

Are Public-Private Partnerships a Solution for Transportation?

by Pamela Bailey-Campbell, Vice-President, Jacobs Engineering and Steve McDonagh, Infrastructure Development & P3 Advisor, Jacobs Engineering

Public-private partnerships (P3s) have become an increasingly important delivery vehicle for public agencies across the world seeking to build new or to upgrade infrastructure assets ranging from transportation, government buildings, healthcare, schools and water/wastewater facilities. Depending on sources, P3s are probably found in between 10–20% of global governmental infrastructure projects. They have been used much more prevalently outside of the United States and the merits of their use are debated vigorously on both sides of the argument. In the US transportation world, P3s are still in their adolescence with some of the earliest approaches beginning at the end of the 1980s. Considerable misinformation surrounds the use of P3s; at least partially because they are complex and each is unique in their own way. So we are faced with the question—can they be a solution to the mounting challenges to deliver transportation in the US? The major impetus for the use of P3s is to bring benefits such as decreased construction schedules, greater innovation, potentially lower cost and often alternative financing sources. A key element of a

P3 is that the ownership stays with the public entity regardless of the private sector role.

The term P3 covers a number of different delivery models and each carries their own set of advantages and disadvantages. Further, each type of delivery model allocates risks differently between public sector asset owners and private sector entities. The baseline comparison of a P3 approach is the traditional Design-Bid-Build (DBB) contract where the most control remains with the public sector owner from design through the operations and maintenance of the asset post construction while the maximum private sector participation is the Design-Build-Finance-Operate-Maintain (DBFOM) option that shifts to the private sector the risk to complete development, finance, construct, operate, and maintain the asset for a defined period of time. Table 1 (on the following page) summarizes risk transfer across delivery methods.

As noted, each delivery option has its own set of advantages and disadvantages. The traditional and most common infrastructure delivery

continued on page 2

UPCOMING EVENTS

Younger Member Group Ski Trip
January 30, 2016

Younger Member Group Billiards Tournament & Networking Event
February 6, 2016

COPRI Boston Chapter Event
February 9, 2016

SEI Boston Chapter Event
February 10, 2016

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

Program Committee Sponsored NHI Training
March 1 – 2, 2016

Program Committee Sponsored NHI Training
April 4 – 15, 2016

Further Details Inside



2015–16 Corporate Sponsors:



President's Report

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



Happy 2016! Entering a new year is a unique time that provokes us to reflect on what we have accomplished in the past and to reassess our goals and strategies for the future.

2015 was a very successful year for BSCES. I am happy to announce that for the fourth time in five years, BSCES has been awarded the ASCE Outstanding Section and Branch Award for Very Large Sections and Branches. This national recognition should not be understated, nor should the fact that the

Boston Society has repeatedly been recognized. I am also happy to announce that BSCES was awarded the 2015 History and Heritage Citation. Special thanks to Bruce Jacobs of HydroAnalysis, Inc., for spearheading the effort for both applications.

Another accomplishment that is close to completion is the new BSCES website. Several BSCES volunteers and TECET staff have been instrumental in its development and launch, which is expected in mid-January. The new website has been completely redesigned and

streamlined so information is quickly accessible and searchable. This mobile-friendly website will serve as the primary source for information about BSCES events, volunteer groups and numerous undertakings. Enhancing BSCES' ability to serve as a clearinghouse of information on issues, trends and conditions impacting the civil engineering profession, the website will also feature news postings and announcements, access to current and past issues of *BSCESNews*, and the recently revamped online *Civil Engineering Practice* journal. I encourage you to

continued on page 6

President: Ellen P. White, PE

President-Elect: Brian A. Morgan, Esq., LEED AP

Secretary: Christopher "Topher" Smith, PE

Treasurer: Robert L. Leger, PE

Assistant Treasurer: Gregory L. Mirliss, PE

Senior Vice Presidents:

Malek A. Al-Khatib, PE; Geoffrey B. Schwartz, PE

Vice Presidents:

Richard D. Maher, PE, PMP, LEED AP; Bruce L. Jacobs, PhD, PE

Past President: Ali Touran, PhD, PE

Western MA Branch Vice President: Vacant

Institute Chapter & Technical Group Chairs

COPRI Boston Chapter: Lauren S. Klonsky, PE

Construction Institute Boston Chapter: Daniel R. Cook, PE

Engineering Management Group: Kevin M. Garvey, PE

EWRI Boston Chapter: Matthew Hodge, PE

Geo-Institute: Jonathan P. Davies, PE

SEI Boston Chapter: Peter M. Keeping, PE

T&DI Boston Chapter: Todd M. Clark, PE

Younger Member Group: Cara Pirkey, EIT

BSCES Newsletter Editorial Board

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

Bonnie Ashworth, bmcash@aol.com

Ronald Burns, PE, LSP, LEED AP, RBurns@chacompanies.com

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

Richard F. Keenan, rkeenana@engineers.org

David M. Manugian, PE, dmanugian@town.oxford.ma.us

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

Anthony M. Puntin, PE, apuntin@engineers.org

Peter A. Richardson, PE, LEED AP, ENV SP, CFM

prichardson@greenintl.com

Matthew I. Shuman, PE, mshuman@watertown-ma.gov

Christopher "Topher" Smith, PE, smithcr@cdmsmith.com

Ellen P. White, PE, ewhite@patrickco.com



Boston Society of Civil Engineers Section/ASCE

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

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

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

Executive Director: Anthony M. Puntin, PE

BSCES' newsletter, *BSCESNews*, is designed to provide information and opinion in regard to the subject matter covered. BSCES and its Board assume no responsibility for statements made or opinions expressed in this publication. It is published with the understanding that the Board and the authors are not engaged in rendering legal, accounting or other professional services. If assistance is required, the services of a competent professional should be sought. The Newsletter Editorial Board encourages reproduction of *BSCESNews* with appropriate acknowledgment. © 2016 BSCESNews.



Public-Private Partnerships

continued from page 1

P3 Model	Development	Design	Construction	Financial	O&M
DBB			X		
DB		X	X		
DBF		X	X	X	
DBOM	X	X	X		X
DBFOM	X	X	X	X	X

Table 1: P3 Risk Transfer. Typical Risk Transfer for Different P3 Project Delivery Models

method in the US is DBB. This approach gives the public sector owner the most direct control over project design as well as operations and maintenance. However, the sequential nature of the approach limits the ability to accelerate construction. For more complex projects the lack of input from the construction firm during the design phase may hamper constructability leading to change order requests, higher construction costs, and schedule delays while the public sector retains most of the risks.

Under DB, the construction firm and designer work together, providing one point of contact for the public sector owner. The design risk transfer typically results in fewer change orders and relative surety of cost while giving greater opportunity for the introduction of cost saving innovations. All other P3 delivery methods discussed below incorporate DB. Evidence indicates that, for the right kind of projects, DB can be cheaper and faster than DBB. For example, at \$860 million the winning bidder for the Louisville Downtown Crossing Design-Build was 9.5% lower than the owner's estimate of \$950 million while the winning price for the Tappan Zee Bridge was \$3.14 billion, more than 37%

below the owner's estimate of \$5 billion. DB does require that the owner rely on performance criteria rather than specific direction for the project design and the contractual requirements must carefully offset the private sector incentive to finish a project quickly and cheaply which, in turn, could lead to a reduction in quality.

Adding a short-term financing component to the design-build activities (DBF) can result in full or partial financing provided by the private sector resulting in a deferral of public sector spending. However, the down side of this is that the bid price will include financing costs which could be higher than public (tax-exempt) debt levels.

