusetts communities, state agencies, businesses, and individuals to obtain information on the NFIP, FEMA map products, and floodplain management. He is also the acting State Hazard Mitigation Officer.

Registration Deadline: Monday, November 17, 2014

Registration Information:

Registration Fees: $190 BSCES/MALSCE Members and Public Sector Employees, $250 Non-Members

Register to attend this seminar and pay by credit card online at http://bit.ly/BSCES2014FEMA . 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 completing the registration form below and mailing, emailing or faxing it to BSCES, The Engineering Center, One Walnut Street, Boston, MA 02108, bscesreg@engineers.org or 617/227-6783, respectively. Cancellations received after November 17, 2014 and no-shows will be billed.

Registration Form

BSCES/MALSCE FEMA Seminar

Friday, November 21, 2014, Holiday Inn Mansfield/Foxborough, Mansfield, MA

Registrant Information

Name: _____

Company (if applicable): _____

Address: _____

City: _____ State: _____ Zip Code: _____

Phone _____ Fax: _____ Email: _____

Dietary Restrictions: _____

Registration Fees

☐ $190 BSCES/MALSCE Member and Public Sector Employees ☐ $250 Non-Member ☐ $110 Students

Total Amount Enclosed $ _____

Make checks payable to "BSCES" and mail with completed form to: BSCES, The Engineering Center, One Walnut Street, Boston, MA 02108-3616

Or Pay with (Check one): ☐ Visa ☐ Master Card ☐ American Express

Card Name: _____

Card Number: _____ Expiration Date: _____

Billing Address: _____

City: _____ State: _____ Zip: _____

Signature:

The registration deadline for this seminar is Monday, November 17, 2014. Cancellations received after this date and no-shows will be billed.

BSCES
Boston Society of Civil Engineers Section
American Society of Civil Engineers

Southeastern MA Committee
&
The Geo-Institute Boston Chapter

Ground Improvement & Aggregate Piers

Kord Wissmann, PhD, PE, DGE
President & Chief Engineer, Geopier Foundations

Mike Pockoski, PE
Lead Engineer, Geopier Foundations

James R. Wheeler, BS, MS, PE
Principal Engineer, Design/Build Geotechnical, LLC

Wednesday, December 3, 2014

Holiday Inn Taunton
700 Myles Standish Boulevard, Taunton, MA 02780

7:00 AM – 8:00 AM Breakfast & Registration
8:00 AM – 12:00 PM Presentation

The workshop will be led by Michael Pockoski, Jim Wheeler, and, Dr. Kord Wissmann who will discuss the design and construction of Aggregate Pier systems used in New England and will focus on design assumptions, design considerations for organic soils, construction techniques for cemented piers, design of piers used to support floor slabs, and ground improvement for slope stabilization and soil liquefaction.

Speakers:

Kord J. Wissmann, PhD, PE, DGE

Kord Wissmann is the president and chief engineer at Geopier Foundation Company, Inc. based in Davidson, North Carolina. He has more than 25 years of experience in geotechnical engineering spanning the gamut from consultants to designers to specialty contracting. Since 2002, Kord has led Geoper growing the firm and its technology from a small player reliant on a single ground improvement technology to a major force in the ground improvement market offering a multiplicity of technologies at jobsites in the Americas, Europe, and Asia. Kord is the holder of more than 10 patents, authored or co-authored more than 30 published technical papers and journal articles, is an active committee member within the GBA and ASCE, and currently serves as a Governor of the ASCE Geo-Institute. A frequent speaker at regional geotechnical events, Kord holds a Bachelor of Science and Doctorate degrees in Civil Engineering from Virginia Tech and a Master of Science in Civil Engineering from the University of California, Berkeley.

Mike Pockoski, P.E.

Mike Pockoski has been the Eastern Region Lead Engineer for Geopier Foundations for over 8 years, and was previously with Kleinfelder in Las Vegas, Nevada and GZA in Norwood, Massachusetts. Mike received his Bachelor of Science degree at Worcester Polytechnic Institute and his Master of Science degree at Virginia Tech.

ASCE
AMERICAN SOCIETY OF CIVIL ENGINEERS

This presentation provides 4 PDHs—Professional Development Hours (PDH)

Supported by the staff of The Engineering Center Education Trust

Boston Society of Civil Engineers Section
American Society of Civil Engineers

James R. Wheeler, P.E.

