

# BSCES NEWS

A MONTHLY PUBLICATION OF THE BOSTON SOCIETY OF CIVIL ENGINEERS SECTION/ASCE

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T&DI Boston Chapter / Transportation

## UPCOMING EVENTS

ASCE and BSCES Sponsored Seminar  
September 21 – 22, 2017

T&DI Boston Chapter Dinner Event  
September 28, 2017

SEI Boston Chapter Lecture Series  
October 3 – November 7, 2017

Charles C. Ladd Memorial Lecture  
November 6, 2017

Further Details Inside



## A Study in Traffic

by Lynn Farrington, PE, PTOE, New England Traffic Group Manager, Louis Berger

Rushing to the airport is a familiar scene for all of us, including sitting in traffic to get there. Through a first of its kind transportation project, getting to the T.F. Green Airport just became a little easier. Louis Berger led an innovative project to study, conceptualize, design and install Rhode Island's first adaptive signal control (ASC) technology system as a pilot program on Airport Road in Warwick. This highly traveled, 1.5 mile arterial leading to the airport contains eight signalized intersections with residences and industrial areas on either side of the roadway.

The web-based ASC system send traffic data to a remote "brain" where the information is



Web-based ASC system installed at each intersection sends traffic data to a remote "brain" where information is processed for sequencing.

processed and retained for future forecasting and traffic sequencing. Data is collected by

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## President's Report

by Malek A. Al-Khatib, PE, Vice President, Louis Berger



The Boston Society of Civil Engineers Section/ASCE (BSCES) embarks on the 169th year of its iconic history as the oldest and best civil engineering society in the United States. The society's founding engineers established a well-recognized institution for civil engineers that supports and empowers our members, engineers and the profession. For more than one and half centuries, our society's predecessors grew and strengthened the legacy of BSCES. When integrated with the American Society of Civil Engineers (ASCE), BSCES continued to be recognized as one of best sections of the ASCE by winning awards year after year.

It is very important to recognize that BSCES being the best could not have been achieved and will not continue without the hard work and efforts of you members of the BSCES. It is your volunteered efforts, taking time out of your busy work and personal life, to serve the society, your colleagues, and our profession. On behalf of the BSCES, I

thank you for your efforts making BSCES the best.

We take great pride in our members' success and participation. In summary, BSCES has eight technical groups and institute chapters, ten operational committees, ten student chapters, publications, and its own television show. We support a legislative fellow at the state house who serves as an advisor to the state legislature's Joint Committee on Transportation. Each year, BSCES sponsors awards, donations, prizes, scholarships, and grants which exceed \$40,000 and host variety outreach activities geared towards educating the public about our profession and engaging young people in programs such as the Future City, Model Bridge and Online Bridge Competitions.

This year I look forward to working with each of you on making BSCES even better. Our profession continues to evolve and young engineers are entering the workplace with new ideas and ambition to advance in their career and the profession. BSCES will continue to evolve to

meet the shifting paradigms and realize the needs and aspiration of these young members. When discussing changes with members of the BSCES many ideas came to light as well as the need to enhance some of our existing programs. Some of our initiatives this year include:

1. Increased mentoring assistance for new members
2. Improving member benefits
3. Offering in-depth technical programs
4. Increasing ease of use of the BSCES website
5. Improving member communications
6. Improving member volunteer participation
7. Increasing benefits to membership in the Western Massachusetts Branch.

We are conducting several membership surveys to develop educational and professional need assessment. We are soliciting event and seminar attendee feedback to maximize the benefits to the members. We will be developing member mentorship program where senior members will be available to provide mentoring assistance to new and younger members in the

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### 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](mailto:bscses@engineers.org), Website: [www.bscses.org](http://www.bscses.org)

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Boston Society of Civil Engineers



## A Study in Traffic

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overhead detection using infrared technology developed by the military that presents more accurate information and is less susceptible to challenging weather conditions. "Utilizing this data, the traffic signals are adjusted in real time to safely and expeditiously move traffic through the corridor. The system reduces motorist travel time, delays, and stops which helps cut down idling and decreases fuel consumption and emissions. This also has a positive impact on traffic corridor safety," said Thomas Harley, PE, Louis Berger, vice president.

The ASC project came together through a seemingly perfect storm of events. While working the relocation of Winslow Park, a local recreation area near the airport, our team saw the opportunity to maximize the effectiveness of not only this project but two others—the extension of Runway 5 at T.F. Green Airport and a FAA roadway safety audit being conducted by the Federal Highway Administration (FHWA). Looking at the community holistically, our team collaborated with many groups to improve traffic through a notoriously busy corridor and make it safer for the local residents and children by implementing state-of-the-art ASC technology.

Louis Berger brought together representatives from Rhode Island Airport Corporation (RIAC) and Rhode Island Department of Transportation (RIDOT), to seek funding for the pilot program sponsored by FHWA to design and install ASC at the eight signalized intersections along the congested corridor. Louis Berger staff worked with FHWA and their team to expand the scope of their study to include the Winslow Park intersection.

Two elements that were critical to the project's success included identifying sub-standard conditions on Airport Road and marrying new and older technology. A FHWA roadway safety audit was being conducted in the vicinity of Airport Road. Louis Berger was planning and designing the park move simultaneously. To include the park project, FHWA extended the physical limits of the study area to include this new signalized intersection on Airport Road. Once sub-standard conditions, including excessive queuing and delays, were noted, the need for a new ASC system was evident. The project team set out to obtain funding for design and construction of the ASC system



*ASC system equipment installation. The project was designed, bid and constructed in 20 months.*

through a STIC grant with RIAC and RIDOT as co-applicants. We carefully coordinated with both agencies directly to create the application document and draft the concept of operations document which were critical to the funding process.