Design-Build-Operate-Maintain (DBOM) includes operations and maintenance providing an incentive to the private sector to minimize the full project lifecycle costs. By also including finance in the contract (DBFOM or Long-term Concession) private capital is also attracted to the project and more financial risk is transferred to the private sector. Again there is a down side, most notably that the cost of capital may be higher but it does free up public sector debt capacity for more traditional projects. Figure 1 outlines a typical Long-term Concession structure.

continued on page 3

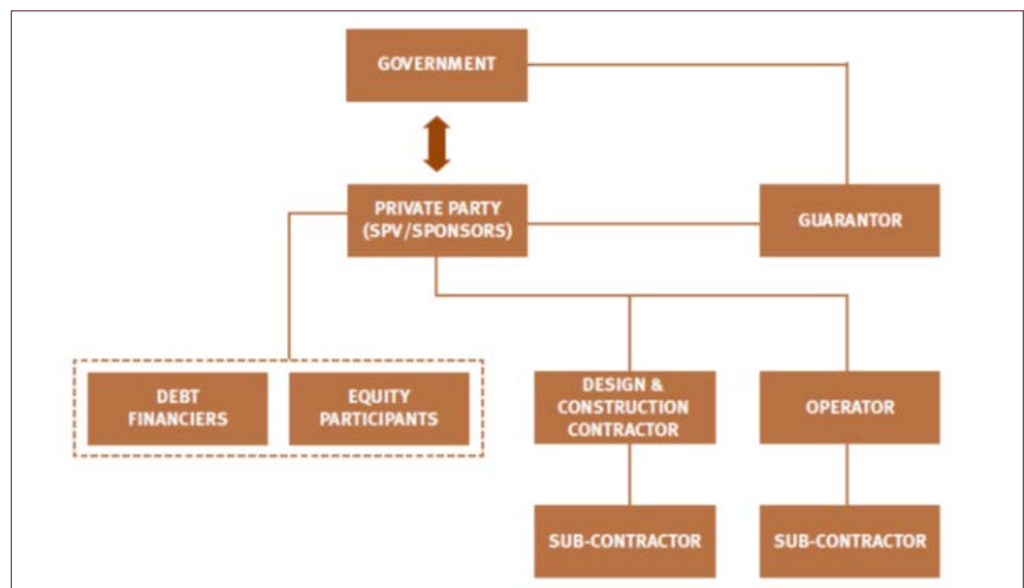


Figure 1: Long-Term Concession Structure

Public-Private Partnerships

continued from page 2

Keeping with the financing theme, partnership with the private sector expands the scope to use other forms of finance. For example, the Transportation Infrastructure Finance and Innovation Act (TIFIA) program managed by the Federal Highway Administration provides credit assistance for major transportation infrastructure projects. The TIFIA program is competitive and projects applying for TIFIA credit assistance are judged on a number of different criteria including, amongst other things, private participation, creditworthiness and project acceleration. TIFIA is an extremely important element in making many P3 projects feasible.

Private activity bonds (PABs) are tax-exempt bonds issued to pay for transportation facilities and the private sector entity that receives the proceeds of the PABs is responsible for the debt service payments. As of December 2015, nearly \$5.9 billion in PABs have been issued; notable examples include the \$721 million for the Rapid Bridge Replacement Program in Pennsylvania, \$676 million for the Ohio River Bridges East End Crossing in Louisville, Kentucky, and \$615 million for the LBJ Managed Lanes Project in Dallas, Texas. An additional \$5.75 billion of allocations have been approved including \$1.3 billion for the Purple Line in Maryland and \$1.75 billion for All Aboard in Florida.

When private sector infrastructure financing is involved there are two major approaches. One is a revenue-generating project such as a toll road where the private sector entity finances the project using some combination of equity and debt (equity at 20-25%) secured by project revenues and recoups its investment as the revenues are generated by the project. An alternative which

can be used for a broader range of projects is where the public agency agrees to make availability payments to the private sector entity once the project is available for use by the public. The project financing is then a combination of debt and equity backed by the future availability payments promised by the public agency. This requires a lower level of equity—perhaps only 10%—which reduces the financing costs.

The delivery of infrastructure can benefit from P3s in many ways: to accelerate projects, to achieve risk transfer to the private sector, to bring innovative and creative solutions to the public sector. In the infrastructure world it is essential for effective use that the following “P3 Rules” be followed:

Rule 1. Recognize that P3s are only part of the solution and cannot overcome systematic under investment in infrastructure.

Rule 2. Recognize that not all projects are good P3 candidates. A careful assessment is necessary to determine that the P3 approach brings additional value to the table.

Rule 3. Make the primary focus for P3s on delivering new or enhanced infrastructure—rather than monetizing an asset to pay down a general fund budget operating deficit.

Rule 4. Whether a single project or entire P3 program—establish clear, realistic goals. If the P3 approach cannot meet those goals then postpone or halt the process. P3 is a tool not a goal in and of itself.

Rule 5. Assure that the public sector has sufficient knowledge and expertise at its disposal to effectively develop the procurement then evaluate, negotiate and oversee the agreements.

Rule 6. Create procurement processes that provide maximum opportunities for the private sector to bring true innovation and creativity to the table.

Rule 7. Conduct fair, open procurements that are transparent and focus on “best value” for the public combined with a level playing field for the private participants.

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 March 2016 issue of the newsletter for example, will highlight the ASCE Construction Institute Boston Chapter and feature one or more articles about the economic outlook.

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 rkeen@engineers.org.

JACOBS

- Roadway, Bridges and ITS
- Aviation
- Railroads and Transit
- Buildings

NATIONALLY RECOGNIZED, REGIONALLY FOCUSED

“Jacobs’ size, reach and project achievements give our clients the tools they need to achieve their goals.”

Offices: Boston, MA • Bedford, NH • Providence, RI



The Derailing of the Green Line Extension Project: A Project Delivery Method Case Study

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

The green line extension (GLX) project has become a graphic example of the impact of the project delivery method on the success or failure of a project. The project was to be performed using the construction manager/general contractor (CM/GC) project delivery method. However construction costs have ballooned from a budget estimate in 2014 of approximately \$2 billion to \$3 billion. Berkley Research Group, an independent consultant hired by the state to review the project costs put most of the blame for this increase on the failure of the MBTA to properly manage the CM/GC project delivery method.

This dramatic cost increase has resulted in MBTA announcing on December 10, 2015, that they are canceling the current contracts of several firms working on the CM/GC team. The firms involved include the CM/GC (White-Skanska-Kiewit), the MBTA's Project Manager/Construction Manager (HDR/Gilbane), the MBTA's independent Cost estimator (Stanton Constructability Services) and the MBTA's final designer (AECOM/HNTB).

How did we get here? The GLX project has been in the works for over a decade. The project is to consist of the extension of the MBTA Green line with two new branches starting from Lechmere Station. One branch would run to Union square in Somerville. The other branch would run approximately 3.5 miles from Lechmere Station to Tufts University. The project "on paper" has all the earmarks for a successful mass transit project. According to MassDOT:

- Somerville is one of the most densely populated cities in the US.
- Currently less than 20% are within walking distance of a rail station. GLX will increase that to 70%.

- 44% of the ridership live in "no-auto" households compared to 37% in Boston and 27% in Cambridge.
- The extension will generate an estimated 49,000 additional daily mass transit trips.
- The project is required under the clean air act in order mitigate air pollution increases related to the "Big Dig."
- Significant federal funding (\$946 Million) has been obtained.

The latest cost increase in the project is not the first. This is not surprising for a complex, public infrastructure project with a long timeline. According to research by *The Boston Global Boston.com*, the initial estimate for the project back in 2005 was approximately \$438 Million (in 2005 dollars). Within a week after that estimate became public, a new estimate of \$550–600 million was reported. In 2009 the estimated cost was \$934 Million. When the state applied for federal funds in late 2011, the estimate was \$1.4 billion. This included contingencies and \$200 million in finance charges. In September 2014, then Transportation Secretary Davey said project costs were nearly \$2 billion (with nearly \$400 million in contingency). It was based on this nearly \$2 billion figure (known as the full funding grant agreement budget) that Federal Funding of approximately \$946 million was granted in January, 2015. The latest and largest increase from approximately \$2 billion to up to \$3 billion was made public in August 2015.

MassDOT and the MBTA had back in 2012 chose to perform this project using the construction manager/general contractor project delivery method. According to MassDOT: "CM/GC is a delivery method that provides an integrated

team approach to design and construction. Under a CM/GC model, the design team and the CM/GC contractor (procured through a qualifications- and price-based selection process) are under separate contracts to the MBTA. The CM/GC model overlaps design and construction, thereby shortening overall program delivery time. CM/GC delivery provides single point of responsibility, which is desirable with railroad and transit systems elements, and affords the ability to resolve property acquisition and relocation issues while advancing other areas of the work that are not restrained by property availability."

CM/GC method has been approved as a project delivery method by the Federal Highway Administration. The Federal Highway Administration also agrees that CM/GC is well suited to certain types of projects and has stated that: "Projects that are best suited for the CM/GC process include when the owner needs contractor feedback during the design phase. These projects include complex components that require innovation, or "thinking out of the box," and are typically located in urban areas. Other projects that are a good fit for the CM/GC process are projects that have public involvement or include right-of-way or utility issues that impact the overall schedule."

