

City of Cambridge and MWRA Achieve Major Milestone in Boston Harbor Cleanup

by John J. Struzziery, PE, Senior Program Manager, Kleinfelder; Duke Bitsko, RLA, Principal Landscape Architect and Director of Interdisciplinary Design, Chester Engineers; and Emerson Olander, PE, Project Technical Lead, MWH Global

In December 2015, the City of Cambridge Department of Public Works (CDPW) and its project team met a major milestone, completing the complex \$100 million CAM004 Sewer Separation Project to reduce combined sewer overflows (CSOs) to Alewife Brook and, in turn, improve the water quality of the Mystic River and Boston Harbor.

The CAM004 Sewer Separation Project, 20 years in the making, is a vital part of the Massachusetts Water Resources Authority's (MWRA) federally mandated Long-Term Control Plan (LTCP). In 1996, Cambridge and MWRA entered into a Memorandum of Understanding and Financial Assistance Agreement by which the City of Cambridge agreed to design and construct projects within MWRA's CSO control plan that would be owned and operated by the City.

One of the projects assumed by the Cambridge team as part of the CAM004 project included

the separation of combined sewers in three Cambridge neighborhoods (Huron A, Huron B and Concord Ave.) to help reduce typical rainfall year CSO volume to the Alewife Brook, a tributary to the Mystic River and Boston Harbor, by 85%.

Owen O'Riordan, CDPW commissioner of public works, reflected on the enormity of bringing major infrastructure upgrades into well established neighborhoods and public resource areas, saying, "Since beginning this project in 1998, we've been through an enormously arduous permitting and legal process as well as a huge public outreach effort to make sure the individual elements of this program were successful and accepted by the community."

Community Connections

The CAM004 Sewer Separation Project is managed by the Department of Public Works, with design and construction phase services by

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President's Report

by Ellen P. White, PE, Senior Program Manager, Patrick Engineering Inc.



BSCES has been very fortunate to have been recognized by ASCE nationally for its achievements. This year, BSCES received the Outstanding Section and Branch Award for Very Large Sections and Branches as well as the History & Heritage Citation. I am also happy to announce that two of our members have received individual recognition. Professor Jerry Hajjar of Northeastern University received the 2016 Moisseiff Award for co-authoring the paper, "Quasi-Static Cyclic Behavior of Controlled Rocking Steel Frames," which was featured in the November 2014 issue of the

Journal of Structural Engineering. Professor Steven Chapra of Tufts University was honored with the 2016 Wesley W. Horner Award for his paper, "Sed2K: Modeling Lake Sediment Diagenesis in a Management Context," which appeared in the March 2015 issue of the *Journal of Environmental Engineering*. Congratulations to them and all of the ASCE award recipients.

Keeping with the theme of this newsletter, *Water Infrastructure*, BSCES has been instrumental in support of the statewide Climate Adaptation Management Plan (CAMP) legislation. Last month former BSCES president Peter Richardson of Green International Affiliates, Inc., and Chad Cox of GZA GeoEnvironmental, Inc., spoke at a

UPCOMING EVENTS

Younger Member Group Billiards Tournament & Networking Event February 23, 2016

Program Committee Sponsored PE Exam Preparatory Course February 23 – April 14, 2016

Geo-Institute Boston Chapter Event March 10, 2016

COPRI Boston Chapter Event March 15, 2016

T&DI Boston Chapter Event March 24, 2016

Program Committee Sponsored NHI Training April 4 – 15, 2016

104th BSCES Student Night April 6, 2016

Francis M. Keville 27th Annual Dinner April 14, 2016

Further Details Inside



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legislative briefing at the State House in support of this initiative. This legislation would require the state to develop a climate change mitigation plan and meet new long-term carbon emission reduction benchmarks. A few weeks later the legislation passed unanimously in the State Senate. To learn more about the legislation, please read Peter's article on page 4 of this newsletter.

BSCES has been actively promoting legislation and regulations that support our profession and our infrastructure at the local and national level. BSCES Legislative Fellow Mike Sullivan serves as a technical resource at the State House and

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Boston Harbor Cleanup

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engineering consultants Kleinfelder, Inc., MWH Global, and Chester Engineers.

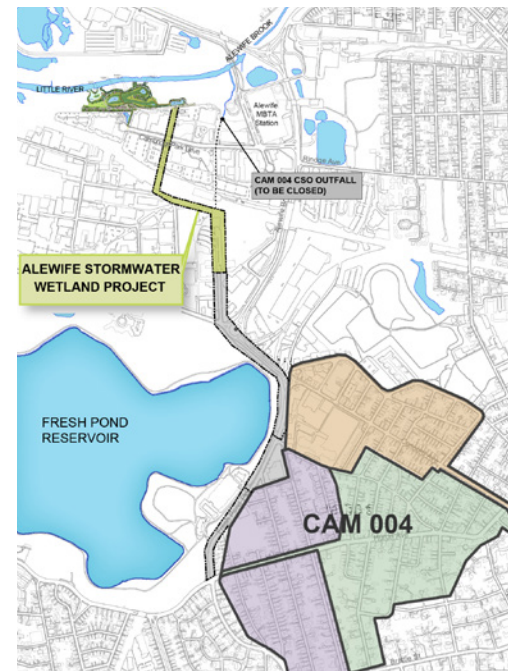
Prior to the CAM004 Sewer Separation Project, over 13 miles of combined sewers conveyed a mix of sanitary and stormwater flows to MWRA's interceptor system that follows the Alewife Brook in west Cambridge. In large storms, combined flows can exceed the capacity of the interceptor system causing discharge of combined sewage to the Alewife Brook at several CSO outfalls owned and operated by Cambridge, MWRA and the City of Somerville. These CSOs protect upstream sewers from backing up into homes and businesses or overflowing onto streets during large storms.

The wastewater infrastructure in the CAM004 area serves over 10,000 people in a tightly congested area bounded by Harvard University to the south, Fresh Pond (part of Cambridge's water supply) to the west, the Massachusetts Department of Conservation and Recreation's Alewife Reservation to the north, and residential and commercial areas along Massachusetts Avenue to the east. Much of the combined sewer system was originally constructed over 100 years ago.

While the overarching goal of the sewer separation project was to improve water quality in the resource waters, objectives also included:

- 1) maximizing the removal of stormwater from the sewer system to facilitate the permanent closure of CSO Outfall CAM004;
- 2) reducing the risk of sewer system backups in the neighborhoods and the Fresh Pond water supply area;
- 3) redirecting the separated stormwater to the Little River upstream of Alewife Brook;
- 4) eliminating illicit sanitary connections to the storm drain system;
- 5) avoiding adverse flow or water quality impacts of the separated stormwater on the Little River and Alewife Brook.

In order to achieve the sewer separation work within a tight federal court ordered schedule that required completion of the project by December 31, 2015, the project team coordinated multiple construction activities in the Huron A, Huron B, and Concord Ave. neighborhoods. At times, over 20 utility crews were working simultaneously. The project team took exceptional care to facilitate a safe and efficient logistics plan that sequenced



The CAM004 sewer separation project area within the MWRA service area.



Sewer and storm drain construction along Concord Avenue.

multiple crews with the least impact on traffic and the community.

The sewer separation project also improved capacity in the sanitary sewer system by eliminating hundreds of sources of private property inflow such as discharge from sump pumps, area drains, and roof drains. Approximately 200 properties received private property inflow removal work, which required close coordination with each property owner.

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Boston Harbor Cleanup

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In addition to the water quality benefits of the sewer separation program, the project team identified and replaced or rehabilitated other sewer, drain, water, and gas infrastructure that were in need of structural rehabilitation for long-term safety and reliability. The subsurface utility work in each street will be followed by “complete streets” streetscape modifications consisting of full depth pavement reconstruction, new sidewalks, landscaping, lighting and traffic calming measures, along with green infrastructure, where possible, to further enhance water quality improvements. Green infrastructure will include stormwater bump-outs, bioretention basins and porous pavement. The remaining surface restoration work will continue into 2017.

A Job Well Done

Now complete, the sewer separation project and infrastructure upgrades ensure that stormwater from these areas will no longer contribute to combined sewer overflows to the Alewife Brook, helping to lower CSO activations along the Brook from more than 60 events before the project to no more than 7 events in a typical rainfall year and reduce annual CSO discharge volume from 50 million gallons to 7 million gallons.

Stormwater from these neighborhoods is now conveyed to the Alewife Stormwater Wetland. Completed in 2013, the Wetland stores and treats stormwater from the neighborhood. The wetland includes several interdependent and complementary elements for stormwater treatment, as well as passive devices and controls to support pre- and post-peak stormwater discharge rates. The wetland system allows sediment in the stormwater to settle in a forebay designed for efficient, periodic sediment removal by the City. From there, the stormwater enters the main wetland basin, where additional



Stormwater from the CAM004 neighborhoods is conveyed to the Alewife Stormwater Wetland, where the water is stored and treated before it drains to the Little River on its way to the Alewife Brook.

contaminants are absorbed by native plants, further improving the quality of the stormwater that drains slowly to the Little River and, in turn, Alewife Brook.