A second key element was the need to blend both new and older technology to make the system successful. Completely replacing the existing traffic signal control system was not cost effective and a significant concern to RIDOT staff tasked with maintaining this equipment. Significant study of the existing system and the tie in of necessary equipment to the new system was a project challenge. Louis Berger staff ensured the work was completed seamlessly and that RIDOT staff was able to maintain and fix the equipment when needed. Our team provided classroom and field training with the system for RIDOT employees. In order to continue making the transition from design to construction and older to new technology seamless, Lynn Farrington transitioned from project manager to resident engineer for the project during construction.

Designed, bid, and constructed in 20 months, the ASC system has been successfully operating for over one year. Our team will continue monitoring the system for two additional years. This first-of-its-kind ASC system in Rhode Island has improved traffic congestion and safety and received positive feedback from residents who noticed that catching a flight was quicker than ever.

# Autonomous Vehicles: A Primer for the Civil Engineering Community

by William F. Lyons Jr., PE, Esq., President and CEO, Fort Hill Companies LLC

The subject of autonomous vehicles is omnipresent in current events and in the press. Autonomous vehicles are nascent in their development and adoption, and yet they are poised to revolutionize the way we conceptualize our transportation infrastructure. A critical goal of this article is to inform our membership why they should care about autonomous vehicles and their impact on our industry. For the BSCES member who does not practice in this area, this article offers a primer on autonomous vehicles.

## What Are Autonomous Vehicles?

First, it is worth mentioning what does not qualify as an autonomous vehicle. The technologies that constitute autonomous vehicles do not include connected vehicles, vehicle-to-vehicle infrastructure (V2i), vehicle-to-other infrastructure (V2x), or the multitude of intelligent transportation system (ITS) applications currently in use. The term autonomous specifically applies to vehicles that act autonomously, or without any input from external systems. However, as a practical matter, most experts believe that autonomous vehicles will not be completely autonomous, especially in cities, where the benefits of communicating with other vehicles and infrastructure (and even people) can realize the potential of Vision Zero.

So, what is an autonomous vehicle? In short, an autonomous vehicle is a vehicle that is capable of navigating without human input by using sensors and global positioning systems (GPS). The sensors typically include stereo vision cameras, LIDAR (Laser Imaging, Detection and Ranging), and an inertial measuring unit (IMU). The expectation is that a fully autonomous vehicle can successfully navigate any driving environment without human input.

According to the Society of Automotive Engineers (SAE), a standard which has been broadly adopted across the industry, there are five levels of autonomy.

A Level 0 vehicle is a car with no automation. This is today's no-frills, base purchase

automobile. Level 0 vehicles may have cruise control, as long as the cruise control is not dynamic. In other words, if a car has variable cruise control that adjusts to the speed of traffic in front of it, it is not a Level 0 vehicle, it is a Level 1 vehicle.

**Table 1: SAE Five Levels of Autonomy**

LEVEL	NAME
0	No Driving Automation
1	Driver Assistance
2	Partial Driving Automation
3	Conditional Driving Automation
4	High Driving Automation
5	Full Driving Automation

A Level 1 vehicle is a car that has some aspect of dynamic automation. This typically includes steering and speed (acceleration/deceleration). A vehicle that uses a parking assist system or has dynamic cruise control would be a Level 1 vehicle.

A Level 2 vehicle is a car that has both steering and acceleration/braking control. A Level 2 vehicle uses automation for both steering and speed control, with the potential for driver intervention. The original Tesla models used Level 2 automation.

A Level 3 vehicle operates under conditional automation. As long as a vehicle is operating within set parameters, it operates autonomously. If certain conditions are met, the driver must resume control of the vehicle. For instance, weather conditions might render the sensors of the vehicle unable to perform as designed, and the driver might have to resume control. General Motors and Tesla both make vehicles that are capable of Level 3 autonomous operation.

A Level 4 vehicle is a fully self-driving vehicle operating autonomously in areas where it has

been designed to operate. For instance, most of these vehicles have been specifically designed based on the mapping of roadways and other infrastructure, which assist in the guidance of the vehicle. Think of this as the autonomous vehicle following Google Maps directions. However, if the vehicle is operating outside of map range, it will not be able to operate autonomously. It must be operated by a human in these limited circumstances. This is what defines a Level 4 vehicle versus a Level 5 vehicle.

A Level 5 vehicle will operate autonomously anywhere, under any conditions. This includes extreme weather conditions, off-road conditions, and in areas with no satellite or cell reception to help guide the vehicle. It is expected to operate completely independently of human inputs, other than establishing destinations and waypoints.

## Why Should We Care About Autonomous Vehicles?

Now that we know what autonomous vehicles are, why should civil engineers be interested in them? The answer to this question lies in the long-term impacts of autonomous vehicles on roadway design, traffic flow, safety, equity, land use, and the very existence of the automobile as we know it. Let's pull apart some of the key issues and potential impacts associated with autonomous vehicles.

Regarding roadway design, the design features related to traffic control, vertical and horizontal geometry, and lane width will all be dramatically changed. Once fully adopted, autonomous and connected vehicles will no longer need traffic signal indications or sign legends, because the vehicle will be communicating with roadside technology that will tell the vehicle when to slow down, when to stop, and when to obey other traffic requirements. Roadway geometries and lane widths can be dramatically changed because autonomous vehicles will not be capable

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## Autonomous Vehicles

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of speeding, and will not deviate in their lane. Smaller vertical and horizontal curves can be used, and much more narrow lanes—perhaps as narrow as 8 feet in most cities—can be adopted.