Federal funding was granted with the understanding at the time that the project would be performed using the CM/GC method. It would seem that the project delivery method was appropriate for this project. Unfortunately, according to the presentation by the Berkley Research Group (BRG) to the MassDOT and MBTA, the implementation of the CM/GC project delivery method has not been successful. A few of the comments from the MBTA and

continued on page 5



HELICAL

Geotechnical Design/Build

www.helicaldrilling.com



INNOVATIVE GEOTECHNICAL DESIGN/BUILD SOLUTIONS

Ground Improvement | Grouting | Earth Retention | Deep Foundations/Piles | Underpinning

The Derailing of the Green Line Extension Project

continued from page 4

outside reviewers regarding the CM/GC implementation are:

- MBTA in its August 2015 presentation on the GLX project points to several problems that lead to the higher costs:
 - > FFGA Budget based on standard costs in the transit industry from 2010–2013 (not future costs).
 - > The FFGA Budget based on 60% design, while new numbers based on 100% design.
 - > CM/GC priced the contract to protect itself from risk.
 - > Original estimate could have been too low.
- BRG and other outside reviews gave a far more critical appraisal of the MBTA's management of the project stating:
 - > The T was never able to come up with a reliable project cost, which is something BRG said the MBTA should have been able to do as early as 2012.
 - > Mr. Lang of the MBTA fiscal control board said in a meeting: "White-Skanska-Kiewit (WSK) figured out how to work the system; we allowed them to work the system and they

ended up getting their maximum price." Mr. Rogers from BRG agreed with this assessment.

- > The MBTA had only four full time MBTA staff to oversee this project. Too few according to BRG.
- > Mr. Mares, vice president of the Conservation Law Foundation stated that the MBTA and the state allowed the process to devolve into a "Marco Polo pricing game." WSK would submit an estimate and if it was higher than 110 percent of the independent estimate the firm would come back with a revised number until it was as close as possible to the maximum number as possible.

The way forward for the project is unclear. According to *The Boston Globe*, on December 14, 2015 the MassDOT Board and the MBTA Fiscal and Management Control Board voted unanimously to support a resolution that would allow the MBTA to move forward with the project but only under certain conditions. These conditions include cost cuts to the project and additional funding from private and public entities.

Currently the MBTA states the project is in "a transitional period during which no new construction work would be awarded." However "much of the construction work that is already under contract will progress." The cost of canceling the project would be significant:

- Construction on the project started in 2013 and approximately \$338 million has already been spent as of August 2015.
- The MBTA estimates approximately \$743 million would ultimately be lost if the project is cancelled.
- Nearly \$1 billion in federal funding would be lost.
- The GLX project is a commitment under the US Clean Air Act State Implementation Plan. Failure to build GLX could result in the USDOT withholding federal transportation funding. The state would also need to find another project to comply with the requirements of the Clean Air Act.

Over the next few months the state will be reviewing options and deciding whether to move forward with the project.

**Great People,
Great Results...
Experience,
Integrity,
Commitment**



T Ford Company, Inc. offers a full range of contracting services to private clients, public agencies and civil/environmental engineering firms.

- Civil/Sitework
- Environmental Remediation
- Dam Reconstruction
- Wetlands Restoration
- Waterside Construction
- Demolition
- Solar Site Development

Visit us at:
www.tford.com
978 352 5606



President's Report

continued from page 1

explore the site and if you have any comments, please contact [William Ognibene](#).

2016 also marks a year of giant infrastructure projects. China is currently building the world's longest bridge and underwater tunnel. Saudi Arabia is constructing the world's tallest building. This year, Panama will unveil its expanded canal, which will double its capacity and allow larger ships including the new Panamax Standard. Also, after 20 years of digging, the Gotthard Base Railway Tunnel in Switzerland will be opened. It will be the world's longest and deepest traffic tunnel.

Not all of the mega-projects are international. The Stratolaunch, the world's biggest aircraft, is due for its maiden flight in 2016. The project, begun by Microsoft co-founder Paul Allen, is a mobile launch system. The Stratolaunch is designed to carry a three-stage rocket (equipped with a satellite) between its two fuselages. Upon reaching the correct altitude, the rocket will detach, blast off into space, and later release the satellite. Eventually it can be used to carry astronauts into orbit, all at a cost less than a blast-off from Earth. Also in 2016, Elon Musk's Gigafactory, the world's largest battery plant, is expected to produce its first batteries. It is needed to produce cells for Tesla vehicles but it is also producing batteries that allow households to store excess energy from solar panels which could revolutionize the utility sector.

These ambitious projects are coming to fruition. Within the transportation sector, we successfully advocated for a long-term federal transportation bill that will help fund projects around the country. The Fixing America's Surface Transportation (FAST) Act is the first long-term transportation bill passed by Congress in ten years. It allocates \$305 billion over five years for surface transportation reauthorization. It will reauthorize the federal highway and public transportation programs for Fiscal Year 2016 through FY 2020 and stabilize the Highway Trust Fund during that period. As a result of this, Massachusetts will receive increased funding for highways, transit, planning, and safety programs. The Commonwealth's highway

account apportionment will increase from \$586 million in FY 2015 to \$673 million in FY 2020. Similarly, the Commonwealth's transit apportionment will increase from \$339 million to \$384 million in the same period.

MassDOT is nearing completion of their five-year Capital Investment Plan (CIP) for Fiscal Years 2017–2021. The CIP prioritizes investments and projects for our entire transportation system. To learn more about this, please read the article by Matt Shuman, Town Engineer, Town of Watertown, entitled *MassDOT Completes "Capital Conversations" Community Meetings*, which can be found on page 9 of this newsletter.

I would also like to urge you to attend some of our upcoming events. These include lectures about the *Waterfront Facilities Inspections & Assessment Manual* on February 9 and the *Kingdom Tower in Saudi Arabia* on February 10. There are also two upcoming outreach

student contests. The *Future City* and *Model Bridge* competitions will be held on January 16 and February 6, respectively at MassDOT headquarters at 10 Park Plaza.

In closing, I would like to thank all of our corporate sponsors, particularly this month's featured sponsor, Jacobs Engineering. We are grateful to Jacob's long-time support of BSCES and encourage you to read their feature article entitled *Are Public-Private Partnerships a Solution for Transportation?* on page 1 of this newsletter. This is consistent with the overall theme of this month's newsletter, Project Delivery, and featured group, the Engineering Management Group. I urge you learn more about BSCES' *Engineering Management Group*, which is chaired by Kevin Garvey of CDM Smith. You can read his article about this group on page 7 or contact him (garveyk@cdmsmith.com) if you wish to become involved in their undertakings.



Northeastern University
College of Engineering

Department of Civil and Environmental
Engineering

Urban Engineering at Northeastern University

With core expertise in computational and experimental
simulation, sensing, and monitoring

Graduate programs full-time and part-time in:

CONSTRUCTION MANAGEMENT
ENVIRONMENTAL ENGINEERING
GEOTECHNICAL ENGINEERING
STRUCTURAL ENGINEERING
TRANSPORTATION ENGINEERING

Interdisciplinary education and research thrusts include:

CIVIL INFRASTRUCTURE SECURITY
Resilient Infrastructure Systems; Structural and Building Engineering
ENVIRONMENTAL HEALTH
Clean Water and Environmental Systems; Geoenvironmental Engineering
SUSTAINABLE RESOURCE ENGINEERING
Sustainable Network Systems; Energy and Green Engineering

For more information, contact: Northeastern University,
Department of Civil and Environmental Engineering
617-373-2444, civilinfo@coe.neu.edu; www.civ.neu.edu

Featured Group

BSCES Engineering Management Group

by Kevin Garvey, PE, Project Engineer, CDM Smith and BSCES Engineering Management Group Chair

The Engineering Management Group (EMG) has held four very successful meetings this season. The meetings are a collaborative effort to brainstorm current events pertaining to the greater Boston engineering community. The Engineering Management Group has recently created a logo for our organization. The logo depicts a scale balancing the engineering aspects of a project with the financial/people aspects of a project.