“Given the challenges associated with the project,” says O’Riordan, “we welcomed the robust team of consultants who worked together to complete this effort, keeping the ultimate goal in mind. Beyond the significant system improvements, we have new and innovative technologies that range from an automatic sewer and stormwater flushing system and controlled flow diversion structures to green infrastructure and an impressive, large stormwater wetland.”

The Boston region, the Mystic River Watershed, the City of Cambridge, and individual neighborhoods will benefit for generations from these improvements. When surface restoration is complete, the city and its neighborhoods will have improved and reliable infrastructure and utility services; more accessible streets and sidewalks for people of all abilities; and improved environmental and aesthetic features with over 400 new street trees.

In his order of Dec. 21, 2015, Richard G. Stearns, the US district judge for Massachusetts charged with overseeing implementation of MWRA’s CSO control plan, wrote, “The City of Cambridge and its Department of Public

Works deserve high praise for their efforts in overcoming the delays that had threatened the timely completion of CAM004 sewer separation, the last of the 35 capital projects in the MWRA’s comprehensive CSO Program.”

“The City of Cambridge has been a great partner in meeting the mandates of the Federal Court Order,” said Fred Laskey, MWRA’s executive director. “We are grateful to Cambridge for its hard work in overcoming a very complex project with a tight construction schedule. The completion of the last of the 35 CSO projects marks a major achievement for improved water quality in the Mystic, Charles, and Neponset Rivers and the beaches of Boston Harbor.”

John Struzziery, PE, is a senior program manager at Kleinfelder. Since 1998, Struzziery has been the technical services and program manager for the City of Cambridge Sewer Separation and Stormwater Management Program, responsible for overall program coordination and client contact. He is also the recipient of the Citizen Engineer Award from BSCES in 2013.

Duke Bitisko, RLA, is a principal landscape architect and director of Interdisciplinary design with Chester Engineers (formerly Bioengineering Group) in Salem, MA.

C. Emerson Olander, PE, is a project technical lead at MWH Global. He has served as the civil engineering discipline lead for all sewer and drain infrastructure in the CAM004 program and other City projects since 2010.

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Civil Engineers Explain the Need for a Statewide Climate Adaptation Management Plan (CAMP) to State Legislators

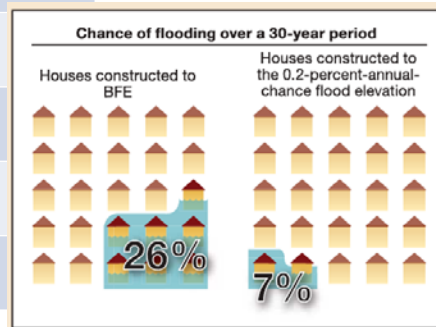
by Peter A. Richardson, PE, LEED AP, CFM, ENV SP, Vice President, Green International Affiliates, Inc.

On January 13, 2016, Chad Cox, PE from GZA GeoEnvironmental, Inc. and myself (speaking on behalf of the BSCES as part of the MA Climate Change Adaptation Coalition¹) were invited to speak at a legislative briefing at the State House on the need for establishing a Climate Adaptation Management Plan (CAMP) for the Commonwealth. The briefing, hosted by Senator Jamie Eldridge (D-Acton) as part of a Joint meeting between the Green Economy Caucus and the Coastal Caucus, was held in the House Chamber Lounge with more than 50 attendees. Most of the attendees were legislative staffers, but a number of state senators, including Senator Eldridge and Senate President, Stan Rosenberg (D-Amherst) also attended the event, which was covered by the State House News Service.

Chad Cox gave a presentation on Climate Change Adaptation Management Planning and the role of assessing risk and visualizing hazards. Chad explained how risk can be simply defined as the probability of an occurrence times the consequences of the event (i.e. Risk = Probability x Consequences). He explained further that in coastal areas, sea level rise increases storm surge, which in turn increases the probability of flooding. In other words, because of sea level rise, the 100-year flood (or 1% chance flood) by today's FEMA² flood analysis could be a 25-year (4% chance) flood or even a 10-year (10% chance) flood in the not too distant future depending on how fast sea level rise occurs. This increased probability, combined with the fact that there is an increasing amount of development occurring in coastal areas, means that the risk of flood damage is increasing. Increased risk also occurs for development in non-coastal, riverine floodplains when climate change results in increased rainfall intensities and depths.

Chad explained the benefits of increased freeboard for new construction, which is

Period of Time	100-year Flood (Return Period)
1 year	1%
10 years	10%
15 years	14%
20 years	18%
30 years	26%



Reduce risk with higher freeboard. Source: GZA GeoEnvironmental and FEMA

something that CAMP would consider as it evaluates floodplain management policies among all state agencies for consistency. He provided a graphic that shows how a structure that is built to the minimum current FEMA regulation (lowest floor above the 100-year flood elevation) has a 26% chance of being flooded over a 30-year time period, where the same structure only has a 7% chance of being flooded if it is elevated to the 500-year flood elevation. This probability should weigh into decisions relative to the construction of critical facilities, which does not happen consistently today.

Following Chad's presentation, I gave a presentation on ASCE's Infrastructure Report Card and our nation's need to invest in infrastructure that is sustainable and resilient. Being more socially and economically resilient to extreme weather events is the main goal of CAMP and is consistent with what ASCE (and BSCES) have been advocating for. After discussing the national infrastructure funding gaps from the Report Card (\$3.6 Trillion), along with gaps cited in the 2007 MA Transportation

Finance Commission study (\$15-\$19B) and the 2012 Water Infrastructure Finance Commission study (\$39B), I ended my presentation with the following points:

- Today we are building infrastructure for 2066 and beyond. Shortsighted Infrastructure funding decisions made today will cost us more in the future, will put future generations at risk of financial and environmental ruin, and will be our legacy.
- Waiting to respond to natural disasters typically costs 3-4 times more than investing in mitigation that would prevent or reduce impacts from natural disasters.
- Proper coordination and planning for climate change at the state level will eliminate waste, and communication breakdowns that could potentially cost lives.
- CAMP will help ensure that our infrastructure investments are economically, environmentally and socially sustainable and through increased attention to resiliency, are the most beneficial over time.

On January 28, 2016, CAMP legislation passed unanimously in the state Senate and is now off to the House of Representatives for consideration.

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 April 2016 issue of the newsletter for example, will highlight the BSCES Younger Member Group and feature one or more articles about on the topic of Outreach & Volunteerism.

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 rkeenam@engineers.org.

1. For more information on the MA Climate Change Adaptation Coalition, see <http://www.massadapt.org>
2. The Federal Emergency Management Agency (FEMA) provides Flood Hazard Mapping of the entire United States as part of the National Flood Insurance Program and currently designates the 100-year floodplain or the Special Flood Hazard Area as a zone where construction must comply with 44CFR 60.3.

Branch & Committee Reports

SEMAC Draws a Full House with Geopier Workshop

by John C. Cavanaro, PE, Principal, Cavanaro Consulting

Following two successful technical events since inception, the Southeastern Massachusetts Committee (SEMAC) held its 3rd event on November 19, 2015 at the Abington Ale House in Abington, MA to a capacity crowd for an informative technical session with Dr. Kord Wissmann, from the Geopier Foundation Company. Kord J. Wissmann, PhD, PE, DGE is the president and chief engineer at Geopier Foundation Company, Inc. based in Davidson, North Carolina. Dr. Wissmann has more than 25 years of experience in geotechnical engineering spanning the gamut from consultants to designers to specialty contracting.

Dr. Wissmann gave a terrific four-hour presentation about the ongoing evolution in the design and construction of aggregate pier ground support systems used in New England and throughout the country. After a delicious buffet breakfast, Dr. Wissmann talked in great detail

about how to manage design assumptions, considerations for organic and soft cohesive soils, construction techniques for cemented piers, geotechnical and structural engineering related design of ground support for floor slabs, and ground improvement for soil liquefaction and slope stabilization. The interactive discussion focused on the importance for design professionals to thoroughly understand the concepts behind ground improvement design, construction, and verification so that they can make informed recommendations to their clients regarding ground support alternatives that are safe, reliable, cost effective, and designed in accordance with the intent and requirements of the building code.

SEMAC has been holding monthly lunch meetings on the third Friday of the month on the South Shore, and extends an open invitation to all interested parties. Please contact any of the



Dr. Kord Wissmann presents to a capacity crowd at SEMAC's Technical Event held at the Abington Ale House in Abington, MA.

folks below for additional information on becoming active in the SEMAC.