Traffic flow will also dramatically change. Autonomous and connected vehicles are expected to operate at significantly smaller headways—as little as ten feet at highway speed. As stated above, they could operate in lanes as narrow as 8 feet, allowing for an additional travel lane on a highway that currently has three 12-plus foot lanes. The effect of this is to substantially increase vehicle capacity. One research study suggests that the capacity of highways could increase by as much as 90%! Some prognosticators (including myself) have suggested that this will effectively merge highway and transit modes into one transit system—the so-called “transportation theory of everything.”

Perhaps the greatest promise of autonomous vehicles is safety. Autonomous and connected vehicles have the potential to put Vision Zero in reach. Vision Zero is the transportation planning and engineering goal of having zero deaths due to motor vehicle crashes. Vision Zero began in Europe, and has become a goal in the United States. It is now a worldwide movement.

By eliminating human error (think distracted driving, impaired driving, fatigued driving, and aggressive driving), and equipping vehicles with sensors that will proactively prevent crashes, it is possible to eliminate virtually all crashes. There will still be a few occasional crashes due to malfunctions and glitches, but there would be far fewer accidents. In fact, the manufacturers of autonomous vehicles have already said that they are going to self-insure their vehicles, which portends an ominous outlook for the automobile insurance industry and the auto body repair industry.

There are many pros and cons of the safety aspect of autonomous vehicles from an economics point of view, but from a safety point of view,

autonomous vehicles are good news. Imagine a world without the 33,000 highway deaths annually in the United States. To date, after more than 130 million miles of test driving, there has only been one fatality from autonomous vehicle malfunctions. In addition to the many lives saved, the reduction in lost productivity, and the virtual elimination of property damage, we could possibly eliminate almost all highway incidents from crashes that result in significant congestion on our highways. These would be tremendous benefits for society and the transportation community.

Another big winner in the autonomous vehicle revolution is disadvantaged populations. The physically disabled, the mentally disabled, the aged and infirm, and children will all benefit. These populations are currently restricted (at some point) from driving. The autonomous vehicle will level the playing field for these groups, and create equity for these populations.

The autonomous vehicle is also likely to have a very substantial impact on land use. For instance, if your autonomous vehicle drops you off at your office in the morning, and circulates all day working for Uber, will parking garages in urban settings be needed or economical? Today, most cars in the United States are operated 5 percent of the time. In an autonomous vehicle world, vehicles will be in use 95 percent of the time, and the rest of the time they will be at a charging station. As a result, structured parking garages will become uneconomical and will be redeveloped (either through demolition or adaptive reuse) for higher and better forms of land use, such as housing or office.

In addition, if your autonomous vehicle can drive you to work three hours from your house, and you can work, rest, or socialize during that drive with no responsibilities for driving, will people be inclined to live further away from their work location? If this occurs, we could induce a whole new generation of sprawl, in the same manner that the interstate highway system induced sprawl and created a whole new world of suburbia. This would be a highly negative and unsustainable land use consequence of autonomous vehicles.

## What Are the Long-Term Implications of Autonomous Vehicles?

Emerging research and debate has suggested that the combination of autonomous vehicles, the sharing economy, and electric vehicle technology will hasten the end of the internal combustion engine by 2030. This would be a very significant development, as it would have substantial benefits for air quality and climate change. The benefits of eliminating the internal combustion engine in favor of all electric vehicles (powered by renewal energy) would be game-changing.

This confluence of autonomous vehicles, shared vehicles, and electric vehicles would result in automobiles effectively becoming available on a prescription or a fractional basis. This model is called Mobility as a Service (MaaS). Instead of each person owning a car, they will subscribe to a car plan that offers them a set number of hours per week or month. The subscriptions will be offered directly by the car manufacturer, which will maintain the vehicle, insure the vehicle, fuel the vehicle, and store the vehicle (when not operating). This model of car “ownership” is predicted to save every American more than \$5,000 per year. It also provides tremendous equity and opportunity for lower income populations in need of mobility options.

On the downside, the MaaS model will radically change the nature and profitability of automobile manufacturers, and will likely bankrupt fossil fuel companies due to stranded extraction and refinery assets. This is to say nothing of the automobile manufacturing and repair workforce, as well as the fossil fuel workforce. However, the model is unavoidable, as some car manufacturers are already offering subscriptions, and the three trends are already converging, with Uber entering the autonomous and electric vehicle markets.

## Conclusion

The autonomous vehicle represents a very serious disruptive force for our entire society. Many positive and negative impacts are predicted, as is the case with any technological disruption. There

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## Become a BSCESNews Contributor

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

Typically 300 to 700 words, BSCESNews featured articles are about technical topics or professional matters of interest to civil engineers. The November 2017 issue of the newsletter for example, will highlight the Structural Engineering Institute Boston Chapter and feature one or more articles on the theme of Structures.

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

For more information on how you can become a BSCESNews contributor contact BSCES Association Manager Rich Keenan at [rkeenan@engineers.org](mailto:rkeenan@engineers.org) or at 617/305-4110.

**Autonomous Vehicles**

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will be many labor dislocations and there could be very negative land use implications. There will also be significant benefits to society in terms of increased productivity, reduced highway injuries and deaths, and improved mobility for vulnerable populations.

It is not a matter of “if” autonomous vehicles happen (or MaaS for that matter). It is a matter of when. Some modelers (such as Tony Seba) predict that it will all become mainstream by 2030. Others say it will take 50 years or more. In truth, no one knows. However, considering it usually takes decades to plan and execute major infrastructure projects, we as a profession must incorporate planning for autonomous vehicles

into our projects today, so that the infrastructure will be ready for a whole new tomorrow.