EMG's mission is to host two to three lecture events each year, and with the title of "Engineering Management" our events span a wide variety of topics to capture a multifaceted audience. Our first event, titled "Public Private Partnerships (P3): Round Table Discussion on the Funding Source to Rebuild America's Infrastructure" was held on Thursday, January 14, at the Wyndham Boston in Beacon Hill. It featured a panel of four expert speakers from across the US and provided an update on the water, wastewater, and stormwater P3 legislation currently in the Massachusetts Legislature. They were Pamela Bailey-Campbell, Tom Pelnik, Anatoly Darov, and Nicholas Rubio. Pamela Bailey-Campbell is a vice president at Jacobs Engineering with over 25 years of experience in the development, financing, and implementation of project that's involve public private partnerships (P3) for highway, transit, and other infrastructure. Anatoly Darov is a partner at Burns Levinson and past president of the Boston Society of Civil Engineers Section/ASCE (BSCES). Mr. Darov has been involved with the water, wastewater, and stormwater P3 bill currently pending in the Massachusetts Legislature and has ample experience with P3s.

Tom Pelnik is a managing director of EY Infrastructure Advisors, LLC, an affiliate of Ernst & Young and part of its US Infrastructure Advisory Director. Mr. Pelnik has more than 25 years of experience in the development of civil and industrial infrastructure. Nicolas Rubio is US president of Cintra and has been involved in the development of more than 150 private infrastructure projects spanning more than 30 countries. Mr. Rubio was presented with the Entrepreneur of the Year Award by the American Road and Transportation Builders Association "for his continuing contributions that have promoted the art and practice of Public Private Partnerships for transports in the United States." The presenters spoke to the four main points of view of a P3 project: engineer/owner's representative, financier, concessionaire, and lawyer.

Our second event will be held in March at a local Boston hotel. Bob Jarnis from Woodard and Curran and member of the Dispute Resolution Board Foundation (DRBF) will give a lecture about the process of resolving change disputes while avoiding law suits.

The final event of the season will be the highly acclaimed Joseph C. Lawler Lecture, which is tentatively scheduled for mid-May. The lecture is held annually in honor of Joseph C. Lawler, CDM Smith's first president. Each year, EMG is given the responsibility of selecting a prominent leader with significant ties to the engineering community to present the lecture. The 2015 Lawler presenter was Fred Laskey, the executive director of the Massachusetts Water Resource Authority (MWRA). The Engineering Management Group is still coordinating with



ENGINEERING MANAGEMENT GROUP

prospective speakers for this event. Check the BSCES website for more details as spring 2016 approaches.

As engineering professionals it goes without saying that everyone is busy. However, I hope you can find the time to attend this year's remaining EMG events. If you have any interest in public private partnerships, contract dispute resolution, engineering management, or engineering leadership I encourage you to participate and become involved with EMG. We typically convene in downtown Boston on the second Wednesday of each month to coordinate and plan our event calendar. The Engineering Management Group is actively looking for new members so please contact me if you would like to become involved, have any questions, or would like to register for an upcoming EMG event. I can be contacted via e-mail at garveyk@cdmsmith.com or by phone at 603/222-8322.



Simpson Gumpertz & Heger Inc. (SGH) is a national engineering firm that designs, investigates, and rehabilitates structures and building enclosures. We are always looking for talented engineering candidates for all of our offices. To learn more about SGH and current job opportunities, visit our website at www.sgh.com.

SGH is an equal opportunity employer and values diversity in our work force. We are committed to providing equal opportunities to all job applicants and employees. We consider all qualified applicants, and encourage individuals with disabilities and protected veterans to apply.

SIMPSON GUMPERTZ & HEGER

Engineering of Structures
and Building Enclosures

Boston | Chicago | New York | San Francisco | Southern California | Washington, DC | www.sgh.com

Water Infrastructure Project Delivery—The Public-Private Partnership Model in Massachusetts

by Anatoly M. Darov, PE, Partner and Matthew G. Feher, Associate, Burns & Levinson LLP

In February 2012, the Commonwealth of Massachusetts completed a study of the state's drinking, wastewater, and stormwater infrastructure needs that identified a funding gap of at least \$39 billion over the next 20 years. The Water Infrastructure Finance Commission, which prepared the report, concluded that funding from traditional government sources is likely to decline over the same period. This scenario of rising infrastructure needs coupled with declining government resources is playing out in cities and towns across the country and has been well documented by ASCE's own Infrastructure Report Card. As part of the solution to this funding gap, states and municipalities have been looking to public-private partnerships, or P3s, as an alternative to traditional methods of financing and delivering infrastructure projects, including projects in the water sector.

In Massachusetts, cities and towns enjoy express authority to use alternative project delivery methods, although this authority is limited. Chapter 149A of the General Laws expressly gives municipal entities authority to procure public building and public works projects using "construction management-at-risk" and "design-build" methods, respectively, in lieu of the traditional design-bid-build procurement method. In order to qualify for Chapter 149A, the project must have an estimated construction cost of \$5 million or greater, and the municipality must receive approval from the Inspector General. Chapter 149A does not permit the use of private equity or private debt financing to fund such projects, nor does Chapter 149A allow for the use of long term operations and maintenance agreements.

As such, Massachusetts municipalities must seek legislative approval on a case-by-case basis to use alternative delivery methods that include such contract structures. This authorization has been granted by special acts to more than a dozen cities and towns, including Lawrence, Lee, Provincetown and Springfield. These special acts typically include authority to enter into a contract "for the lease, operation and maintenance, repair or replacement, financing, design, construction and installation of new facilities or systems and modifications to existing facilities, necessary to ensure adequate services." These special acts authorize key elements of P3 deal structures and exempt the project from otherwise applicable public bidding and procurement laws (such as M.G.L. Ch. 7C, Secs. 44-57; Ch. 149, Secs. 44A-J; Ch. 149A; and Ch. 30, Sec. 39) and prescribe

the selection process and certain contract terms. The special act process requires the submission of a Home Rule petition and a vote by the Legislature, thereby introducing uncertainty, delay, and additional costs into the procurement process.

In 2009, Massachusetts joined 35 other states to authorize P3 project delivery; however, its applicability is currently limited to MassDOT for surface transportation projects. There remains no authority for cities and towns to use the P3 model to deliver municipal projects, including water and wastewater infrastructure. To that end, a coalition of municipal and water infrastructure trade groups support legislation (S.1722) filed by Senate Minority Leader Bruce Tarr (R-Gloucester) and other bi-partisan sponsors that expressly authorizes the use of P3 for water, wastewater, and stormwater infrastructure projects procured by any state and municipal awarding authorities, including cities and towns, local redevelopment authorities, water districts, and other improvements districts.

The types of P3 delivery methods contemplated by the legislation include long-term contract operations, design-build, design-build-operate, and design-build-operate-finance. The bill would authorize P3 contracts for a term of 20 years with an additional 10 year renewal period. The bill authorizes unsolicited proposals from private vendors and prescribes a thorough process by which awarding authorities are to solicit and evaluate proposals, including determining whether a proposal presents the "best value" to the public agency. The legislation prescribes certain minimum requirements and suggested business terms of a P3 contract and authorizes fee for service and the issuance of public debt and private equity project financing.

If broad public-private partnership authority is on the horizon for Massachusetts, what are the considerations for stakeholders? Policy concerns stemming from the perceived complexity of the

P3 delivery model, possible impacts of P3s on labor, and the public's hesitancy to privatize those aspects of our infrastructure that have traditionally been owned and operated by public entities are complex issues that require consideration and thorough planning. P3 project delivery also introduces new elements of risk and consideration must be given to seven broad categories common to P3 projects: (i) design/development Risk; (ii) construction Risk; (iii) revenue risk; (iv) financial risk; (v) unexpected event risk (including political/regulatory risk); (vi) performance risk; and (vii) environmental risk. A well-drafted set of legal documents that details the allocation of these risk factors and other contractual obligations amongst the public and private parties in a clear and precise fashion is critical for the success of a public-private partnership. Because a P3 agreement must govern a relationship that may last over a period of decades—rather than a period of months—and must contemplate numerous variables and details, the partnership agreement must have provisions that establish a framework for dealing with a full spectrum of risks and disputes in a cost-efficient and equitable manner.

Public-private partnerships represent an innovative and forward-thinking approach to financing and delivering certain types of infrastructure projects that could be used to accelerate much needed water infrastructure projects. Although more complex than traditional project delivery, and not suited for all project types, the experience of other states and municipalities demonstrates that P3s are viable and can play an important role in meeting the growing infrastructure investment needs of cities and towns in the water sector.

Anatoly M. Darov, PE and Matthew G. Feher are attorneys in the Infrastructure and Public-Private Partnerships practice group at the Boston-based law firm Burns & Levinson LLP (www.burnslev.com).