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President's Report

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generally works with the Joint Committee on Transportation. You can read his monthly updates in *BSCESNews*. We also work with the other sponsor associations of The Engineering Center Education Trust (TECET) to develop materials for Engineers and Land Surveyors Day at the State House which will be on May 10. [Click here](#) to learn more about this event. At the national level, the ASCE Legislative Fly-In will be in Washington, DC on March 15–17. If you are unable to attend you can still be an advocate by becoming an ASCE Key Contact. [Click here](#) to learn more about these efforts or to become involved with the Government Affairs & Professional Practice Committee.

Our advocacy is not just limited to legislative issues. Our Public Awareness & Outreach

Committee (PA&OC) is dedicated to educating the K–12 community about our profession. Earlier this month, I had the opportunity to be a judge at the BSCES Model Bridge Competition. The 25 teams of middle and high school students from across Massachusetts built 40" long bridges out of pasta. The bridges were limited to a maximum weight of three pounds, varied in form, and used every imaginable type of dried pasta. Bridges were judged on aesthetics and efficiency. Surprisingly, some bridges were able to support loads exceeding 50 pounds. The event was a great success thanks to the efforts of PA&OC Chair Olivia Richards, former BSCES president and committee chair Reed Brockman, and all the mentors and volunteers. Special thanks to the other judges: Mike McGrath and Tony Ricci of MassDOT, Erik Stoothoff and Terry McCarthy of the MBTA, and Bill Egan

from the City of Boston. We are also grateful to MassDOT for hosting the event.

In closing, I would like to thank all of our corporate sponsors, particularly this month's featured sponsor, Kleinfelder. We are grateful for their support of BSCES and encourage you to read their featured article entitled City of Cambridge and MWRA Achieve Major Milestone in Boston Harbor Cleanup, which was written by John Struzziery, Kleinfelder, Duke Bitsko, Chester Engineers, and Emerson Olander, MWH Global. The Environmental & Water Resources Institute (EWRI) Boston Chapter is the featured group for this newsletter and I encourage you to read their page 6 article, which was written by the EWRI Boston Chapter Chair Matt Hodge of Hodge.WaterResources, LLC. To learn more about the EWRI Boston Chapter and the other technical areas [click here](#).



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Featured Group

ASCE Environmental & Water Resources Institute Boston Chapter

by Matt Hodge, PE, Hodge.WaterResources, LLC, Chair, EWRI Boston Chapter

The mission of the Environmental & Water Resources Institute (EWRI) is to “provide for the technical, educational and professional needs of its members, and to serve the public in the use, conservation, and protection of natural resources and in the enhancement of human well-being.” EWRI publishes several ASCE engineering journals (Environmental, Hydraulics, Hydrologic, Irrigation & Drainage, Water Resources Planning and Hazardous, Toxic & Radioactive Waste Management) and holds an annual national conference. Additional information on the national chapter is available at www.asce.org/ewri.

The ASCE EWRI Boston Chapter brings together members from both the public and private sectors to engage in a wide range of water resources and environmental engineering subjects including hydrology and hydraulics, coastal hydrodynamics, stormwater management, flood protection, watershed management, water quality and natural systems, water supply, climate change and sustainable development technology, and best management practice design. Each year, EWRI Boston Chapter organizes lectures, workshops, and tours in various topics.

Thus far in the 2015-2016 year EWRI Boston Chapter has hosted two events. The first event was jointly organized with the Coasts, Oceans, Ports, and Rivers Institute (COPRI) of BSCES. The event was held on December 1, 2015 at the Wyndham Boston Beacon Hill. Ms. Robbin Peach, program manager of resiliency at Massport, gave an overview of the Massport process to make its assets more resilient to flooding. Robbin discussed the planning process, technical studies that had been undertaken to inform decision making, and gave many examples of physical and

conceptual changes that Massport has made to improve resiliency. The event was well attended and Robbin's presentation was well received by the more than 80 professionals in attendance.

The second event was part of EWRI Boston Chapter's continuing efforts to provide education to engineers just beginning their professional career. For the past three years, the chapter has hosted a multi-night workshop. Each year has focused on a different topic. In 2013–2014 the workshop was on stormwater, in 2014–2015 the workshop was focused on an introduction to computer programming related to water resources, and the 2015-2016 workshop focused on new software that will be part of the profession in the future. On December 8, 2015 Ms. Karen Madsen, PE, AECOM, gave a presentation titled *GRASS GIS Hydraulic Models*, which focused on free open-source software that can be used to conduct hydraulic analyses of various types. Then on December 15, 2015 Derek Etkin, PE, CDM Smith, gave a presentation titled *HEC-RAS Version 5.0: 1D-2D Surface Hydraulic Modeling—Introduction Workshop*, which focused on the soon to be released Hydrologic Engineering Centers River Analysis (HEC-RAS) new version which includes two-dimensional flow. An engaged group of approximately 20 professionals of all levels of experience learned about the software and discussed applicability to their work.

The EWRI Boston Chapter committee is actively working on two additional events for the 2015-2016 year. On April 11, 2016 Dr. John Lienhard, PhD, professor and director of J-WAFS will speak at the 2016 John R. Freeman Lecture. Then in June 2016, EWRI will host the Thomas R. Camp Lecture with a speaker and topic still to be determined.

EWRI Boston Chapter meets on a monthly basis to discuss industry related topics and coordinate events that are of interest to the engineering community. We still have a number of upcoming events and would love for you to be a part of planning and conducting these exciting lectures. We strongly encourage you to participate in our planning meetings to make sure that EWRI events reflect your interests. Contact me at Hodge.WaterResources@gmail.com or Ron Burns at rburns@chacompanies.com for more information on how to become involved.

BSCES

Boston Society of Civil Engineers Section
American Society of Civil Engineers

BSCES Awards Nominations Deadline is May 16

Do you know a worthy award recipient? If so, then download, complete and submit the 2016 BSCES Employer Recognition and/or Section Awards form contained in this newsletter by the Monday, May 16, 2016 submission deadline. Created in 2006, the Large and Small Employer Recognition Awards are given to those organizations who exhibit exemplary support of ASCE and BSCES. The long-standing BSCES Section Awards are given to individuals who have made significant contributions to the profession and their communities.

Please see the awards nomination forms at the end of this month's newsletter for further details.

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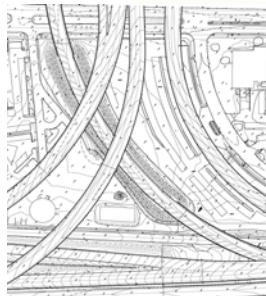
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EASTERN TOPOGRAPHICS



BSCES Legislative Fellow Update from Beacon Hill—Value Capture

by Michael Sullivan, PE, Senior Bridge Engineer, Collins Engineers, Inc., 2015-2016 BSCES Legislative Fellow



Central to the debate of the future of the planned Green Line Extension through Somerville and Medford is an infrastructure financing mechanism known as value capture. Transportation officials have stated publicly that they will seek municipal and private capital contributions as deliberation over the future of the project continues, and value capture programs may provide one avenue to do so. Broadly defined, value capture is a public financing tool that redirects some portion of the value created by a public infrastructure project towards paying capital, debt or operating costs associated with the project.

Existing value capture programs available to developers and municipalities include DIF, TIF and I-Cubed, and a new financing tool—one that could factor into the discussion concerning the Green Line Extension—may soon join them. House bill 3877, An Act relative to transportation infrastructure value capture, filed by Transportation Committee co-chair Representative Bill Straus in November, introduces a concept described as Supplemental Infrastructure Financing for Transportation, or SIFT. SIFT would allow

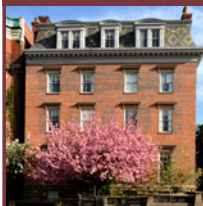
municipalities to devote incremental increases in property tax revenue to MBTA or DOT transportation projects that are likely to result in rising property values. The bill authorizes the secretary of transportation to make determinations concerning eligibility and the scope of a municipality's participation, and would require local approval following a public hearing before any tax increment agreement could be implemented. Unlike existing programs such as DIF, the proposed legislation would permit cities and towns to contribute tax revenue directly to projects owned by the MBTA or the Department of Transportation,

making SIFT particularly relevant to the question of GLX funding.

The bill also includes a provision requiring the secretary of transportation and secretary of administration and finance to conduct a joint study on the feasibility of dedicating "new state tax revenues," as that term is defined under the I-Cubed program, generated by a state infrastructure project to the capital costs of such project.

A public hearing for the bill was held on January 6th and featured testimony from A Better City and the Metropolitan Area Planning Council.