*William F. Lyons Jr. is the President and CEO of the Fort Hill Companies LLC, a consulting firm in Boston, Massachusetts. He is a highly regarded thought leader and author on the topics of urban mobility, autonomous vehicles, and public policy.*

**BSCES Legislative Fellow Update from Beacon Hill—190th Massachusetts Legislative Session**

*by Bryon S. Clemence, PE, 2017–2018 BSCES Legislative Fellow*



The legislative session of the 190th General Court of Massachusetts began in January 2017. It will continue through the summer of 2018.

Legislation passed so far that affects the civil engineering

community includes session laws authorizing Somerville to borrow up to \$50 million for the Green Line Extension project (Chapter 21/S. 1139) and shadows cast by new structures in Boston (Chapter 57/H. 3749). However, the legislature deleted funding for an east-west high-speed rail study from this year’s budget.

Governor Baker has proposed legislation that would allow Massachusetts to administer the federal National Pollutant Discharge Elimination System (NPDES) permit program. This

program applies to surface water discharges from municipal and industrial wastewater treatment plants, municipal stormwater systems (separate and combined), and certain industrial stormwater systems, federal facilities, and large construction sites. This bill was referred to the Joint Committee on Environment, Natural Resources and Agriculture. A public hearing on this is supposed to be scheduled in October.

The governor filed identical legislation last session, but there may be more at stake this time. Municipalities have been grappling with the MS4 stormwater permit that EPA issued last year. Some feel they would be better off if Massachusetts could issue these permits, rather than EPA. Massachusetts is one of four states that does not have approval to administer the NPDES program. The others are New Hampshire, New Mexico, and Idaho. Idaho applied for approval last year, and EPA is reviewing the application.

Six bills pertaining to autonomous vehicles (AVs) have been introduced this session. These bills address such basic issues as testing of AVs on public roads, safety, and liability. Some address other issues, including operating AVs on public roads, data management and privacy, road usage charges, incentives for electric vehicles, zero-occupancy vehicles, and funding. Hearings were held in April and the bills were referred to the Joint Committee on Transportation. Planners and designers expect AVs to affect revenue, infrastructure, land use and development, delivery of goods, equity, parking, and public transit.

Governor Baker issued Executive Order No. 572 pertaining to AVs in October 2016. It established an AV Working Group which meets at the State House. MassDOT has issued procedures to apply for AV testing, and the Registry of Motor Vehicles has drafted regulations.

Next month, I’ll have another update from the State House.

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## Featured Group—TDI Boston Chapter

### Improving BSCES Participation through Technical Committee Collaboration

by Bryan Zimolka, PE, Howard Stein Hudson and Chair, Transportation and Development Institute Boston Chapter

As we move into fiscal year 2018, the Boston Chapter of the Transportation and Land Development Institute (T&DI Boston Chapter) is building on the successes of last year and improving in areas where lessons were learned. Co-hosting events with other BSCES volunteer groups has encouraged networking between disciplines. As the summer season ends, the Chapter's executive committee is putting the finishing touches on the year-long effort to plan this year's approach to events, meetings, communications, and operations. Currently we are planning nine events, including our social, technical, and signature events.

On May 24, we hosted the 30th Annual Bertram Berger Seminar at the Omni Parker House. Over 100 planners and engineers gathered to hear from nine speakers who were asked to offer their comments on the seminar's theme of Multimodal Transportation for Today's Modern Society. Similar to years past, the event was broken into two separate panel discussions followed by a meal and program, which was capped with a presentation from our distinguished keynote speaker, Andrea D'Amato from Kleinfelder. Ms. D'Amato presented on Kleinfelder's design role in the Connecticut Bus Rapid Transit System, CTFastrak. In response to a survey of chapter members conducted at the end of fiscal year 2017, the Berger Seminar was changed from a seminar and luncheon meeting to a seminar and dinner meeting and was reformatted to provide more opportunities for an interactive panel and engaging audience participation.

Panel one speakers focused on advocacy for improved multimodal transportation infrastructure. Wendy Landman, Executive Director for WalkBoston, and Peter Furth, Civil Engineering Professor from Northeastern University, discussed the benefits for healthy transportation and the

need for improved pedestrian and bicycle infrastructure. Charlotte Fleetwood, City Planner for the Boston Transportation Department, discussed the city's VisionZero project for improved pedestrian and bicycle safety on our city streets.

Panel two speakers focused on the design challenges faced when generating a plan to accommodate all modes of transportation. Andy Paul, PE, Highway Design Engineer for MassDOT, discussed the design needs for bicycle infrastructure in urban areas, and John McCormack, Project Manager for MBTA, discussed the design of the Silver Line Bus Rapid Transit System in Boston. Wes Guckert, President and CEO for The Traffic Group, joined us to discuss his research and intriguing insights to self-driving cars.

The Berger Seminar is known to be the signature event of the T&DI Boston Chapter; however, it is only one of numerous events hosted by our group. Building on the success of webinars hosted by the T&DI Boston Chapter, a webinar on Infrastructure Needed for Driverless Cars was hosted on October 19, 2016 featuring Marty Milkovits and Dan Krechmer from Cambridge Systematics.

On August 30, we held our first meeting of the new fiscal year for all interested committee members to discuss a full agenda of T&DI Boston Chapter action items for the current year. During this meeting, the executive committee provided more information about this year's planned T&DI Boston Chapter events, set meeting schedules, and discussed members' personal goals and how they would like to enhance their presence within the engineering community.