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



Two blocks from the State House and overlooking Boston Common, the newly refurbished Aldrich Center is the perfect venue for your next event. This historic building accommodates private functions, business meetings, and receptions for up to 75.

For information or reservations, contact
Rich Keenan, Aldrich Center Manager
at 617/305-4110 or rkeen@engineers.org

Aldrich Center
ONE WALNUT STREET
Beacon Hill Boston, MA

BSCES Legislative Fellow Update from Beacon Hill—Proposed Changes to Municipal Procurement

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



House 3905—An Act to Modernize Municipal Finance and Government, was formally filed by the Baker administration on December 7. The main goal of the legislation is to update obsolete laws, increase local independence, streamline state oversight, and provide municipalities with greater flexibility. There are a few highlights of the proposed legislation which would directly impact the engineering community.

Municipal procurement dollar thresholds would change as the bill proposes to amend Section 39M of chapter 30 of the General Laws (horizontal construction procurement statute) to increase the dollar threshold for contracts not requiring full bidding from \$10,000 to \$50,000. Section 4 of the proposed legislation would

create an exemption from Chapter 39M bidding for the installation, repair, and maintenance of telecommunication and data cabling and wiring; telecommunication, security, audiovisual and computer equipment; and carpeting which would now be eligible for procurement under section 22 of chapter 7, but retain eligibility for procurement under Chapter 39M if part of a larger construction project. Section 44A of Chapter 149 of the General Laws (vertical construction procurement statute) would be amended to increase the dollar thresholds for contracts not requiring full bidding from \$25,000 to \$50,000 and increase the thresholds for contracts requiring competitive bidding from \$100,000 to \$150,000.

The legislation would amend section 5 of Chapter 30B and section 44J of Chapter 149 of the General Laws to remove the requirement

that all Chapter 30B (municipal procurement statute) and Chapter 149 projects be publicly advertised in a newspaper of general circulation within the area served by the government body. Instead, municipalities would have the authorization to post public advertisements on COMMBUYS, the Commonwealth's centralized on-line public procurement announcement and solicitation system.

Also, section 5 of chapter 59 of the General Laws would be amended so that no tax-exempt property may be sold or converted to residential, industrial, or commercial use while under tax exemption unless the municipality has been notified. Municipalities will be granted a 120 day right of refusal period to purchase the property. A public hearing for the bill has not been scheduled but will most likely occur this spring.

MassDOT Completes “Capital Conversations” Community Meetings

by Matthew I. Shuman, PE, Town Engineer, Town of Watertown

MassDOT is currently in the process of developing its Capital Investment Plan (CIP) for Fiscal Years 2017–2021. The CIP is a five year blueprint that prioritizes multi-modal investments in the Commonwealth's transportation system using federal and state funds. This fall, MassDOT held a series of sixteen community meetings across the state, entitled “Capital Conversations.”

The purpose of the meetings was to get active engagement from the public and generate project ideas. In the past, MassDOT has published a draft CIP and then requested public comment; this year, they are proactively gathering public input about transportation priorities and needs to help develop the CIP. Representatives of MassDOT and the MBTA

were present at the meetings to answer questions and listen to comments.

In addition to the public meetings, MassDOT created a website where users were able enter comments during the comment period. The site, which is still available at www.mass.gov/massdot/capitalconversations, uses a GIS-based application that allows users to search by parameter, such as transportation mode and view each comment by location. Comments are also available in tabular format, by City/Town.

Of the over 1,420 comments received, about 40-percent related to mass transit, and a third to automobile transit. The remainder related to bicycle and pedestrian modes. Many comments focused on potential expansion and new

infrastructure, but accessibility, capacity, design, funding, and maintenance were also high priorities of the public.

The Capital Conversations meetings were one of the first steps in developing the CIP. For the first time, MassDOT will be using detailed uniform criteria, such as system preservation, mobility, cost-effectiveness, and economic impact to score and prioritize potential projects. This process supports MassDOT and the state's goal of creating a comprehensive, data-driven, agency-wide capital planning process.

MassDOT is currently scoring projects. After a draft CIP is published, additional public input will be sought. Approval of the CIP is anticipated by June 30, 2016.

e-topo.com

**Engineering Quality Topographic Mapping since 1977
Specialists in Building Information Modeling (BIM) and 3-D**

Online Library of Aerial Photography is Suitable for DTM 1"=40' / 2' contours

<http://www.e-topo.com/map/>

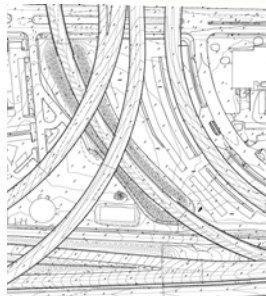
TIGHT BUDGET? Every proposal includes our **LOW PRICE GUARANTEE.**
See website for complete details.

We welcome your invitation for our rep to visit your office for demo and discuss specifics.

Sustaining Member

ASPRS - CALS - MALSCE - MSLS - NHLS - NYSAPLS - RISPLS - VSLs

EASTERN TOPOGRAPHICS



UMass Amherst ASCE Student Chapter Celebrates 65 Years

by the 2015-2016 UMass Amherst ASCE Student Chapter and Executive Board members: Rosey Tortola, President; Rick Hanna, VP; Billy Howe, Treasurer; Nathan Yu, Secretary; Dan Clasby and Brian Biagini, Publicity Officers

The American Society of Civil Engineers Student Chapter at the University of Massachusetts Amherst was founded in 1950, making this year its 65th anniversary. Throughout the chapter's history there have been tremendous strides in expanding our influence, knowledge and participation in design competitions. This includes the student chapter's competition focuses; from solely competing in the Steel Bridge and Concrete Canoe, to including competitions such as the Big Beam Competition and the Earthquake Engineering Research Institute's (EERI) National Seismic Design Competition.

The 65th Anniversary of UMass Amherst ASCE has given us the opportunity to take into perspective not only the accomplishments that we make in our time with the Chapter, but also the contributions of all the excellent men and women before us. In an effort to be mindful of and to pay respect to the colorful history of UMass Amherst ASCE, we reached out to a few of our alumni to hear their experiences as part of UMass Amherst ASCE, and to piece together some of the Chapter's storied history over the past 65 years.

"ASCE helped prepare me for working and coordinating with colleagues, staying active in my industry, and viewing my career as more than a 9 to 5 job. Look at every challenge as an opportunity for growth." Michael Mitchell, '06

Our alumni maintain both a presence in and enthusiasm about ASCE, and many continue their involvement in professional regional chapters. Bill Paille, '88, was a participant of two concrete canoe competitions and is a member of the professional ASCE chapter in Boston. He said, "Get involved and experience what leadership is all about. Learn from your fellow students, how to work as a team, how to present in front of a live audience, don't be afraid to make mistakes...and learn how to write." Our alumni have expressed how important and vital involvement in ASCE has been throughout their careers, and how becoming involved early can offer many opportunities for continued growth and networking. Shawn Kelley, '94, '97, '03, an active member of the Vermont professional chapter said "ASCE is a fantastic organization and you should stay involved after you



"Rapid Fracture" Concrete Canoe, 1987, photo courtesy of Bill Paille, '88



"Foggy Bottom" Concrete Canoe, 1995, photo courtesy of Kerry McCormack, '95

graduate...It will be the beginning of your professional networking...starting early is very important."

"Managing a team of people toward a common goal is often something that you need to be able to do in the workplace, but that you don't always learn in the classroom." Elizabeth Galloway (Abbanat), '03

We have chosen selected quotes from our alumni during interviews that chapter members conducted during this semester. Their time spent as former members of the UMass Amherst ASCE Student Chapter were hailed as "some of the most important years to be involved," according to Kate Biedron, '05 and many of our other alumni. The following quotes reference their personal experiences as members of UMass Amherst ASCE, including some of their favorite

memories. From the reflections on their time in the student chapter we hope to learn from their experiences.