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Recent News and Updates

2016 Ernest A. Herzog Award Submissions are Due March 15

This is a final reminder that March 15, 2016 is the deadline for submitting a paper to T&DI Boston Chapter Herzog Award Competition Subcommittee, which will be selecting the winning paper for the 2016 Ernest A. Herzog Award. Submitted papers shall present an infrastructure project, innovation or idea in which the author was actively involved in as an owner, advocate, engineer, or end-user. Areas of application may include design, construction, operation, maintenance, management or financing of infrastructure components or systems. For more details about this award, see the insert at the end of this month's newsletter.

BSCES is Accepting Nominations for the "Sustainability in Civil Engineering Award"

Until Sunday, May 1, 2016 the BSCES Committee on Sustainability will accept nominations for the 2016 Sustainability in Civil Engineering Award. Now in its second year, this award recognizes a Massachusetts civil engineering infrastructure project constructed within the last three years that exemplifies the principles of sustainability espoused by the Institute of Sustainable Infrastructure (ISI). For more information regarding submission guidelines and evaluation criteria for this award, please see the insert at the end of this newsletter or download the awards form from our website at [BSCES Sustainability Award Form](#).

New England ASCE Student Conference

Northeastern University and Wentworth Institute of Technology have the privilege of co-hosting the 2016 New England ASCE Student Conference on April 22–24, 2016. Colleges and universities from all over New England and parts of Canada will gather at the Northeastern campus to present their bridge and canoe designs and see if they are strong enough to make it to the National Competition. All are welcome to witness this exciting event to cheer on your alma mater or favorite team. Please consider sponsoring this event to help reduce direct costs to students. Questions regarding sponsorship opportunities should be directed to Steel Bridge Competition Co-Chairs Corinne Bowers and Christine Lai (nuascesteelbridge2016@coe.neu.edu) or Concrete Canoe Competition Chair Jamie Grome (asce@wit.edu).

State House Visit

On Tuesday, May 10, 2016, engineers will visit the Massachusetts State House for our Annual Engineers and Land Surveyors Day. Sponsored by ACEC/MA, BSCES, and MALSCE, this event allows the design/engineering community to speak with a single voice on issues that matter to us. BSCES recognizes the need for our industry to participate in development of public policy and the legislative process as they relate to our infrastructure. This event is one of the best opportunities to influence legislators. We hope you can provide your time and expertise to make this a successful event. [Click here](#) for additional details and registration.

Update Your ASCE Profile

Have you moved lately, changed jobs, or do you have a new email address? It is very important that we receive your updated contact information. Please make sure you update your profile at ASCE National. Every month BSCES receives updated member information from ASCE that we utilize for all BSCES correspondence. You have a personal profile that you can access to update your contact information. Simply go to the ASCE "Membership & Communities" page and click on the "Log in..." bullet under the *Already a Member* section. This will prompt you to log in. Once you've logged in, you can edit your contact information. Members can also always call 800-548-2723 and have someone in Customer Service make updates for them over the phone.

ASCE's #1 Region

Representation of membership on ASCE's National Board of Direction is accomplished through 10 Regional Directors. The United States is divided into 9 geographic regions; the rest of the world is Region 10. BSCES is a member of Region 1 (or the #1 Region as it is sometimes referred) along the other New England States, New Jersey, New York and Puerto Rico....yes, Puerto Rico. The Region 1 board is comprised of 7 "Governors". Under the directions of Region Director, Len Cilli, these individuals are assigned to various sections and help to facilitate discussion between the local section and the Society. BSCES is represented by past-president Linda Hager from the MBTA.

BSCES' TV Show

Every month, BSCES volunteers Reed Brockman (AECOM) and AnaCristina Frago (WSP PB) host a TV show, *Civil Engineering Today*. The show is

broadcast live, and takes call-ins, on the second Wednesday of each month at 4:00 PM on BNN-TV 9, a Boston-only Comcast channel. Episodes have featured BSCES award winners, discussions of infrastructure needs, and the political and economic facets infrastructure investment. The overall goal of the program is to educate the public about our industry. There is a great catalog of past programs on [YouTube](#).

Raise the Bar

One of ASCE's strategic initiative, commonly referred to as "Raise the Bar", seeks to increase the educational requirements for civil engineering licensure. With the changing face of science and engineering, it is necessary to continue to learn and adapt. In just 30 years, we have gone from using slide rules and log tables to GPS, sophisticated modeling software, and smartphones. Change will continue to happen, most likely at a heightened pace. The undergraduate engineering programs, largely due to financial restrictions placed by legislative bodies, have decreased from an average of 145 semester hours to 128 over the past several decades. ASCE, as outlined in Policy 465, believes the educational required for licensure should be a baccalaureate degree in civil engineering, plus a "master's degree, or approximately 30 coordinated graduate or upper level undergraduate technical and/or professional practice credits." The flexibility of pursuing either a master's degree or the alternative of an equivalent 30 credit hours provides two viable paths to meet the needed educational requirements of the future.

Social Media

Did you know that BSCES is "connected"? As forms of communication continue to expand, BSCES is trying to keep up with all of the social media outlets. Our [twitter](#) account has over 300 followers from state agencies to engineering firms. We invite you to follow us and hashtag BSCES (#BSCES) if you attend one of our events. The BSCES Facebook page has almost 800 "likes." The page is used to announce upcoming events, provide picture galleries of some of our signature events, and sometimes shows the lighter side of engineering. Almost 1,800 individuals have connected with BSCES on [LinkedIn](#). This forum is used for meeting announcement and discussions that are more technical in nature. These sites, in addition to the [BSCES homepage](#), will provide information on upcoming events and highlight BSCES accomplishments.

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.

Younger Member Group Event

Tuesday, February 23, 2016

Scholars Boston Bistro
25 School Street, Boston, MA

6:00 PM Registration/ Social

6:30 PM Billiards Tournament

YMG Annual Billiards Tournament and Networking Event

Join YMG for our annual billiards tournament at Scholars Boston Bistro. Participants will compete in random teams of two for a grand prize of Red Sox tickets for the winning team, plus prizes for 2nd and 3rd place winners.

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

BSCES Program Committee Sponsored Training

**Tuesdays and Thursdays,
February 23 – April 14, 2016**

Tufts University, 200 College Street
Medford, MA

7:30 – 9:30 PM except for the initial session
which runs from 7:30 – 10:00 PM

Spring 2016 BSCES Professional Engineer Refresher Course

Are you or is someone you know taking the PE exam? This course will feature 12 sessions covering all aspects of the Professional Engineer State Exam. Taught by leading authorities in their fields, session topics include exam review, hydraulics, hydrology, water supply, waste-

water, transportation, structures, geotechnical, engineering economics, highway design, and construction management.

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

Geo-Institute Boston Chapter Event

Thursday, March 10, 2016

Wyndham Boston Beacon Hill
5 Blossom Street, Boston, MA

5:30 PM Social/Registration

6:30 PM Dinner and Program

Port of Miami Tunnel

Peter F. Donahue, PE, ENV SP, Vice President,
WSP | Parsons Brinckerhoff

Steve Dussault, Senior Engineering Manager,
WSP | Parsons Brinckerhoff

The award winning Port of Miami Tunnel boasts a number of firsts, the first Public-Private Partnership developed in the State of Florida, the largest soft ground bored roadway tunnel completed in North America, the first use of ground freezing as temporary support in Florida and one of the most extensive ground treatment programs done in Florida. This presentation will discuss the procurement method, technical challenges and management approach on this highly successful project.

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

COPRI Boston Chapter Event

Tuesday, March 15, 2016

The Chateau, 404 Boston Providence Hwy
Norwood, MA

5:45 PM Social/Registration

6:30 PM Dinner

7:30 Presentation

Assessing the Effects of Climate Change to the Massachusetts Central Artery and Beyond

Kirk Bosma, PE, Project Manager and Coastal Engineer, Woods Hole Group, Inc.

This presentation will focus on a key component of the climate change assessment: the development of the Boston Harbor Flood Risk Model (BH-FRM). Examples of model output and interpretation will be presented. Results of this probabilistic model are currently being utilized for planning by many stakeholders and communities beyond MassDOT, and due to the success of the CA/T evaluation, the same methodology is now being applied to the entire coast of Massachusetts.

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

[continued on page 10](#)

Save the Date!

Friday, May 20, 2016

2016 Bertram Berger Seminar A New Focus for Growth Around the Commonwealth

Sponsored by the T&DI Boston Chapter

Courtyard Boston Downtown
75 Tremont Street, Boston, MA

Look for more information in future issues of BSCESNews.

Register Today!