James Wheeler is the principal engineer at Design/Build Geotechnical, LLC. Jim received his Bachelor of Science and Masters of Science Degree in Geotechnical Engineering from Lehigh University, Bethlehem, PA before joining Haley & Aldrich, Inc. in 1976 were he spent nearly 21 years as a geotechnical consultant and becoming a Vice President of the firm. After leaving H&A, he worked for a specialty geotechnical construction contractor as a Project Engineer and Director of Business development before founding Design/Build Geotechnical in 2001 where he has spent the past 13 years introducing the Geopier foundation system to New England. Serving as the Regional Design Associate for Geopier, Jim is responsible for the completion of the design of nearly 300 ground support projects that have been successfully constructed in the region. Jim is an active member of ASCE and BSCES, serving as past chairman of the Construction Group in Massachusetts and the Geotechnical Group in Maryland. He is also a past member of the Commonwealth of Massachusetts Geotechnical Building Code Committee, has published over a dozen technical papers, and is a registered professional engineer in all six New England States.

Registration Deadline: Friday, November 28, 2014

Registration Fees: $65 Members $80 Non-Members

Information/Registration:

Register to attend this meeting and pay by credit card online at http://bit.ly/GEO-INST120314. 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 November 28, 2014 and no-shows will be billed

BSCES
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G-I
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GEO-INSTITUTE
Boston Chapter

15th Arthur Casagrande Memorial Lecture

The Influence of Tunneling on Piled Foundations By

Professor Robert Mair CBE FREng FRS

Sir Kirby Laing Professor of Civil Engineering and Head of Civil Engineering at Cambridge University

Tuesday, December 16, 2014

Hyatt Regency Hotel
575 Memorial Drive
Cambridge, Massachusetts 02139

Schedule:

5:30 – 6:30 PM:	**Registration and Reception**
6:30 – 7:30 PM:	**Dinner**
7:30 – 7:45 PM:	**Welcome and Introduction**
7:45 – 8:45 PM:	**15th Arthur Casagrande Memorial Lecture**
8:45 – 9:15 PM:	**Question and Answer/Discussion**

For underground construction projects in urban areas it is becoming increasingly common for tunnels to be located close to piled foundations as underground space becomes more congested. What are the effects of tunnelling, particularly if the tunnels are located immediately beneath the piled foundations? How will the pile capacity be affected and how can pile settlements be evaluated? The Lecture will focus on recent research and will describe a number of case histories from recent tunnelling projects.

In general the experience of tunneling alongside piles has been that the effects are minor, with some lateral displacement of the piles being caused, with associated additional induced bending moments; very small pile settlements usually occur. In contrast, much less is known about the effects of tunneling directly beneath piled foundations, and in particular how much settlement is caused. The lecture will describe recent centrifuge model testing on the 8m diameter centrifuge at Cambridge University; this has elucidated the behavior of bored piles in stiff clay subjected to tunnel construction beneath the pile toes. Detailed pile-soil-tunnel interaction mechanisms can now be understood through advanced digital imaging and innovative modelling techniques.

The case histories that will be presented in the lecture include; recent examples from the Crossrail project in London, Europe's largest civil engineering project ($25bn), currently under construction. Examples of earth pressure balance shield tunneling and sprayed concrete lining tunnels directly beneath pile foundations will be shown - in the latter case the pile toes were very close to the crown of 10m diameter tunnels. The tunneling was successfully achieved with only minor effects on the buildings.

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This presentation provides 1.0 Professional Development Hours (PDH)

Supported by the staff of The Engineering Center Education Trust

Speaker

Professor Robert Mair, CBE, FREng, FRS

Sir Kirby Laing Professor of Civil Engineering and Head of Civil Engineering at Cambridge University

The Geo-Institute Boston Chapter is pleased to present Robert Mair as the 15th Arthur Casagrande Memorial Lecturer for 2014. Robert Mair is the Sir Kirby Laing Professor of Civil Engineering and Head of Civil Engineering at Cambridge University. He was Master of Jesus College 2001-2011 and Senior Vice-President of the Royal Academy of Engineering 2008-2011. Prior to his appointment to a Chair at Cambridge in 1998, he worked in industry for 27 years, throughout which time he maintained and developed very close links with the academic world. In 1983 he founded the Geotechnical Consulting Group, an international consulting company based in London. Robert has been a Board Member of the International Society of Soil Mechanics and Geotechnical Engineering (ISSMGE) and was Chairman of the ISSMGE Technical Committee on Underground Construction in Soft Ground 1996-2005. He has been responsible for numerous major engineering projects world-wide, is an international research leader in geotechnical engineering and is a world expert on underground construction in soft ground. Also, he was responsible for the introduction of compensation grouting in the UK as a novel technique for controlling settlement of structures during tunnel construction.