As we engage more members and place a high value on everyone's time, we continue to recognize the need for flexibility. Therefore, our approach is as follows:

1. We plan to host bi-monthly evening meetings open to all active T&DI Boston Chapter members. The meetings will be hosted at the Aldrich Center at TEC and will be accompanied by video conferencing in host locations north, west, and south of Boston.
2. Out of necessity, our event planning meeting times and dates are based on active participants' availability and will be set by each event chair after groups are formed in the near future.
3. The T&DI Boston Chapter executive committee holds conference calls at monthly intervals to address chapter business and set meeting agendas.

In order to become successful in achieving our goals, we are looking to engage innovators, leaders, and motivated individuals in the transportation and development profession. It is through new ideas and an extensive knowledge base in engineering practices, social interactions, and event management that the T&DI Boston Chapter will contribute to enhancing the engineering community at large. This is your opportunity to stand out and show what you can do outside the day-to-day practices within your private company or public agency to advocate for and improve development throughout the Commonwealth. If you are a transportation or land development professional, and an ASCE T&DI member looking for a group where you can discuss current happenings, exchange ideas, and strive to make a difference, you are invited to join the Boston Chapter of T&DI.

To learn more, contact me at [TDI@BSCES.org](mailto:TDI@BSCES.org) or visit our LinkedIn and Twitter pages. Be sure to review our bi-weekly newsletter for current news on events and meetings for the T&DI Boston Chapter sent to all chapter members.

**The current list of planned events is:**

Legislative Update	September 28, 2017
Fall Social co-hosted with the Construction Institute (CI) Boston Chapter	November 2017
Technical Workshop co-hosted with the Government Affairs & Professional Practice Committee and CI Boston Chapter	November 2017
Holiday Party co-hosted with the Younger Member Group	December 2017
Technical Webinar	February 2018
Francis M. Keville Annual Dinner co-hosted with the CI Boston Chapter	April 2018
Bertram Berger Seminar	May 2018
BSCES Spring Awards Celebration/Herzog Dinner co-hosted with the Public Awareness & Outreach Committee	May 2018
Spring Social	June 2018

## Recent News and Updates

### BSCES Welcomes New Board of Government

BSCES is pleased to announce the results of the 2017–2018 BSCES Board of Government Elections. Members of the 2017–2018 Board of Government have taken their oath of office and officially assumed oversight of BSCES with the commencement of the 2017 BSCES fiscal year on July 1, 2017.

The members of the new BSCES Board are as follows:

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The BSCES Sponsorship Program helps the Society achieve its financial goals and provides participating organizations with great visibility and name recognition, demonstrating to thousands of professionals that your organization is a leader in the civil engineering profession. Register to become a BSCES Society or Program Sponsor before the Friday, September 29, 2017 deadline! To learn about the promotional benefits that BSCES sponsors receive and how you can become a BSCES sponsor, [click here](#).

### BSCES Welcomes its New Members

The BSCES Board of Government is pleased to welcome the following new members who joined BSCES in June and July 2017:

#### Members

Carley Burford, GEI Consultants

Christopher Gradziel, Walker Parking Consultants

Seta Kalajjian, SMK Services Inc.

Renee Lanza, Woodard & Curran

Sean McIntyre, Somerville, MA

Michael Nelson, Boston Water and Sewer Commission

Kenneth Strzepek, University of Colorado

Brandon Teetsel, Tewksbury, MA

James Velino, AECOM

David White, H.W. Moore Associates, Inc.

#### Students

Adin Bohmiller, University of Massachusetts Amherst

John Elsey, Tufts University

Sarah Fletcher, Massachusetts Institute of Technology

Nikhil Kathed, Northeastern University

Sinarith Kong, University of Massachusetts Lowell

Connor Leavitt, Wentworth Institute of Technology

Zhouyang Li, Northeastern University

Rachel Miller, University of Massachusetts Lowell

Mandip Pokharel, Tufts University

Andrew Steiner, University of Massachusetts Amherst

Rijkaard Thomas, University of Massachusetts

Dartmouth

### BSCES Public Awareness & Outreach Committee Seeks Fall 2017 Volunteers

The Public Awareness & Outreach Committee is looking for volunteers to help at the BSCES booths at the Girl Scouts Geek is Glam STEM Event in October and the Massachusetts STEM Summit in November. The committee is also looking for mentors to help students with the Future City and Model Bridge competitions. Please see the insert at the end of this newsletter for more information on these volunteer opportunities or contact Public Awareness & Outreach Committee Chair Olivia Richards at [Outreach.Comm@BSCES.org](mailto:Outreach.Comm@BSCES.org).

### Massachusetts Board of Registration Continuing Professional Competency Committee Update

On August 17, the Board of Registration of Professional Engineers and Professional Land Surveyors voted (5–3) in favor of a motion that read "that the Board adopt the recommendations of the Continuing Professional Competency subcommittee subject to revision or comments on the committee's proposed draft regulations by the full Board." This is a major step forward on the path to requiring mandatory continuing education for professional engineers and professional land surveyors in Massachusetts. The Board will submit comments and continue to discuss draft regulations at future meetings.