Francis M. Keiville 27th Annual Dinner

Joint Meeting of the CI and T&DI
Boston Chapters

Thursday, April 14, 2016

Courtyard Marriott Downtown Boston
275 Tremont Street, Boston, MA 02116

5:30 PM Reception; 6:30 PM Dinner

Featuring: **Mayor Joseph Sullivan**
Braintree Mayor, MassDOT Board Member

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

ASCE Webinars

ASCE WEBINARS

SUPPORT OUR SECTION

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

ASCE | CONTINUING EDUCATION

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

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

Upcoming Events *(continued from page 9)*

T&DI Boston Chapter Event

Thursday, March 24, 2016

Wyndham Boston Beacon Hill
5 Blossom Street, Boston, MA

5:30PM Social/Registration

6:00PM Meal

6:30PM Presentation

The Massachusetts Transportation Program—A Legislative Update—New Local and State Funding Mechanisms to Advance Public Infrastructure Projects

State Representative William Straus, Co-Chair Transportation Committee

State Representative Smitty Pignatelli, Ways and Means Committee

Mayor Joe Sullivan, Town of Braintree

Steve Woelfel, Director of Strategic Planning, MassDOT

Moderated by: William Lyons, President and CEO, The Fort Hill Companies

Legislation is currently proposed to allow local municipalities the right to impose local gas tax and regional capital taxes for specific infrastructure projects. Tolls and mileage based taxes are also possible at the state level. The panel will discuss the merits of these bills, how these bills have the potential to impact funding for future projects and other local and state initiatives that could be used to fund transportation projects. This important update is a great opportunity to

network and provide your thoughts to our legislative leaders.

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

BSCES Program Committee Sponsored NHI Training

Monday – Friday, April 4 – 15, 2016

Hilton Garden Inn Worcester
35 Major Taylor Blvd, Worcester, MA

8:00 AM – 4:30 PM

FHWA-NHI-130055—Safety Inspection of 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 or FHWA-NHI-130054 Engineering Concepts for Bridge Inspectors.

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

104th BSCES Student Night

Wednesday, April 6, 2016

Tufts University, Alumnae Hall
40 Talbot Avenue, Medford, MA 02155

5:30 PM Social/Registration

6:30 PM Dinner

7:30 PM Presentation

Designing for Tornadoes: A Paradigm Shift

Dr. Long T. Phan, PhD, PE, F.ACI, Acting Director, Disaster and Failure Studies Program, National Institute of Standards and Technology

Dr. Phan has conducted research on a wide range of topics, including investigations of damage to the built environment caused by natural or man-made disasters. He has conducted numerous tornado investigations, such as those in Jarrel, Texas (1997); Orlando, Florida (1998); Alabama (1998); Spencer, South Dakota (1998); Joplin, Missouri (2011); and Newcastle-Moore, Oklahoma (2013). Dr. Phan will discuss the lessons learned from these investigations, the key recommendations made in the studies, and how the design methodology for tornado events has changed and evolved.

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

Classifieds

Nitsch Engineering

Nitsch Engineering is searching for a **Senior Structural Engineer**. In this role you will perform structural analysis and prepare designs for bridge and building projects; utilize structural software and CADD during preliminary and final design, complete independent structural calculations and studies, prepare preliminary and final plans, specifications and estimates (PS&E), provide construction administration services; and

perform NBIS inspections and ratings of bridges. We are looking for an individual with 5–10 years of relevant design experience, a BS in Civil Engineering with structural focus (or equivalent degree), familiarity with AutoCAD and structural software such as STAAD, Bentley's bridge design and rating software, and familiarity with building design codes and MassDOT's bridge design policies and guidelines. Professional registration is required. Visit www.nitscheng.com/?p=5432, or forward resume to jobs@nitscheng.com.

PLAN TO PARTICIPATE!



The Engineering Center Education Trust

ENGINEERS WEEK CAREER FAIR

THURSDAY, FEBRUARY 25, 2016

MARRIOTT COURTYARD BOSTON DOWNTOWN
275 TREMONT STREET | BOSTON, MA 02116

This Career Fair will attract more than 20 employers and over 300 engineering students from colleges and universities throughout the northeast as well as industry professionals.

To learn how you can participate [click here](#).



The Precarious State of the World's Water (and Some Corrective Strategies) Engineers Week Distinguished Seminar



William S. Howard,
PE, BCEE, FASCE,
Executive Vice
President, CDM Smith

**Host: Department of Civil
and Environmental
Engineering**

**Thursday, February
25, 2016**

Reception

010 Behrakis Health
Sciences Center (BK)
4:30 p.m. – 5:30 p.m.

Seminar

010 BK
5:30 p.m. – 6:30 p.m.

*Sponsored by the Department
of Civil and Environmental
Engineering*

Abstract: This presentation will highlight the “2015 FIDIC State of the World Report on Water Challenges,” which Mr. Howard recently authored for FIDIC, the International Federation of Consulting Engineers. FIDIC represents the business interests of global consulting engineering companies. The report was completed in September 2015 and distributed at FIDIC’s annual conference in Dubai last fall. The report summarizes the major global water challenges, outlines several possible strategies to address them, and makes note of some actual projects connected to these strategies. The presentation will include an overview of water; discussion of a one water concept, water as a resource and the need for increased infrastructure investment; and the role of government, engineers and others in addressing water global water challenges.

Biography:

Mr. Howard is an Executive Vice President of CDM Smith, a global engineering and construction firm headquartered in Boston, Massachusetts. He has served the firm in many senior leadership roles, including that of Chief Technical Officer, Chief Quality Management Officer, and President of the firm’s former Asia Pacific-Middle East Services Group, where he was responsible for the operations and performance of CDM Smith in 15 countries. He served on the firm’s Board of Directors from 1992 to 2012.

Mr. Howard is a Board Certified Environmental Engineer with the American Academy of Environmental Engineers, a Fellow of the American Council of Engineering Companies (ACEC), and a Fellow of the American Society

of Civil Engineers (ASCE). He served as Chairman of ACEC and also chaired the association’s International Committee. Mr. Howard was recently elected to the Executive Committee of the International Association of Consulting Engineers (FIDIC), a global organization that focuses on the business interests of the global consulting engineering community.

He earned a BS in Civil Engineering from Northeastern University in Boston, MA, an MS degree in Sanitary Engineering from Cornell University in Ithaca, NY. He is a registered professional engineer in a number of states.

Mr. Howard has made ongoing contributions to engineering education. He is a Trustee of his alma mater, Northeastern University, has chaired its Audit Committee, and serves on the Industrial Advisory Board of the Department of Civil and Environmental Engineering. In 2007, he was honored to receive the College of Engineering Outstanding Alumni Award. He was also Chairman of the National Commission of Cooperative Education and Co-Chair of the World Association of Cooperative Education (WACE) until June 2013. He was recently the recipient of WACE’s Leadership award and was inducted into their “Co-op Hall of Fame.”

Event is free and open to the public.

Parking: Renaissance Parking Garage, 835 Columbus Avenue

For more information visit: <http://www.coe.neu.edu/new>

Northeastern University
College of Engineering



Professional Engineer Refresher Course

Spring 2016 Schedule

Course lectures will be held at Tufts University in Medford, MA. All lectures are presently scheduled for Tuesday and Thursday evenings from 7:30-9:30 PM except for the initial session which runs from 7:30-10:00 PM. Due to changes in instructor availability or inclement weather it may be necessary to schedule make-up sessions on prearranged "Open" dates, which include Tuesday, March, 10 & April 12 and Thursday, March 17 & April 14.

Class	Day	Date	Time	Subject	Instructor	Phone
1	Tuesday	02-23	7:30-10:00 PM	Hydraulics & Exam Review	Willard Murray	978/944-1778
2	Thursday	02-25	7:30-9:30 PM	Hydrology	Willard Murray	978/944-1778
3	Tuesday	03-01	7:30-9:30 PM	Water Supply	Bruce Jacobs	617/879-0253
4	Thursday	03-03	7:30-9:30 PM	Wastewater	Annalisa Onnis-Hayden	617/373-2005
5	Tuesday	03-08	7:30-9:30 PM	Open		
6	Thursday	03-10	7:30-9:30 PM	Transportation	Rick Bryant	802/864-0223
7	Tuesday	03-15	7:30-9:30 PM	Structures	Brian Brenner	781/221-1147
8	Thursday	03-17	7:30-9:30 PM	Open		
9	Tuesday	03-22	7:30-9:30 PM	Structures	Brian Brenner	781/221-1147
10	Thursday	03-24	7:30-9:30 PM	Geotechnical	Jim Lambrechts	617/989-4986
11	Tuesday	03-29	7:30-9:30 PM	Geotechnical	Jim Lambrechts	617/989-4986
12	Thursday	03-31	7:30-9:30 PM	Open		
13	Tuesday	04-05	7:30-9:30 PM	Engineering Economics	Payam Bakhshi	617/989-4635
14	Thursday	04-07	7:30-9:30 PM	Highway Design	Peter Reed	617/896-4322
15	Tuesday	04-12	7:30-9:30 PM	Construction Management	Payam Bakhshi	617/989-4635
16	Thursday	04-14	7:30-9:30 PM	Open		
17	Friday	04-15	8:00 AM – 5:00 PM	State Exam		

Registration deadline is Thursday, February 18, 2016. You may register for this program and pay by credit card online at <http://bit.ly/PERefresherSpring16>. BSCES members have been assigned a username and password which they must use to register online at the member rate. Call 617/227-5551 if you do not know your username or password. You may also register by completing and returning this registration form and including payment by check (made payable to BSCES) or credit card. Mail your completed registration and payment to: BSCES, The Engineering Center, One Walnut Street, Boston, MA 02108-3616. Email or fax your registration to bscesreg@engineers.org or 617/227-6783, respectively. If you register in this manner and are paying by check, you must also mail a copy of this form with your payment. **No phone reservations will be accepted.** Registrations canceled after Thursday, February 18, 2016 will be charged the full program registration fee. For more information call 617/227-5551.