"Going to the National Concrete Canoe Competition in 2004, which was held in Washington, DC. I can't recall any other time that I've been as 'fired up' about engineering!" Michael Mitchell, '06

"I wouldn't trade the marathon work weekends at the chicken coop for anything else. I will never forget how much fun (and long) pour day was. We may not have had the prettiest canoe out there but it always floated and we were proud of it." Matt Soltys, '12

"Most important to me was working on the concrete canoe, where I learned first-hand about project management and real, hands-on problem solving. Another benefit was that I became close friends with someone who later became my husband!" Elizabeth Galloway (Abbanat), '03

"We built an eighteen-foot-long canoe, 400 lbs., named the 'Aggregate Queen' and were part of a team that raced it down the Penobscot River in Orono, ME. Yes, that's right, white water! Unfortunately, one of the paddles broke and the canoe got sideways and hit a huge rock and the canoe broke in half." Bill Paille, '88

"For a handful of years we used an old steel bridge to hold up and display our boats. It looked cool because it tied the different teams together. There were a fair amount of people who competed in both Bridge and Canoe so it worked well." Tyler DeRuiter, '10

The memories and experiences made during their time as members of the UMass Amherst ASCE Student Chapter truly resonate with current members' similar experiences. Teamwork and friendship go hand-in-hand within the design-build teams and throughout the general membership. These competitions and the real life applications of the work have given our alumni an advantage once they became professionals. Along with their memories and experiences comes their insight into how UMass Amherst ASCE helped them in their professional careers, as well as general take-away messages for students.

"In my role as President of ASCE, I gained communication skills that have helped me to this day. I am a faculty member at the University of Delaware, and I lecture to large groups of students

continued on page 11

UMass Amherst ASCE Student Chapter Celebrates 65 Years

continued from page 10

all the time. I also help guide students to student organizations like ASCE as I know how beneficial membership can be." Michael J. Chajes, '84

"I feel that involvement in ASCE is the best way for a student to get 'introduced' into their profession." Tony Puntin, '92

"When you leave UMass, you won't know EVERYTHING so don't pretend like you do, offer to do anything and learn everything." Kerry McCormack, '95

"Joining and becoming an active member in professional organizations like ASCE is important to developing relationships, your career, and our profession." Judd Galloway, '03

"ASCE was great to help and understand civil engineering outside of an academic context. I met a number of industry contacts in ASCE as a student officer that I'm still in touch with." Robert House, '09

"The UMass ASCE chapter allowed me to expand on the material I learned in the classroom but it really allowed me to learn more about myself and who I am." Aimée O'Brien, '11



"Baron von Swan" Concrete Canoe held up by Steel Bridge, 2009, photo courtesy of Tyler DeRuiter, '10

An in-person interview was conducted with alumni Ellen White, '91; Scott Michalak '92 & '95; and Peter Quigley '84 & '88. They believe it is important to take ownership of your decisions and learn from mistakes, but it is also important to be happy with these decisions and your profession in general. They also believe

that ASCE is an opportunity for students to be introduced to the civil engineering profession.

After speaking with our alumni, it is clear how successful they have become. All have referenced how ASCE has helped prepare them for real-world applications through their leadership roles and experiences as a part of UMass Amherst ASCE. Throughout the past 65 years of UMass Amherst ASCE history, it is clear how beneficial and helpful the student society is, and how well it is represented by our great alumni. The positive influence they have had on us will only help us succeed more. Our alumni's invaluable advice will greatly help both the student chapter's continued success as well as our current and future members' professional careers after graduation. To our alumni: your passion for the profession and drive to succeed is evident, and will resonate within the society through future generations. Thank you again for your contribution in representing such a great society throughout the years.

Responsibility for Design under Construction Manager-At-Risk Project Delivery

by Elizabeth K. Wright, Esq., Associate, Robinson & Cole, LLP

In keeping with a growing trend, in 2004, Massachusetts departed from the exclusive use of the traditional "design-bid-build" project delivery method for public projects and permitted public agencies to employ the less traditional design-build and construction manager-at-risk delivery methods on certain public projects. The increased use of such project delivery methods raises the question: who is liable for the adequacy of the design?

By way of background, on a traditional design-bid-build project, the owner holds two separate contracts, one with the design entity and another with the contractor. The contractor does not commence construction until the design is 100 percent complete. Because the contractor is not responsible for the design, the United States Supreme Court defined what has become known as the *Spearin* doctrine, which holds that the owner impliedly warrants that the plans and specifications are suitable for construction. Massachusetts adopted the *Spearin* doctrine into its common law in a 1970 decision, *Alpert v. Commonwealth*, 357 Mass. 306, 320 (1970), when public agencies continued to generally employ only the design-bid-build method.

Unlike a design-bid-build project, under the construction manager-at-risk project delivery method, the owner retains a construction manager, who in addition to acting as the general contractor during construction, may consult regarding the design prior to construction starting and, therefore, possibly affect the plans and specifications. Given this expanded role of a construction manager, it became unclear whether or not the *Spearin* doctrine would apply to construction manager-at-risk projects.

The Massachusetts Supreme Court recently answered this question and held that the *Spearin* doctrine does apply to a construction manager-at-risk (CMAR) who performs preconstruction services and some design review, provided the CMAR relied upon the design both reasonably and in good faith. In *Coghlin Electrical Contractors, Inc. v. Gilbane Building Company*, the Court held that despite the differences between a traditional design-bid-build project and a CMAR project, it "was not persuaded that the relationships are so different that no implied warranty of the designer's plans and specifications should apply in construction management at risk contracts...and that the CMAR should bear

all of the additional costs caused by design defects" on public projects. However, the Court also recognized that a CMAR does have more influence and access to the design than a general contractor in a traditional design-bid-build project. Therefore, the Court limited the protection of the warranty by concluding that under a CMAR delivery method, in order to establish the owner's liability under the implied warranty, the CMAR bears the burden of proving that its reliance on the defective design was both reasonable and in good faith.

The Coghlin decision provides guidance to both construction managers and owners employing the construction manager-at-risk delivery method regarding who bears the ultimate responsibility for the design. Owners must be aware that despite a construction manager's collaboration in the design, the ultimate responsibility for the accuracy and sufficiency of the design continues to rest with the owner and architect.

A version of this article originally appeared in REBA News, the newspaper of the Real Estate Bar Association.

Recent News and Updates

BSCES Congratulates 2015 BSCES and ASCE Life Members

The BSCES Board of Government would like to congratulate the following section members who achieved the status of becoming a BSCES and/or ASCE Life Member during 2015. Life member certificates will be mailed to these individuals shortly and they will be recognized for their dedication and many contributions to the profession at an event to be scheduled at a later date during the current fiscal year.

BSCES Life Members

Stephen L. Bernstein, PE
John R. Born, PE
Edward W. Burnham, PE
Robert L. Cardenas
Peter J. Cheever, PE
Arthur N. Church
Mark X. Haley, PE
Stephen E. Hamwey, PE
Richard F. Kaminski, PE
Robert W. Kelly, PE
James R. Lambrechts, PE
Henry N. Law, PE
Francis D. Leathers, PE
Judith Nitsch, PE
Richard F. O'Brien, PE
Curtis J. Orvis, PE
Michael J. Phillips, PE
Vincent W. Spada, PE
Thomas W. St Sauveur, PE
David L. Westerling, PhD, PE, PLS

ASCE Life Members

Bruce A. Bennett, PE
Robert Bucelwicz, PE
Robert Cardenas
Lawrence S. Cotton, PE
Nicholas C. D'Agostino, PE
Donald Dusenberry, PE
Thomas K. Follett, PE
Michael B. Gilbert, PE
Varoujan Y. Hagopian, PE
David N. Hayes, PE
John E. Isbell, PE
Roland A. Lavalley, PE
Francis D. Leathers, PE
Anthony T. Lionetta, PE
Timothy J. McGrath, PE
Robert C. Merrill, PE
Bryce N. Mochrie, PE
David M. Nacci, PE
Richard N. Palmer, PhD, PE, D.WRE
Andrew M. Pappastergion, PE
Kenneth J. Petraglia, PE
Peter Shanahan, PhD, PE
Francisco Silva-Tulla, PE
Peter Sullivan, PE
James G. Thomson
Frank S. Vetere, PE

2016 Ernest A. Herzog Call for Papers

March 15, 2016 is the deadline for submitting a paper to T&D 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](#).

Now@ASCE

In an effort to keep members informed about the activities at ASCE, a video has been produced that provides a recap of what's happening within ASCE. [Now@ASCE](#) includes a sneak peek of the upcoming *Dream Big* engineering movie and an introduction of ASCE's "Grand Challenge." This video also has highlights from the annual convention and Society news from throughout the year.

Student Chapter Giving Back!

The ASCE Student Chapter at UMass Lowell has a long history of "giving back" to their community. Under the direction of their faculty advisor Ed Hajduk, they are undertaking numerous outreach activities. Chapter members are currently mentoring students in fifth through eighth grade at the Bartlett School in Lowell. They also work with the town of Lexington, MA, to help monitor their storm water. Read more about their undertaking in a recent [The Connector](#) article.