### Professor Richard Palmer Named ASCE Distinguished Member

The BSCES Board of Government would like to congratulate Professor Richard N. Palmer, PhD, PE, on being elected by the ASCE Board of Direction a 2017 ASCE Distinguished Member. Palmer, who is the head of civil and environmental engineering department at University of Massachusetts Amherst, is one of only 228 current ASCE members to achieve this status, which is reserved for the most eminent of civil engineers in the Society. Palmer and the other 2017 Distinguished Members will be

*[continued on page 8](#)*

**SEND US YOUR NEWS!** Looking to strengthen the community that is BSCES, the BSCES Executive Committee and Newsletter Editorial Board has decided to expand the content of this *BSCESNews* Recent News and Updates column by including more member news. Have you recently been recognized for a professional accomplishment, passed the Professional Engineer Exam, received a promotion, or changed employers? If so, send your news items to BSCES Association Manager, Rich Keenan, [rkeenan@bsces.org](mailto:rkeenan@bsces.org).

## Recent News and Updates *(continued from page 7)*

formally inducted at the Celebration of Leaders Luncheon during the ASCE 2017 Convention in New Orleans. For more information on this year's class of Distinguished Members, [click here](#).

### ASCE Board Adopts New Canon for Code of Ethics

During the July 2017 meeting, members of the ASCE Board of Direction voted unanimously to adopt new language in the Society's Code of Ethics that expresses a professional obligation to provide fair and equal treatment for all. Adopted in 1914, the ASCE Code of Ethics lays out the model for professional conduct for ASCE members. This newly adopted ASCE Canon 8, which is the first addition of a new canon to the ethics code in 65 years, reflects ASCE's commitment to diversity and inclusiveness in civil engineering employment and practices. [Click here](#) to read the newly adopted ASCE Canon 8.

### ASCE Engineering Mechanics Institute Conference Call for Mini-Symposia Proposals

The Engineering Mechanics Institute (EMI) Conference is being held at the Massachusetts Institute of Technology from May 29 to June 1, 2018. The Local Organization Committee is now looking for mini-symposia topics and speakers for this conference. If you would like to submit a proposal for a mini-symposia, [click here](#). For more information about the EMI Conference, [click here](#).

### Eric DiVirgilio and Tony Gouveia Join HDR

BSCES members Eric DiVirgilio, PE, and Tony Gouveia, PE, have joined the HDR team in their Boston office. Eric will serve as HDR's new Rail/Transit Section Manager, with 17 years of experience in railroad infrastructure and facilities improvement. Tony is HDR'S new Transportation

Business Manager and will be focusing on growing HDR's Rail/Transit practice.

### Update Your ASCE Profile

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

## President's Report

*continued from page 1*

professional and technical aspects of civil engineering, as well as support their networking opportunities among their peers and contributing to BSCES committees, institute chapters and technical groups.

To improve communication with BSCES officers and leaders, we established BSCES email addresses to make it easier to communicate with officers, technical group, and student chapters leaders. These new email addresses allow you to communicate more readily with these member volunteers. For example, you can always reach me by email at [President@BSCES.org](mailto:President@BSCES.org). You will find the new BSCES email addresses listed on the board of government and each committee, institute chapter and technical group web page. We will be implementing the student chapters' emails this year as well.

We will be looking for your input and participation this year because we value your contribution. We ask you to contribute your

time and effort to the BSCES regardless whether one hour or one hundred hours. It is the collective effort and collaboration of many member volunteers that advance BSCES.

BSCES is a volunteer organization and your contribution and active participation is what makes BSCES the best for more than 150 years. There are many programs, events, seminars, and educational webinars. We want to hear any suggestions or ideas you may have. Please contact the leader of any group that you are interested in. She/he will be very happy to hear from you and welcome your participation. Please feel free to contact me as well at [President@BSCES.org](mailto:President@BSCES.org). I will be very interested to hear from you.

Special thanks to last year's BSCES president, Brian Morgan and the volunteers who worked hard and reduced the operating budget deficit dramatically in comparison to recent years. This year we are planning on having a balanced budget while expanding our activities. As a nonprofit organization, this could not be achieved without the generous donations of you

our members and our industry firms. We thank our 2016–2017 sponsors for their generosity and look to them to help us achieve our sponsorship goals for 2017–2018. Our programs and activities are extensive and cannot be sustained without your financial support. Please ask your company to sponsor BSCES programs.

We thank our Society Sponsors especially Louis Berger, which is the sponsor of this newsletter, and encourage you the read about their projects. These are described in a page one article in this newsletter and presented on the homepage of the [BSCES website](#). Please support our Society and Program Sponsors.

The Transportation & Development Institute Boston Chapter, chaired by Bryan Zimolka of Howard Stein Hudson, is the featured group for this month. To learn more about this group, please read the article written by Bryan on page 6 of this issue of *BSCESNews*.

Volunteers and sponsors are the lifeblood of our organization. I am looking forward to working together this year.



**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.

*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.*

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# Upcoming Events

For more information and to register for events, please visit [www.bsces.org](http://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.

## ASCE and BSCES Sponsored Seminar

**Thursday – Friday, Sept. 21 – 22, 2017**

Hyatt Place Braintree, 50 Forbes Road  
Braintree, MA

8:30 AM – 4:30 PM

### Flexible Pavement Design and Rehabilitation

Michael H. Huner, PE, Engineering Consultant  
David H. Timm, PhD, PE, Brasfield & Gorrie  
Professor of Civil Engineering at Auburn University

This seminar is designed to take both the experienced everyday pavement designer and the newcomer and introduce them to the simplified world of pavement design using modern computational tools such as WESLEA for Windows and PavExpress.

For more information, or to register for this seminar and pay online, [click here](#).