Registration Fees: (Please check the box to the left of the appropriate per person registration fee below):

☐ \$525 BSCES Member Rate
 ☐ \$610 Non-Member Rate
 ☐ \$525 Quantity Discount Rate*

Name: _____ Day Phone/Fax: _____

Organization: _____ Address: _____

City: _____ State: _____ Zip Code: _____

Email Address: _____

Please bill my (Check one): ☐ Visa ☐ MasterCard ☐ American Express

Name On Credit Card: _____

Credit Card Number: _____ Expiration Date: _____

Credit Card Billing Address: _____

Signature: _____

* Individuals are eligible to register at the \$525 per person Quantity Discount Rate when five or more individuals from the same organization are paid registrants for this Professional Engineer Refresher Course. If this is the case, please list below the names and email addresses of the other individuals from that organization who are attending this course. Complete and attach an additional registration form if more than five individuals from the same organization are registering.

Course attendees may visit [The Power to Pass](http://ThePowerToPass.com) website to order copies of *Civil Engineering Reference Manual for the PE Exam* and *Practice Problems for the Civil Engineering PE Exam: A Companion to the Civil Engineering Reference Manual*. Send an email to bsces@engineers.org requesting the promotional code that will enable you to receive a 15% discount on the cost of these and other PPI-published materials.



Boston Society of Civil Engineers Section
American Society of Civil Engineers



GEO-
INSTITUTE
Boston Chapter

Port of Miami Tunnel

Peter F. Donahue, PE, ENV SP

Vice President WSP / Parsons Brinckerhoff

Steve Dusseault

Senior Engineering Manager WSP / Parsons Brinckerhoff

Thursday, March 10, 2016

Wyndham Boston Beacon Hill, 5 Blossom Street, Boston, MA

5:30 PM Social/Registration; 6:30 PM Dinner and Program

The award winning Port of Miami Tunnel boasts a number of firsts, the first Public-Private Partnership developed in the State of Florida, the largest soft ground bored roadway tunnel completed in North America, the first use of ground freezing as temporary support in Florida and one of the most extensive ground treatment programs done in Florida. This presentation will discuss the procurement method, technical challenges and management approach on this highly successful project.

Registration Deadline: Friday, March 4, 2016

\$90 Members, \$115 Non-Members

\$75 Public Sector Members, \$90 Public Sector Non-Members

\$30 Student Members and Senior Members (65+)

\$900 Table of 10 (regardless of membership)

Information/Registration:

Register to attend this meeting and pay by credit card online at <http://bit.ly/GEO03-16>. To register online for an event at the BSCES member rate you must login using your BSCES assigned username and password. If you do not know your BSCES member login information call 617/227-5551. You can also register for this event by mail or email. To do so, download and complete a [BSCES Event Registration Form](#) and follow the submission instructions. Cancellations received after March 4, 2016 and no-shows will be billed.



Boston Society of Civil Engineers Section
American Society of Civil Engineers



COASTS, OCEANS,
PORTS & RIVERS
INSTITUTE
Boston Chapter

Assessing the Effects of Climate Change to the Massachusetts Central Artery and Beyond

Kirk Bosma, PE

Project Manager and Coastal Engineer, Woods Hole Group, Inc.

Tuesday, March 15, 2015

The Chateau, 404 Boston Providence Highway, Norwood MA

5:45 PM Social/Registration; 6:30 PM Dinner; 7:00 PM Presentation

The Central Artery/Tunnel Project (CA/T) is a critical link in the regional transportation network and is subject to adverse impacts of climate change. Assessments of the exceedance probability of storm surge water surface elevations, considering climate change, have helped decision makers identify areas of existing and future vulnerability and develop adaptation strategies and engineering alternatives.

This presentation will focus on a key component of the climate change assessment: the development of the Boston Harbor Flood Risk Model (BH-FRM). Examples of model output and interpretation will be presented. Results of this probabilistic model are currently being utilized for planning by many stakeholders and communities beyond MassDOT, and due to the success of the CA/T evaluation, the same methodology is now being applied to the entire coast of Massachusetts.

Mr. Bosma is a senior coastal engineer and team leader of the Coastal Sciences, Engineering & Planning team at Woods Hole Group. He specializes in applying numerical models to optimize engineering designs and reduce overall project lifecycle costs. Mr. Bosma holds an MS in coastal engineering from the University of Delaware and a BS in civil engineering from Calvin College.

Registration Deadline: Monday, March 7, 2016

\$55 Members, \$70 Non-Members

\$45 Public Sector Members, \$55 Public Sector Non-Members

\$45 Senior Members (65+), \$25 Students

Information/Registration:

Register to attend this meeting and pay by credit card online at <http://bit.ly/COPRI03-16>. To register online for an event at the BSCES member rate you must login using your BSCES assigned username and password. If you do not know your BSCES member login information call 617/227-5551. You can also register for this event by mail or email. To do so, download and complete a [BSCES Event Registration Form](#) and follow the submission instructions. Cancellations received after March 7, 2016 and no-shows will be billed.



FHWA-NHI-130055

Safety Inspection of In-Service Bridges

Monday, April 4, 2016 – Friday, April 15, 2016

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-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 Friday, March 4, 2016. 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: Friday, February 26, 2016

Registration Fees: \$3,000 Members, \$3,600 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/NHIIn-Service_2016. 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 March 4, 2016, including those that due so due to failure to take one of the prerequisite courses.



Boston Society of Civil Engineers Section
American Society of Civil Engineers



Designing for Tornadoes: A Paradigm Shift

104th BSCES Student Night

Dr. Long T. Phan, PhD, PE, F.ACI

*Acting Director, Disaster and Failure Studies
Program, National Institute of Standards and
Technology*

Wednesday, April 6, 2016

Tufts University

Alumnae Hall, 40 Talbot Avenue, Medford, MA 02155

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

7:30 PM Presentation



Dr. Phan is the Manager of the Structural Performance under Multi-Hazards Program and the Acting Director of the Disaster and Failure Studies at the National Institute of Standards and Technology (NIST). At NIST, Dr. Phan has conducted research on a wide range of topics, including investigations of damage to the built environment caused by natural or man-made disasters. He has conducted numerous tornado investigations, such as those in Jarrel, Texas (1997); Orlando, Florida (1998); Alabama (1998); Spencer, South Dakota (1998); Joplin, Missouri (2011); and Newcastle-Moore, Oklahoma (2013). Dr. Phan will discuss the lessons learned from these investigations, the key recommendations made in the studies, and how the design methodology for tornado events has changed and evolved.

Registration Deadline: Friday, April 1, 2016

\$20 Students; \$25 Senior Members (65+)

\$45 BSCES Members, \$50 Non-Members

\$40 Public Sector Members; \$45 Public Sector Non-Members

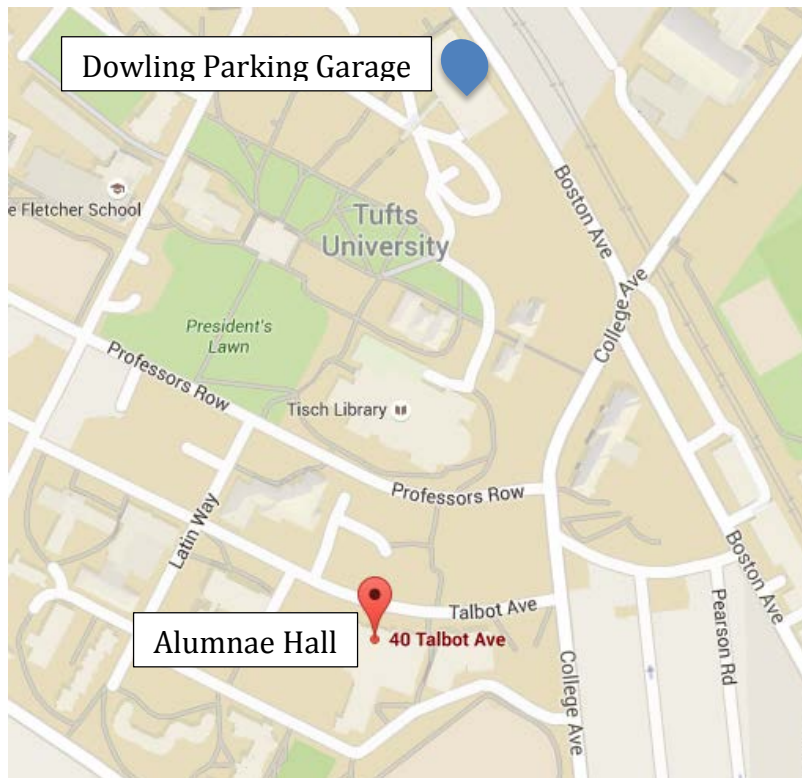
Information/Registration:

Register to attend this meeting and pay by credit card online at <http://bit.ly/BSCESStudentNight2016>. 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 April 1, 2016 and no-shows will be billed.