Student Chapter Grants

For the past several years, BSCES has provided monetary grants to the student chapters to assist with their expenses throughout the year. The student chapters prepare and submit a "proposals" to BSCES outlining their activities and requesting funds to

support those activities. The wide variety activities chapter members undertake is very impressive. From the traditional Steel Bridge and Concrete Canoe to community outreach at local schools, the local ASCE student chapters are among the most active in the country. This year, requests for funding were received and granted to five student chapters: UMass-Amherst, UMass-Lowell, Wentworth, Western New England University, and WPI.

ASCE's 2016 OPAL Winners and OCEA Finalists Announced

Recognizing the individuals and the projects that highlight the civil engineering profession is one of the core missions of ASCE. To help accomplish this, ASCE presents the Outstanding Projects and Leaders (OPAL) awards and the Outstanding Civil Engineering Achievement (OCEA) award in conjunction with its annual Awards Gala. The [OPAL awards](#) were established in 1999 to recognize outstanding civil engineering leaders whose significant accomplishments across their careers have contributed to construction, design, education, government, or management. Established by ASCE in 1960, the [OCEA award](#) has highlighted many of the most important civil engineering contributions of the last half-century.

Dream Big!

Many have heard of ASCE's newest project to promote the civil engineering profession: the IMAX movie, *Dream Big*. This giant-screen film will take viewers on a journey from the world's tallest building to a bridge higher than the clouds. As engineers, we push the limits of ingenuity and innovation in unexpected and imaginative ways. ASCE has launched a contest associated with the movie. You can enter the [Dream Big Contest](#) for a chance to win a dream prize, including an international trip to the set of *Dream Big*!

Social Media

Did you know that BSCES is "connected"? As the 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 #BSCES if you attend one of our events. The BSCES [Facebook](#) page has almost 800 "likes". The page is used to announce upcoming events, provides pictures galleries of some of our signature events, and sometimes shows the lighter side of engineering. Almost 1800 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.

COPRI Boston Chapter Event

Tuesday, February 9, 2016

The Chateau, 404 Boston Providence Hwy
Norwood, MA

5:45 PM Social/Registration

6:30 PM Dinner

7:30 PM Presentation

Waterfront Facilities Inspections & Assessment Manual

Charlie M. Roberts, PE, Project Manager,
Childs Engineering Corporation

Noah J. Elwood, PE, President,
Appledore Marine Engineering

This presentation will provide an overview of the latest ASCE Manual of Practice (MOP 130) that details the methods and techniques for the inspection and assessment of waterfront facilities. The presentation will focus on the different types of inspections that can be used for topside and underwater inspections. The speakers will provide an overview of the common defects found in various structure types, discuss how they can be documented, and provide information on some of the administrative considerations to take into account when conducting inspections.

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

SEI Boston Chapter Event

Wednesday, February 10, 2016

Northeastern University, Behrakis Health
Center, 30 Leon Street, Boston, MA

6:00 PM Registration, Social and Pizza

7:15 PM Presentation

Kingdom Tower—A Megatall Building

Joseph G. Burns, PE, SE, C.Eng, FASCE, LEED
AP, Managing Principal, Thornton Tomasetti

Megatall buildings are currently defined by the Council on Tall Buildings and Urban Habitat as those reaching the height of 600m or higher. Within the past decade, four such buildings have come to fruition and more are being planned. The one-kilometer tall Kingdom Tower in Jeddah, Saudi Arabia, which is currently under construction, will become the world's tallest building when completed. Co-hosted by several Northeastern University student groups, this presentation will focus on the planning and design of the Kingdom Tower; but, will also discuss relevant aspects of other recent Megatall buildings.

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

continued on page 14

Plan to Attend!

Saturday, January 30, 2016

Younger Member Group Ski/Ride Day Trip to Stowe, Vermont

Stowe Mountain Resort
5781 Mountain Road, Stowe, VT

5:00 AM, 5:30 AM & 6:00 AM Pick-up Times

Multiple Pick-up Locations

Ski or Ride with the Younger Member Group and Boston Ski and Sports Club at Vermont's tallest mountain! With 116 trails, there is something for every level of skier or rider.

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

Register Today!

Tuesday, February 23, 2016

YMG Annual Billiards Tournament and Networking Event

Scholars Boston Bistro
25 School Street, Boston, MA

6:00 PM Registration/Social

6:30 PM Billiards Tournament

Join members of the BSCES Younger Member Group for their 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.

ASCE Webinars

ASCE WEBINARS

SUPPORT OUR SECTION

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

ASCE | CONTINUING
EDUCATION

The following webinars are only a few of the many online programs offered to ASCE members. Sign up with the code WEBBOSSEC to contribute 20% of your purchase to the Boston Society of Civil Engineers Section/ASCE.

Design of Foundations for Equipment Support

January 25, 2016, 11:30 AM – 1:00 PM

Seismic Design of Curtain Wall Systems

January 26, 2016, 11:30 AM – 1:00 PM

The Infrastructure Challenge— Process Improvement

January 27, 2016, 11:30 AM – 1:00 PM

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

Save the Date!

Thursday, March 24, 2016

The Massachusetts Transportation Program— A Legislative Update

New Local and State Funding
Mechanisms to Advance Public
Infrastructure Projects

Sponsored by the T&DI Boston Chapter

Wyndham Boston Beacon Hill
5 Blossom Street, Boston, MA

Please look for further details in future issues of BSCESNews.

Upcoming Events *(continued from page 13)*

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

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

BSCES Program Committee Sponsored NHI Training

Tuesday and Wednesday, March 1 – 2, 2016

Louis Berger, 117 Kendrick Street #400
Needham, MA

8:00 AM – 4:30 PM

FHWA-NHI-130087—

Inspection and Maintenance of Ancillary Highway Structures

MassDOT is tentatively scheduled to release a Request For Proposals (RFP) for on-call services for Ancillary Highway Structures at the end of January. It is anticipated the responses to the RFP will be due in March. MassDOT has indicated that individuals with NHI "Inspection and Maintenance of Ancillary Highway Structures" training will be a preferred

qualification. In response to this news, BSCES has arranged to offer this course, which provides training in the inspection and maintenance of ancillary structures, such as structural supports for highway signs, luminaries, and traffic signals. Its goal is to provide attendees with information to aid in establishing and conducting an inspections in accordance with the FHWA "Guidelines for the Installation, Inspection, maintenance, and Repair of Structural Supports for Highway Signs, Luminaries, and Traffic Signals."

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 prerequisite 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.

Plan to Attend!

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

Please look for further details in future issues of BSCESNews.



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.

Ski/Ride Day Trip to Stowe, Vermont with BSCES Younger Member Group



Ski or Ride with YMGB and Boston Ski and Sports Club (BSSC) at Vermont's tallest mountain! With 116 trails, there is something for every level of skier or rider.

When: Saturday, January 30th.

Price: \$81 (includes bus ride and lift ticket)

Pick-up Locations: Two Motor Coach Route Options

Route 1

5:00 AM – Sun & Ski, Pembroke

5:30 AM – Quincy Adams MBTA Station

6:00 AM – Dartmouth St. Garage, Back Bay

Route 2

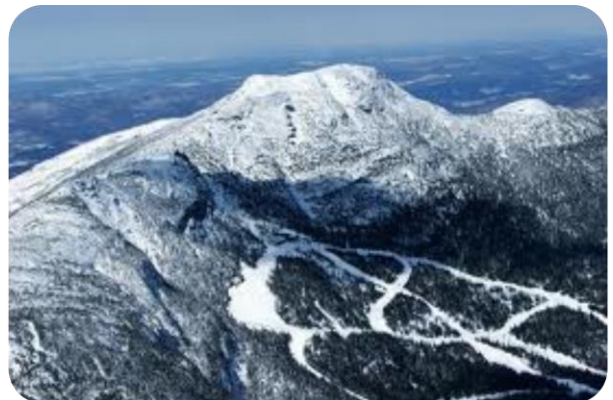
5:30 AM – Riverside MBTA Station

6:00 AM – Woburn Park & Ride

Deadline to register is January 27th.

Register online at BSSC.com and use the promo code BSCES16 to receive the special YMGB Rate.

Please E-mail BSCESYMGB@gmail.com once registered; to tell us which route you plan to use and for more information.