Professor Mair has extensive experience of advising industry, Governments and both professional and academic institutions, in the UK and overseas. He is Co-Chairman of the Singapore Land Transport Authority's International Advisory Board on design and construction aspects of all their underground metro and road tunnels. Robert gave evidence to the UK House of Lords Select Committee on the Crossrail project in London and is a member of Crossrail's Engineering Expert Panel. He leads a major research group at Cambridge and is Principal Investigator for a recently awarded Innovation and Knowledge Centre on Smart Infrastructure and Construction, funded by EPSRC/TSB and industry to a total value of $28m. He was a Rankine Lecturer in 2006 and was elected Fellow of the Royal Society in 2007.

Registration Deadline: Tuesday, December 9, 2014

Registration Information:

Registration Fees: $100 BSCES Members, $125 Non-Members, $85 Public Sector Members, $110 Public Sector Non Member, $55 Seniors (65+), $40 Student Member

Registration is limited to the first 200 registrations that are received. Register to attend this seminar and pay by credit card online at http://bit.ly/athurcasagrande121614. 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 completing the registration form below and mailing, emailing or faxing it to BSCES, The Engineering Center, One Walnut Street, Boston, MA 02108, bscesreg@engineers.org or 617/227-6783, respectively. Cancellations received after December 9, 2014 and no-shows will be billed

Registration Form

15th Arthur Casagrande Memorial Lecture

Tuesday, December 16, 2014, Hyatt Regency Hotel, Cambridge, MA

Registrant Information

Name: _____

Company (if applicable): _____

Address: _____

City: _____ State: _____ Zip Code: _____

Phone _____ Fax: _____ Email: _____

Dietary Restrictions: _____

Dinner Selections (Please check one)

☐ Grilled Vegetable Napoleon ☐ Statler Breast of Chicken ☐ Fish (Hake)

Registration Fees

☐ $100 BSCES Member ☐ $125 Non-Member ☐ $85 Public Sector Member

☐ $110 Public Sector Non-Member ☐ $55 Senior (65+) ☐ $40 Student

Total Amount Enclosed $ _____

Make checks payable to "BSCES" and mail with completed form to: BSCES, The Engineering Center, One Walnut Street, Boston, MA 02108-3616

Or Pay with (Check one): ☐ Visa ☐ Master Card ☐ American Express

Card Name: _____

Card Number: _____ Expiration Date: _____

Billing Address: _____

City: State: Zip:

Signature: _____

The registration deadline for this seminar is Tuesday, December 9, 2014. Cancellations received after this date and no-shows will be billed.

Arthur Casagrande Fund

Arthur Casagrande (1902 - 1981)

Arthur Casagrande was born on August 28, 1902 in Austria and came to the United States in 1926. He worked at the Bureau of Public Roads and as a Research Assistant under Karl Terzaghi at MIT. He made or contributed to making, the fundamental developments of Soil Mechanics and later became a Professor of Soil Mechanics. He also served the profession as the President of the ISSMFE in 1960's.

Professor Casagrande started the Soil Mechanics program at Harvard University in 1932. Many of his students were inspired by Casagrande and entered the field of Soil Mechanics; these men later became the creators of the Geotechnical Engineering field as we know it today. Being a pioneer, Professor Casagrande worked on the fundamental problems of Soil Mechanics, such as soil classification, seepage through earth and shear strength.

Casagrande's contributions to the profession were recognized by giving him the honors of *Rankine Lecturer* by the Institution of Civil Engineers (UK), and *Terzaghi Lecturer* by American Society of Civil Engineers. He was also the first recipient of the Terzaghi Award from ASCE. He authored more than 100 research papers and reports on a great many subjects, from frost heave to dynamic loading and everything in between.

Established in 1848, the Boston Society of Civil Engineers Section/ASCE (BSCES) is the oldest engineering society in the United States and currently supports over 4,000 members throughout Massachusetts. BSCES formally became a Section of ASCE in 1974 after the merger with ASCE's Massachusetts Section. In 1983, the BSCES Arthur Casagrande Fund was established to support a lecture given every other year by an eminent engineer with longstanding achievement in practice, teaching and/or research in geotechnical engineering.