Boston Society of Civil Engineers Section
American Society of Civil Engineers

104th BSCES Student Night
Wednesday, April 6, 2016, 5:30 PM
Alumnae Hall
40 Talbot Ave, Medford, MA 02155



Alumnae Hall (marked in red) is located on Talbot Ave. Parking is available for \$8 at the Dowling Parking Garage, 419 Boston Avenue, Medford (marked in blue) or along Boston Avenue as available.

Public Transit: The nearest T stop is Davis Square (red line) with bus service (94, 96) to the intersection of Talbot and College Ave. Alumnae Hall is a 15 minute walk from Davis Square.

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



Student Chapters Committee



Tufts
UNIVERSITY

School of
Engineering

SIMPSON GUMPERTZ & HEGER



Engineering of Structures
and Building Enclosures

27th Annual Francis M. Keville Dinner

Joint Meeting of the CI and T&DI Boston Chapters

Speaker:

Mayor Joseph Sullivan

Braintree Mayor and MassDOT Board Member

Introduction of Speaker:

Stephanie Pollack

Secretary & Chief Executive Officer, MassDOT (Invited)

Date/Venue:

Thursday, April 14, 2016

Marriot Courtyard Boston Downtown, 275 Tremont Street, Boston, MA

5:30 PM Reception; 6:30 PM Dinner

Registration Deadline: Friday, April 8, 2016

\$75 Members, \$95 Non-Members

\$65 Public Sector Members, \$75 Public Sector Non-Members

\$60 Senior Members (65+), \$55 Students

\$750 Table of 10

Information/Registration:

Register to attend this meeting and pay by credit card online at <http://bit.ly/KevilleDinner2016>.

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 April 7, 2016 and no-shows will be billed.

BACKGROUND

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

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

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

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

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

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

PAPER GUIDELINES

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

RULES

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

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

- B.** 3 copies of the papers shall be submitted to:
BSCES/ASCE
The Engineering Center
One Walnut Street
Boston, Massachusetts 02108-3616
Attn: Boston Chapter TD&I
Herzog Award Committee

An electronic copy should also be sent to alyssa.marino@juno.com

Deadline for submittal: March 15, 2016.

- C.** The recipient will be invited to give a short presentation on the paper at the BSCES Transportation and Development Institute-Outreach Committee Spring Awards Celebration. Original papers may be submitted (with the author's permission) for publication in the BSCES Journal and for BSCES Annual Awards (celebrated in the fall of 2016).

REVIEWERS

The BSCES Herzog Award Competition Subcommittee.

EVALUATION CRITERIA

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

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

AWARD

The award presentation will be made at the BSCES Transportation and Development Institute-Outreach Committee Spring Awards Celebration on May 10, 2016. The recipient is required to present the paper at the awards dinner to a general audience that will include many non-engineers including middle and high school students. The recipient will receive a \$1000 award, a memorable plaque, and have the paper included in a future edition of the BSCES Journal.



February 2016

Announcement of the 2016 \$7,500 Simpson Gumpertz & Heger Scholarship

To Prospective Applicants:

The principals of Simpson Gumpertz & Heger Inc. (SGH) have established the Simpson Gumpertz & Heger Scholarship with the Boston Society of Civil Engineers Section/American Society of Civil Engineers (BSCES) to encourage undergraduate college students who strive for excellence and who aspire to a career in civil engineering. It has been our experience as a firm and as individuals that the field of civil engineering provides technically challenging assignments while offering an opportunity to make a significant contribution to society.

SGH supports the civil engineering profession and wishes to encourage gifted students in the pursuit of their careers. We welcome your participation in this scholarship opportunity.

What is the Simpson Gumpertz & Heger Scholarship?

SGH established this scholarship with BSCES in 1997 to encourage students in the pursuit of civil engineering as a profession. In 2016, the scholarship amount will be \$7,500 in the form of a check presented to the scholarship winner.

Who may apply?

All undergraduate-level civil engineering majors who are members of an ASCE Student Chapter or Club in Massachusetts, who have completed a minimum of two-and-one-half years of a four-year program (or the equivalent portion of a five-year or part-time program), and who expect to complete their undergraduate degree in May 2016 or later are eligible to apply for this scholarship.

Review of the Application

Applications will be judged with equal weight given to three categories: professional presentation in the letter of introduction and resume, quality of ideas expressed and clarity of communication demonstrated in the one-page essay, and capabilities reflected in college/university transcript(s).

A three-person committee consisting of two representatives of BSCES and one Principal of SGH will judge applications. Decisions of the committee will be final. Leading candidates may be asked to meet with members of the review committee. BSCES reserves the option of publishing applicants' essays in *BSCES News* and/or *Civil Engineering Practice*.

Presentation of the Award

The recipient of the scholarship will be announced at the 2016 BSCES Student Night the evening of Wednesday, 6 April 2016, at Tufts University. The award recipient will be notified in advance of the meeting and will be invited to attend Student Night as a guest of SGH.

Simpson Gumpertz & Heger Scholarship 2016 APPLICATION REQUIREMENTS

How to apply

Students interested in applying for the Simpson Gumpertz & Heger Scholarship are asked to submit the following:

- A one-page letter introducing the applicant and summarizing their qualifications.
- A resume demonstrating the applicant's academic record, professional employment (in engineering or related fields), other employment, professional activities (membership and participation in professional organizations such as ASCE, SWE, EWB, etc.), and personal items of interest.
- A one-page essay demonstrating the applicant's writing ability and expressing original thought. The topic for the 2016 essay is the following:

Due to rising global temperatures, severe weather events are predicted to become more widespread in the future. These changes are likely to be seen within the design life of structures that exist or are being built today. Using a real project or projects (past, present, or one you imagine in the future), formulate an argument regarding how the potential impact of future changes in climate should be considered with current day buildings or in-progress designs.

To what extent should resilient designs, that can withstand increasingly powerful winds, flood waters, and storms, be prioritized? Should the emphasis in a resilient design be on robust systems with increased load-resisting capacity, flexible systems that can be easily adapted in the future to a changing environment, or breakaway systems engineered to fail in a safe and economically repairable manner? And what ethical obligation does an engineer have to raise these concerns even though experienced-based codes and standards may not adequately predict the future?

- Official college and/or university transcript(s).

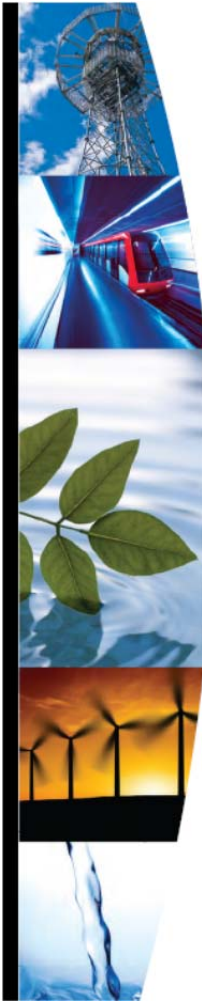
Send hard copy applications to:

Simpson Gumpertz & Heger Scholarship Committee
Boston Society of Civil Engineers Section/ASCE
The Engineering Center
One Walnut Street
Boston, MA 02108-3616

For more information, please contact:

Robert W. Keene
Simpson Gumpertz & Heger Inc.
781-907-9000 or rwkeene@sgh.com

Applications can be submitted by hard copy to the address above or e-mailed (PDF format) to Robert Keene at rwkeene@sgh.com with the subject "SGH Scholarship". Applications must be received by 5:00 p.m. on Friday, 25 March 2016. If submitting electronically, a hard copy application must also be received at the above address no later than 5:00 p.m. on Wednesday, 30 March 2016. Applications will not be returned.