## Transportation & Development Institute Boston Chapter Dinner Event

**Thursday, September 28, 2017**

Omni Parker House, 60 School Street  
Boston, MA

5:30 PM Registration and Social

6:15 PM Dinner

7:00 PM Presentations and Discussions

### MA Legislative Update: With The Federal Infrastructure Plan Stalled—“Where Does it Leave Massachusetts?”

State Representative William Straus, Chairperson,  
Joint Committee on Transportation

Monica Tibbets-Nutt, MBTA Finance Board &  
Executive Director Route 128 Council

Scott Bosworth, Chief Strategy Officer, MassDOT  
Alexandra Kleyman, Transportation Improvement  
Program Manager, Boston Region MPO

There is much discussion going on in Congress as the Trump administration’s first budget has been submitted. How are the capital programs and infrastructure plans of Massachusetts to be affected? This Legislative Update will include panelists from the state agencies who will discuss how the change in the federal plan could affect infrastructure programming in Massachusetts and if there have been any recent developments in the Capital Improvement Programs as a result.

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

## Structural Engineering Institute Boston Chapter Lecture Series

**Tuesdays October 3 – November 7, 2017 (No lecture on October 31)**

Tufts University, Medford, MA

6:30 PM – 8:30 PM

### Construction Aspects of Structural Engineering—“If You Design It, Can They Build It?”

The SEI Boston Chapter’s biennial Fall Lecture Series is organized under the theme Construction Aspects of Structural Engineering—“If You

Design It, Can They Build It?” Consisting of five two hour lectures this lecture series will feature the following presenters and topics.

#### Lecture 1 – Tuesday, October 3, 2017 Virtual Design and Construction

David Odeh, SE, Principal, Odeh Engineers

#### Lecture 2 – Tuesday, October 10, 2017 Blurred Lines

Joseph P. Gill, PE, President, Gill Engineering Associates, Inc., and Kevin Lampron, Jr., Area Manager, J.F. White Contracting Co.

#### Lecture 3 – Tuesday, October 17, 2017 Structural Issues During Construction

Alan Fisher, PE, Construction Structures Group Leader, Cianbro Corporation

#### Lecture 4 – Tuesday, October 24, 2017 Legal Aspects / Risk Management

David Hatem, PC, Partner, Donovan Hatem LLP, and Paul Kelley, PE, Senior Principal, Simpson Gumpertz & Heger

#### Lecture 5 – Tuesday, November 7, 2017 You Want to Build It How?

Tom Ziemann, PE, Principal, Ziemann Engineering  
Please see the Insert at the end of this month’s newsletter for further details.

*continued on page 10*

## Save the Date!

**October 26, 2017**

### Infrastructure: Designing Iconic Public Facilities

Boston Society of Architects, Boston, MA

A panel discussion sponsored by the ASCE Environmental & Water Resource Institute Boston Chapter and Boston Society of Architects (BSA) Infrastructure Committee

See future BSCES email updates for additional details.

## Need to Take FHWA-NHI-130055 Safety Inspection of In-Service Bridges?

The BSCES Program Committee is trying to determine whether there is enough member need to host the two week-long FHWA-NHI-130055 Safety Inspection of In-Service Bridges course this year. If you need to take this course, please contact Katya Gonzalez-Willette at [kgonzalez-willette@engineers.org](mailto:kgonzalez-willette@engineers.org).

## Suggest a Seminar Topic

Is there an engineering topic that you would like BSCES to feature in an upcoming seminar?

If so, members of the BSCES Program Committee would like to hear from you.

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

## 2017–2018 BSCES Program Sponsors

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Howard Stein Hudson | Hoyle, Tanner & Associates | Department of Civil and Environmental Engineering, Northeastern University | Tufts University | VHB

## Upcoming Events *(continued from page 9)*

### **Geo-Institute Boston Chapter Charles C. Ladd Memorial Lecture**

**Monday, November 6, 2017**

Northeastern University, Alumni Center  
716 Columbus Avenue, 6th Floor, Boston, MA

5:30 PM Registration and Social

6:30 PM Presentation

### **Selected Case Histories of Ground Characterization and Performance: SHANSEP and Beyond**

*Demetrious C. Koutsoftas, PE, GE, Geotechnical Consultant, DKGK, Inc.*

This memorial lecture highlights important lessons learned from several case histories involving projects for which Professor Ladd served as consultant and made important contributions. The common thread to the projects is the application of the SHANSEP method in the test procedures and interpretation of field and laboratory test results in order to characterize the different clay formations involved in each project, to solve problems of

stability and deformation analysis. The other common characteristic is that the case histories involve complex and high profile projects which required extensive investigations, laboratory testing, and in special cases prototype field tests to properly characterize the soils and develop design and construction recommendations.

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

### **Mark Your Calendar!**

**October 27, 2017**

#### **Business Issues for Engineers**

*Sponsored by the Southeastern Massachusetts Committee*

Bella's Restaurant, Rockland, MA

Featuring Bernard Heine from The Professional Business Coaches

*Click here for more information about Mr. Heine. See future BSCES email updates for additional details.*

### **ASCE Webinars**

ASCE WEBINARS

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

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

## Classifieds

### **CDM Smith**

Make a difference with CDM Smith! We are currently looking for a **Structural Engineer 3-Bridges** in our Boston, MA office.

CDM Smith provides lasting and integrated solutions in water, environment, transportation, energy and facilities to public and private clients worldwide. As a member of this team, you would contribute to CDM Smith's mission by:

- Working on exciting Bridge Design and Bridge Inspection projects throughout the region with municipalities, DOT's and other agencies.
- Using your best judgment and knowledge of principles/techniques in making minor adaptations and modifications.
- Learning project management techniques and the CDM Smith management system.

- Managing tasks on large projects or phases of small projects.
- Developing external client interaction and marketing skills.