Previous Arthur Casagrande Memorial Lecture Speakers
1983 Leo Casagrande
1985 Alfred Hendron
1987 Ralph Peck
1991 James Gould
1993 James Mitchell
1996 Fred Kulhawy
1998 Michael Duncan
2000 Charles Ladd
2002 Harry Poulos
2004 Lymon C. Reese
2006 John Schmertmann
2008 T. William Lambe
2011 Izzat M. Idriss
2013 Edward J. Cordin

BSCES YMG Holiday Party & Toy Drive

When: *Wednesday, December 17, 2014*
6:00 PM Food and Social; 7:00 PM Bowling
Where: *Sacco's Bowl Haven in Davis Square*
45 Day Street, Somerville, MA 02114
Cost: *This holiday season join the YMG for a fun and festive night of candlepin bowling! We will be supporting the Toys-for-Tots Foundation this year, please bring a new and unwrapped toy (for all ages) to be admitted for free to the event, otherwise it will cost $10 to attend. Appetizers, shoe and lane rental is all included!*
Registration: *Registrants who plan on bringing a toy to this event should RSVP by Monday, December 15, 2014 to Cara Pirkey at bscesymg@gmail.com Registrants who wish to pay $10 to attend this event register and pay online at. http://bit.ly/YMG_HolidayParty.*

YMG BOSTON

BOSTON SOCIETY OF CIVIL ENGINEERS SECTION

TOYS FOR TOTS

BSCES
Boston Society of Civil Engineers Section
American Society of Civil Engineers

EWRI
ENVIRONMENTAL & WATER RESOURCES INSTITUTE
Boston Chapter

2014 Karl R. Kennison Lecture
Rebuilding Flood Damaged Communities in the Face of Uncertainty – How High do We Go?

Scott Edelman, PE, CFM
Senior Vice President, AECOM

Thursday, January 8, 2015

Revere Hotel, 200 Stuart Street, Boston, MA 02116
5:30 PM Social/Registration, 6:00 PM Dinner, 6:30 PM Presentation

In the aftermath of Hurricanes Sandy and Katrina and in light of evidence of climate-change induced impacts on the frequency of events of this scale, government agencies, coastal communities and their residents have focused on efforts to increase the resilience of our coastal urban centers. One of the lessons learned from recent disasters is that many people do not realize the risk they face by living near or in riverine and coastal environments. Scott Edelman will describe efforts to better inform the public about flooding risks so they can make decisions accordingly. The end-goal is to motivate knowledge-based decisions that rely on an understanding on the nature of design elevations reported by the engineering community.

Speaker:

Scott Edelman oversees AECOM's floodplain mapping and mitigation work for the Federal Emergency Management Agency and for state and local agencies. He has had the privilege of testifying before Congress on the FEMA floodplain mapping program, and served as President of the ASFPM Foundation for six years. Scott contributed to a National Academies of Science study on floodplain mapping, and has addressed the UN on how to approach flood mitigation globally. He is also serving on the TMAC committee established by Congress on recommending changes to FEMA's Risk MAP program.

Registration Deadline: Friday, January 2, 2015

$80 Members, $100 Non-Members
$70 Public Sector Members, $80 Public Sector Non-Members
$40 Student Members (Maximum of 5), and $70 Senior Members (65+)

Information/Registration:

Registration for this event is on a first come first serve basis and a maximum of 5 students may register at the student rate for this event. To register to attend this meeting and pay by credit card online at http://bit.ly/EWRIKarlKennisonLect15. 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 January 2, 2015 and no-shows will be billed.

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Boston Society of Civil Engineers Section
American Society of Civil Engineers

Program Committee

FHWA-NHI-130053
Bridge Inspection Refresher Training

Tuesday, January 13, 2015 – Thursday, January 15, 2015

Hilton Garden Inn Worcester, 35 Major Taylor Boulevard, Worcester, MA
Tuesday through Thursday, 8:00AM – 4:30PM

The major goals of this course are to refresh the skills of practicing bridge inspectors in fundamental visual inspection techniques; review the background knowledge necessary to understand how bridges function; communicate issues of national significance relative to the nations' bridge infrastructures; re-establish proper condition and appraisal rating practices; and review the professional obligations of bridge inspectors. This course is based on the "Bridge Inspector's Reference Manual," 2002 (updated 2006), with reference to the AASHTO Manual as defined by the National Bridge Inspection Standards regulation.