2016 SUSTAINABILITY IN CIVIL ENGINEERING AWARD

Call for Entries

The purpose of the Sustainability in Civil Engineering Award is to recognize civil engineering infrastructure projects that embody the principles of sustainability espoused by the BSCES Committee on Sustainability, ASCE, and the Institute for Sustainable Infrastructure (ISI). Such projects prominently and creatively incorporate the five sustainability indicators of quality of life, leadership, resource allocation, natural world, and climate risk.

Eligibility

To be eligible, a project must demonstrate adherence to the principles of economic, social and environmental sustainability as identified by ASCE/ ISI criteria for sustainable infrastructure. **The project must have been designed by a team of civil engineers based in Massachusetts, and must have been constructed within the last five years.**

Rules for Submission

1. Entries for the award must include:
 - A completed Entry Form ([BSCES Sustainability Award Form](#))
 - A printout of the Envision™ project assessment scoring table from the ISI website completed by an Envision Sustainable Professional (ENV SP).
2. **Entries must be submitted no later than May 1, 2016.** The winner will be announced at the BSCES Annual Awards Dinner event in the Fall of 2016. Entries may be submitted electronically to wognibene@engineers.org.

2015 BSCES Sustainability in Civil Engineering Award Winner

The 2015 award was presented to the City of Cambridge for its **Alewife Stormwater Wetland** project, which embodies the concept of multi-use and sustainable infrastructure. The project was originally conceived as a concrete storage tank to serve a 420 acre neighborhood as a result of court-ordered combined sewer separation. Through broad stakeholder involvement, the project transformed into an “environmental miracle” that restored wildlife habitat and added features for the general public’s use and improved quality of life.



Read about the Alewife Stormwater Wetland in the [BSCES October Newsletter](#)



*Boston Society of Civil Engineers Section
American Society of Civil Engineers*

2016 EMPLOYER RECOGNITION AWARDS

To Publicly Reward Employers for Exemplary Employee Support

The Boston Society of Civil Engineers Section of the American Society of Civil Engineers Awards Committee invites you to nominate an organization to receive the Small Employer Recognition Award or the Large Employer Recognition Award. Please see the following awards description and page 2 of this form for nomination instructions. To be eligible to receive this award your award nomination must be received by the BSCES Awards Committee no later than Monday, May 16, 2016.

As a means of fostering participation in Society activities, the Boston Society of Civil Engineers Section/ASCE has established an award to recognize those employers who encourage their engineers to actively participate in ASCE and BSCES. Special recognition will go to those organizations who exhibit exemplary support as evidenced by:

- Providing a model for involvement through organization-wide participation in local, regional, and national ASCE and BSCES activities.
- Allowing engineers time off to attend ASCE and BSCES meetings and seminars.
- Being sponsors of ASCE and BSCES meetings/ seminars or being sponsors of the BSCES Newsletter.
- Supporting and encouraging technical and professional growth.
- Encouraging engineers to prepare articles for publication in the BSCES Newsletter or ASCE and BSCES professional and technical journals.
- Assisting in the payment of ASCE and BSCES dues.

Members who want their organization to be considered for recognition should fill out the attached nomination form which describes their organization's level of support to ASCE and BSCES. The awards committee will review the nominations and select an exemplary small employer and a large employer in the Section. Organizations with less than 50 employees are eligible for the Small Employer Award. Awards will be presented at the 168th BSCES Annual Awards Dinner in the fall. Successful recipients will be considered for endorsement as potential (future) applicants for the ASCE Employer Recognition Award. No organization will be eligible to receive the award in consecutive years.

NAME OF EMPLOYER: _____

Boston Society of Civil Engineers Section/ASCE 2016 EMPLOYER RECOGNITION AWARDS

Complete and return this nomination form and attachment to the BSCES Awards Committee no later than Monday, May 16, 2016 to be eligible for the award.

Nominator/Title: _____

Address: _____

Telephone: _____ Email: _____

Signature: _____ Date: _____

Employer: _____

Contact Person: _____

Title: _____

Office Address: _____ Website: _____

Telephone: _____ Email: _____

Please answer the following questions:

How many employees do you have? _____

How many are civil engineers? _____

How many civil engineers are members of ASCE?	BSCES?
_____	_____

How many times in the last year have you provided sponsorship of BSCES meetings/seminars or sponsorship of the BSCES Newsletter? _____

Please attach a list of ASCE and BSCES Members in your organization.

For those engineers who are ASCE and BSCES Members, please answer the following questions:

What percentage of ASCE and BSCES dues are paid by the employer? _____

Does the employer pay for subscriptions to ASCE and BSCES technical or professional journals? _____

On average, how many Technical/Professional seminars (one day or longer) does each of your engineers attend annually? _____

Does the employer allow time for members to attend ASCE and BSCES activities? _____

How many technical/professional articles were published by your engineers within the last two years? _____

How many of your engineers are active on an:

BSCES Board of Government	_____
BSCES Technical Group or Committee	_____
ASCE Regional (District) Council	_____
ASCE National Committee	_____

Please attach one 8.5 x 11 inch sheet (double sided) and describe any specific activities or policies which demonstrate your organization's support for involvement in ASCE and BSCES.

Please return this completed form and the additional page if needed no later than Monday, May 11, 2015 to: BSCES Awards Committee, Boston Society of Civil Engineers Section/ASCE, The Engineering Center, One Walnut Street, Boston, MA 02108-3616. For questions contact BSCES Awards Committee Chair Bruce Jacobs at (617) 879-0253 or bjacobs@hydroanalysisinc.com.

Thank you for your continued support of ASCE and BSCES.

2016 INDIVIDUAL SECTION AWARDS

Each year, BSCES presents awards to deserving individuals in the Section or in the community who are nominated by their peers in recognition of their service. **Here is your opportunity to nominate a co-worker, friend, or someone who you think deserves special recognition.** To submit a nomination, complete this form and return it to:

**BSCES Awards Committee, Boston Society of Civil Engineers Section/ASCE,
The Engineering Center, One Walnut Street, Boston, MA 02108-3616**

The Nominations Deadline is **Monday, May 16, 2016**. The Awards Committee will review all nominations and present a list of candidates for selection by the Board of Government at their May meeting. Awards will be presented at the 168th BSCES Annual Awards Dinner in the fall.

I would like to nominate _____ For the:

_____ **CITIZEN ENGINEER AWARD:** This award is presented to a BSCES member or registered professional engineer for outstanding public involvement in local or national legislation, education (at any level), non-profit volunteer organizations, community activities, or similar activities improving the image of ASCE, BSCES and the civil engineering profession.

_____ **LESTER GAYNOR AWARD:** This award is presented to a BSCES member or registered professional engineer for part-time elected or appointed service as a city or town official, whose reimbursement for this service has not been more than an honorarium.

_____ **GOVERNMENT CIVIL ENGINEER AWARD:** This award is presented to a BSCES member who is serving as a paid public sector engineer at a federal, state, or municipal agency, department, or authority in Massachusetts.

_____ **CLEMENS HERSCHEL AWARD:** This award recognizes those individuals who have published papers, not necessarily published in the BSCES Journal, that have been useful, commendable, and worthy of grateful acknowledgment. If nominating for the Clemens Herschel Award, please attach the name of the paper and names of all authors, if co-authored.

_____ **RALPH HORNE AWARD:** This award is presented to a BSCES member or registered professional engineer for unpaid public service in a municipal, state or federal-elected or appointed post for philanthropic activities in the public interest.

_____ **JOURNALISM AWARD:** This award is to be presented to a member of the media who reports on engineering topics, particularly civil engineering, in a manner that benefits the profession. The Public Awareness and Outreach Committee reviews these nominations and recommends the recipient to the Board.

_____ **PRE-COLLEGE EDUCATOR AWARD:** This award is to be presented to a member of the K-12 educational community who integrates engineering topics, particularly civil engineering, in a manner that benefits the profession and may promote students to pursue an engineering career. The Public Awareness and Outreach Committee reviews these nominations and recommends the recipient to the Board.

_____ **TECHNICAL GROUP AWARD:** This award is given for papers which have been presented at a Technical Group meeting or for papers that were submitted to a Technical Group for review and recommended for publication by its Executive Committee. Each paper should be original (i.e., not contributed or published elsewhere). This award is open to all BSCES members.

_____ **YOUNGER MEMBER AWARD:** This award is intended to recognize a member, 35 years of age or younger on February 1 in the year of the award, who has made an outstanding contribution to BSCES.

Name and Company Address of Nominee(s)*:

Is this a re-nomination? Yes _____ No _____

***Please attach a brief (no more than one page) explanation of the candidate's qualifications for nomination.**

Your Name: _____ Daytime Telephone: _____ Email: _____

NOTE: If you nominated someone last year who was not selected, you may re-nominate the individual(s).

QUESTIONS: Contact BSCES Awards Committee Chair Bruce Jacobs at (617) 879-0253 or bjacobs@hydroanalysisinc.com.