Boston Society of Civil Engineers Section
American Society of Civil Engineers



COASTS, OCEANS,
PORTS & RIVERS
INSTITUTE

Boston Chapter

Waterfront Facilities Inspections & Assessment Manual

Charlie M. Roberts, PE

Project Manager, Childs Engineering Corporation

Noah J. Elwood, PE

President, Appledore Marine Engineering

Tuesday, February 9, 2016

The Chateau, 404 Boston Providence Hwy, Norwood, MA

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

This presentation will provide an overview of the latest ASCE Manual of Practice (MOP 130) that details the methods and techniques for the inspection and assessment of waterfront facilities. The presentation will focus on the different types of inspections that can be used for topside and underwater inspections. The speakers, Charlie and Noah, will provide an overview of the common defects found in various structure types, discuss how they can be documented, and provide information on some of the administrative considerations to take into account when conducting inspections.

This presentation should be attended by engineers involved in the inspection of waterfront facilities and facility owners that would like to understand what they should expect from a waterfront facility inspection.

Registration Deadline: Monday, February 1, 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/EWRI_1916. 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 February 1, 2016 and no-shows will be billed.

Kingdom Tower - A Megatall Building

Joseph G. Burns, PE, SE, C.Eng, F.ASCE, LEED AP

Managing Principal, Thornton Tomasetti

Wednesday, February 10, 2016

Northeastern University, Behrakis Health Center, Room 010, 30 Leon Street, Boston, MA

(Accessible by Green Line (E) via Northeastern Station and Orange Line via Ruggles Station)

6:00 PM Registration, Social and Pizza; 7:15 PM Presentation

Megatall buildings are currently defined by the Council on Tall Buildings and Urban Habitat as those reaching the height of 600m or higher. While many such towers have been proposed over the years, it has only been within the past decade that four megatalls have finally come to fruition: Burj Khalifa (Dubai), Shanghai Tower (China), Mecca Royal Clock Tower (Saudi Arabia), and Ping An Financial Center (China). The one-kilometer tall Kingdom Tower in Jeddah, Saudi Arabia which is currently under construction will become the world's tallest building when completed. As with all tall buildings, the most important drivers for various engineering solutions are: performance under environmental wind and seismic lateral loads; foundations; structural materials; construction efficiencies and scheduling; architectural shaping; internal planning; usage; and aesthetics. For megatalls, however, the importance of these drivers becomes more pronounced to the point that the structural demands on the architecture and planning usually become the critical factor in the success or failure of the project. This presentation will focus on the planning and design of the Kingdom Tower; but, will also discuss relevant aspects of other recent Megatall buildings.

This event is co-hosted by Northeastern University's Graduate Structural Engineering Association, ASCE Student Chapter and Student Government.

Registration Deadline: Friday, February 5, 2016

\$20 Members, \$25 Non-Members

\$15 Public Sector Members, \$20 Public Sector Non-Members

\$5 Student Members and Senior Members (65+)

Northeastern University Student Members No Charge

Information/Registration:

Register to attend this meeting and pay by credit card online at <http://bit.ly/SEI-2-10-15>. 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 Registration Deadline February 5, 2016 and no-shows will be billed.



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	Construction Management	Cristina Cosma	617/989-4464
13	Tuesday	04-05	7:30-9:30 PM	Engineering Economics	Cristina Cosma	617/989-4464
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	Open		
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/PERefresherSpring2016>. 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.



Please join us during National Engineers Week!

Annual Networking & Billiards Tournament

Tuesday, February 23, 2016 at 6:00 PM
(registration: 6:00 PM - 6:30 PM)

Cost:

Students \$20, Members \$30, Non-Members \$35

Registration includes tournament entry and appetizers.

Online Registration Deadline:

February 15, 2016

Grand Prize: Red Sox Tickets for 1st place team

Plus prizes for 2nd and 3rd place winners!

Scholars Boston Bistro

25 School Street, Boston, MA 02108

Register online: <http://bit.ly/YMGBilliards16>.

For more information, please contact bscesymg@gmail.com





FHWA-NHI-130087

Inspection and Maintenance of Ancillary Highway Structures

Tuesday, March 1, 2016 – Wednesday, March 2, 2016

Louis Berger, 117 Kendrick St #400, Needham, MA
8:00AM – 4:30PM

MassDOT is tentatively scheduled to release a Request For Proposals (RFP) for on-call services for Ancillary Highway Structures at the end of January. It is anticipated the responses to the RFP will be due in March. MassDOT has indicated that individuals with NHI “Inspection and Maintenance of Ancillary Highway Structures” training will be a preferred qualification. In response to this news, BSCES has arranged to offer this course, which provides training in the inspection and maintenance of ancillary structures, such as structural supports for highway signs, luminaries, and traffic signals. Its goal is to provide attendees with information to aid in establishing and conducting an inspections in accordance with the FHWA “Guidelines for the Installation, Inspection, maintenance, and Repair of Structural Supports for Highway Signs, Luminaries, and Traffic Signals.”

Registration Deadline: Monday, February 1, 2016

Registration Fees: \$1,200 Members, \$1,450 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/NHIAncillaryStructures2016>. 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 February 1, 2016.



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.

2016 ERNEST A. HERZOG AWARD

CALL FOR PAPERS

BACKGROUND

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

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

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

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

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

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

PAPER GUIDELINES

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

RULES

- A.** The paper should be original and not be less than 2,000 words and not more than 6,000 words. The paper should clearly describe the project, innovation, or idea and highlight benefits to the current engineering and construction practices. Graphic material including photographs should be included to highlight specific areas of the project. The paper may have been previously published in a journal.

- B.** 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.



SUSTAINABILITY IN CIVIL ENGINEERING AWARD SUBMISSION INFORMATION

Purpose

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

The award will be offered annually and is to be administered by the BSCES Awards Committee. The BSCES Committee on Sustainability will receive entries, judge the entries and select the winning project. The award will be issued to the project owner.

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:
 - The completed Entry Form below
 - 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.
- 3 The BSCES Committee on Sustainability reserves the right to request additional information for any or all entries.

Evaluation Criteria

Projects will be considered based on their submitted Envision rating. Primary consideration will be given to project Envision ratings. Secondary consideration will be given to the following criteria:

- 1 The extent to which innovative design or construction methods improve economic, social and environmental sustainability;
- 2 The ability to apply the project methods to future developments in sustainability; and
- 3 The degree to which the project met the expectations of the client.

The BSCES Committee on Sustainability will receive the nominations and forward entries which meet the rules for submission to a separate judging panel. The judging panel will consist of 2-3 independent and qualified reviewers who have no conflicting interest in the selection of a winner. The basis of award by the panel is to select the project which receives a high Envision rating, as well as exemplifies achievement in the secondary criteria identified. The Committee on Sustainability will submit the selected project winner to the Awards Committee to be included in the annual BSCES awards dinner ceremony.



**SUSTAINABILITY IN CIVIL ENGINEERING AWARD
ENTRY FORM**

PROJECT INFORMATION

PROJECT NAME: _____

PROJECT LOCATION _____

DATE OF COMPLETION _____

PROJECT OWNER

Agency / Corporation: _____

Contact Name: _____

Contact Phone Number: _____

Contact Email: _____

PROJECT ENGINEER/DESIGNER (list design team members if multiple companies involved)

Company Name: _____

Contact Name: _____

Contact Phone Number: _____

Contact Email: _____

BSCES NOMINATING MEMBER (if applicable, not required)

Company Name: _____

Contact Name: _____

Contact Phone Number: _____

Contact Email: _____

ENVISION™ PROJECT RATING

Envision Sustainable Professional (ENV SP)

Company Name: _____

Contact Name: _____

Contact Phone Number: _____

Contact Email: _____

PROJECT MERITS

Please provide a brief description of the project.

Please provide a brief statement of how the project met the client's needs.

Please describe the extent to which the project's innovative design exemplifies the economic, social and environmental principles of sustainability as described by the Institute for Sustainable Infrastructure.
(Provide a separate attachment consisting of 500 words or less).

Please describe the specific elements of the project that contribute to sustainability and the anticipated advantages of these elements compared with traditional design/construction techniques. Photographs are encouraged.
(Provide a separate attachment consisting of 500 words or less).

The ENV sustainability professional (ENV SP) listed in the project information form above shall complete a sustainability scoring of the project using the ISI Envision Rating tool available through the ISI website. An official independent review or verification by ISI is not required; however, a completed tabular summary of all the Envision credits shall be submitted as part of this application and will be the primary basis for award selection.

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.



*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.