Registration Deadline: Friday, November 21, 2014

Registration Fees: $1,250 Members, $1,500 Non-Members
Registration fee includes course materials, continental breakfast, breaks, and lunch.

Information/Registration: **Attendance for this program is limited to 30 participants. Individuals who attempt to register after the course is closed will be added to a waiting list.** Reservations will be accepted on a first-come first-served paid reservation basis. Payment must be received with registration to secure a slot. Register to attend this course and pay by credit card online at http://bit.ly/NHI103355SafetyInspect. 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 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. There are no refunds for no shows or for registrants who cancel after November 21, 2014.

ASCE
AMERICAN SOCIETY OF CIVIL ENGINEERS

This presentation provides 1.8 Continuing Education Units (CEU)

Supported by the staff of The Engineering Center Education Trust

Boston Society of Civil Engineers Section
American Society of Civil Engineers

Program Committee

FHWA-NHI-130091
Underwater Bridge Inspection

Tuesday, January 27, 2015 – Friday, January 30, 2015

Holiday Inn Taunton, 700 Myles Standish Boulevard, Taunton, MA
Tuesday through Friday, 8:00AM – 4:30PM

The latest changes to the National Bridge Inspection Standards (NBIS), which became effective January 13, 2005, require FHWA-approved bridge inspection training for all divers conducting underwater inspections. One method of meeting this requirement is the completion of an FHWA-approved underwater diver bridge inspection training course. Satisfactory completion of this four-day course will fulfill the NBIS requirement.

This course provides an overview of diving operations that will also be useful to individuals responsible for managing underwater bridge inspections. The topics include methods of underwater inspection, underwater material deterioration mechanisms and inspection techniques, scour inspection techniques, underwater element-level rating, and underwater bridge inspection training. A final examination based on course content will be administered to participants.

Registration Deadline: Monday, December 1, 2014

Registration Fees: $1,375 Members, $1,675 Non-Members
Registration fee includes course materials, continental breakfast, breaks, and lunch.

Information/Registration: Attendance for this program is limited to 30 participants. Individuals who attempt to register after the course is closed will be added to a waiting list. Reservations will be accepted on a first-come first-served paid reservation basis. Payment must be received with registration to secure a slot. Register to attend this course and pay by credit card online at http://bit.ly/NHI130091UnderwaterBridge. 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 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. There are no refunds for no shows or for registrants who cancellation after December 1, 2014.

ASCE AMERICAN SOCIETY OF CIVIL ENGINEERS

This presentation provides 2.1 Continuing Education Units (CEU)

Supported by the staff of The Engineering Center Education Trust

BSCES
Boston Society of Civil Engineers Section
American Society of Civil Engineers

Engineering Management Group

Building the Olympics: Event Planning and Infrastructure Development for the Olympics, and other Mega-Sporting Events

Michael Szomjassy

Chief Operational Excellence Officer and Chief Delivery Officer, CH2M Hill

Thursday, January 29, 2015

The Revere Hotel, Boston Common, 200 Stuart Street Boston, MA
5:30 PM Social/Registration; 6:00 PM Meal; 6:30 PM Presentation

Have you ever wondered how a Mega Sporting Event, such as the Olympics and World Cup, is managed? What exactly goes into planning an event with tens of thousands of athletes and bystanders? What type of infrastructure improvements need to be made to accommodate the event? Who are the key players in planning, organizing and constructing improvements for the event? Learn the answer to these questions and more from Michael Szomjassy of CH2M Hill. Mr. Szomjassy will speak about his program management experience for the London 2012 Olympic Games. During the London 2012 Olympic Games, Mr. Szomjassy's responsibilities included the design and construction of the venues, structures, bridges and highways as well as logistics and security. In addition, he will share his management experience for the upcoming Qatar 2022 World Cup.

Registration Deadline: Friday, January 23, 2015

$75 Members, $85 Non-Members
$65 Public Sector Members, $75 Public Sector Non-Members
$55 Senior Members (65+), Students

Information/Registration:

Register to attend this meeting and pay by credit card online at http://bit.ly/EMGEvent012914. 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 January 23, 2015 and no-shows will be billed.

BSCES
Boston Society of Civil Engineers Section
American Society of Civil Engineers

Program Committee

FHWA-NHI-130055
Safety Inspection of In-Service Bridges

Monday, February 23, 2014 – Friday, March 6, 2014

Hilton Garden Inn Worcester, 35 Major Taylor Boulevard, Worcester, MA
Monday through Friday, 8:00AM – 4:30PM

This two week course is based on the 2012 FHWA "Bridge Inspector's Reference Manual" (BIRM) and provides training on the safety inspection of in-service highway bridges. Satisfactory completion of this course will fulfill the training requirements of the National Bridge Inspection Standards (NBIS) for a comprehensive training course. This course is not geared towards fracture critical, underwater, or complex structures. Mid-term and final examinations based on course content will be administered to participants.

Please note: To take this course participants must show that they have passed one of the following pre-requisite courses: FHWA-NHI-130101, *Introduction to Safety Inspection of In-Service Bridges*; FHWA-NHI-130101a, *Prerequisite Assessment for Safety Inspection of In-Service Bridges*; FHWA-NHI-130054 or *Engineering Concepts for Bridge Inspector*. A FHWA/NHI certification of completion with the participant name on it will be required to be presented to BSCES preferably at time of registration or no later than Monday, January 19, 2015. Please forward your prerequisite certificate in the form of a PDF document to bsces@engineers.org. Please visit the NHI website at www.nhi.fhwa.dot.gov or contact them at 703/235-0500 for additional information on the prerequisite course requirements.

Registration Deadline: Monday, January 26, 2015

Registration Fees: $2,700 Members, $3,200 Non-Members
Registration fee includes course materials, continental breakfast, breaks, and lunch.

Information/Registration: Attendance for this program is limited to 30 participants. Individuals who attempt to register after the course is closed will be added to a waiting list. Registrations will be accepted on a first-come first-served paid basis. Payment must be received with registration to secure a slot. Register to attend this course and pay by credit card online at http://bit.ly/NHISafetyInpsection022315. 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 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. There are no refunds for no shows or for registrants who cancel after January 26, 2015 including those that do so due to failure to take one of the prerequisite courses.

ASCE
AMERICAN SOCIETY OF CIVIL ENGINEERS

2015 Jonathan B. Golden Scholarship Application

2015 Scholarship Amount:

$5,000

To Prospective Applicants:

The Jonathan B. Golden Scholarship Fund was established in 2002 through donations to honor the memory of Jon Golden, a dedicated wastewater engineer who significantly contributed to the environmental engineering profession. The scholarship is for a graduate student who is pursuing a career in environmental engineering.

Who may apply?

Full-time graduate students enrolled in an accredited environmental engineering degree program or related field with a graduation date in the spring 2015 or later.

How to Apply:

Submit the following:

- Introduction letter.
- Official copy of college transcript.
- Enrollment verification letter from the registrar.
- One page biography/resume including GPA and class standing from undergraduate study and graduate study (if available).
- Two letters of recommendation – at least one from a college professor.
- One page essay (500 words maximum) discussing why you are pursuing a career related to environmental engineering and who or what most influenced your decision to pursue a career in environmental engineering.

Transmit Applications to:

Jonathan B. Golden Scholarship
BSCES Environmental & Water Resources Group
One Walnut Street, Boston, MA 02108-3616

Electronic applications may be submitted to rburns@chacompanies.com

Application Deadline:

Friday, February 6, 2015

Review of Applications:

Applications will be reviewed by volunteer members of the BSCES Environmental & Water Resources Institute and Mr. Golden's widow Ms. Carol Fusaro.

Presentation of the Award:

The Award recipient will be announced at a spring or fall Environmental & Water Resources Institute Chapter event.

BOSTON SOCIETY OF CIVIL ENGINEERS SECTION

Help the YMG Fight Hunger this Thanksgiving Season!

BSCES YMG Holiday Meal Drive

Holiday Meal Drive
GBFB.org/holidaymeals
The Greater Boston FOOD BANK

Deadline to donate is November 26, 2014

This Thanksgiving YMG is supporting the Greater Boston Food Bank Holiday Meal Drive to help fight hunger in the Boston community!

You can help us by donating! A link to the YMG team donation page is provided at the bottom of this flyer. Full details are provided on the website. Below are the highlights of the fundraiser:

- The goal of the Holiday Meal Drive is to provide Thanksgiving meals to families in need in the Eastern Boston area.
- Every $1 donated allows the Greater Boston Food Bank to purchase and distribute an incredible $5.94 worth of highly nutritious food.
- The YMG fundraising goal is $1,000 (which will equal 250 Thanksgiving meals!).

Donate Today: www.gbfb.org/bsce

If you have any questions, please contact Anthony Richardson at anthony.richardson@jacobs.com.