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Stantec is seeking a career focused Civil Engineer with 8-15 years' experience in land development projects to our growing team in Boston, MA! Your technical knowledge and team-focused approach will enhance our mission to set the standard in our field for exceptional client service and professional excellence, as we grow to better serve clients, communities and provide greater opportunities for employees. Please visit [www.stantec.com/careers](http://www.stantec.com/careers) (reference code 31713) for more information or to apply!



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## MA Legislative Update: With The Federal Infrastructure Plan Stalled - “Where does it leave Massachusetts?”

### Panelists:

State Representative William Straus, Chairperson, Joint Committee on Transportation

Monica Tibbets-Nutt, MBTA Finance Board & Executive Director Route 128 Council

Scott Bosworth, Chief Strategy Officer, MassDOT

Alexandra Kleyman, Boston Region MPO Transportation Improvement Program Manager

**Thursday, September 28, 2017**

**Omni Parker House, 60 School Street, Boston, MA**

**5:30 PM Registration and Social; 6:15 PM Dinner; 7:00 PM Presentations and Discussions**

### About the Event

One of the biggest promises of Donald Trump’s campaign was to revitalize the nation’s roads, bridges, and airports. The promise was to deliver an infrastructure rebuilding package for massive investments with estimated program costs to exceed \$1 trillion. The administration has indicated it will rely on the Public-Private Partnership model to a large degree to fund the improvements and states must identify priorities on projects that are in fact, ready to go. There is much discussion going on in Congress and the various professional groups as the administration’s first budget has been submitted, but still no big plan. How are the capital programs and infrastructure plans of Massachusetts to be affected? This Legislative Update’s featured panelists will discuss how the change in the federal plan could affect infrastructure programming in Massachusetts and if there have been any recent developments in the Capital Improvement Programs as a result. How the state is preparing will be key.

**Registration Deadline: Monday, September 25, 2017**

**Early registration is encouraged to guarantee a space at the event.**

**\$100 Members, \$125 Non-Members**

**\$85 Public Sector Members, \$100 Public Sector Non-Members**

**\$75 Senior Members (65+) & Students**

Register to attend this event and pay online by credit card at [bit.ly/TDILegislativeUpdate](http://bit.ly/TDILegislativeUpdate). 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 September 25, 2017 and no-shows will be billed.



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Hoyle, Tanner  
& Associates, Inc.

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## 2017 Fall Lecture Series

# Construction Aspects of Structural Engineering - "If You Design It, Can They Build It?"

**Tuesdays, October 3, 10, 17, 24 and November 7, 2017**

**Tufts University, Barnum Hall, 163 Packard Avenue, Medford, MA**

**6:00 PM Registration, 6:30 – 8:30 PM Lecture**

ASCE SEI Boston Chapter is pleased to present the 23rd Fall Lecture Series entitled *Construction Aspects of Structural Engineering - "If You Design It, Can They Build It?"* Topics include 'Virtual Design and Construction', 'Blurred Lines', 'Structural Issues during Construction', 'Legal Aspects / Risk Management', and 'You Want to Build It How?' This Lecture Series is co-sponsored by the Tufts ASCE Student Club.

### Lecture 1 – Tuesday, October 3, 2017

#### Virtual Design and Construction

**David Odeh, SE, Principal, Odeh Engineers**

This lecture will focus on how digital design technology has impacted the structural engineering workflow, and in particular how it has become an important tool in the evaluation of constructability. Using examples from real projects in the Boston area, we will discuss the following key topics: (a) A Brief History of Digital Design in Structural Engineering (b) BIM for Structural Engineers – What is Your Scope? (c) Interdisciplinary Modeling and Clash Detection (d) Integrated Project Delivery and VDC (e) Existing Buildings and Reality Capture Technology (f) Vision for the Future: Virtual and Augmented Reality. Engineers who attend this lecture would be able to apply the latest virtual design and construction tools to their design workflow, manage client expectations for scope of services and level of detail specifications, understand the expanded VDC scope for engineers in IPD and other collaborative projects, specify the appropriate reality capture technology for existing building projects, evaluate how the standard of care is impacted by VDC for their projects and plan for new VDC technologies that will affect the role of the structural engineer.

### Lecture 2 – Tuesday, October 10, 2017

#### Blurred Lines

**Joseph P. Gill, PE, President, Gill Engineering Associates, Inc.**

**Kevin Lampron, Jr., Area Manager, J.F. White Contracting Co.**

This presentation will include a discussion on the interaction between consulting engineers and contractors and how it changes depending upon the project delivery method. In design-bid-build, contractors can engineer most of their means and methods approach, or will use consulting engineers for specialty items or items which require submission with a PE stamp. In design-build, the engineer and the contractor are on the same team. Typically, the consulting engineer is a 'Sub' to the contractor, who is the 'Prime'. However, the



Completion of each Lecture provides 2 Professional Development Hours (PDH)

Supported by the staff of The Engineering Center Education Trust

the expectations need to be identified up front e.g. the detail level of a design, proposal deliverables, quantities, compensation during the proposal, reporting relationships etc. Most of these should be formalized in a 'teaming agreement' beforehand. Additionally, this lecture would include discussion on ethics for all parties involved and the contractor's make up and staffing needs during different stages.

### **Lecture 3 – Tuesday, October 17, 2017**

#### **Structural Issues during Construction**

**Alan Fisher, PE, Construction Structures Group Leader,  
Cianbro Corporation**

There are two general areas of structural design issues during construction: the design of structures required for the creation of a project structure (construction structures); and the design of the project structure for the construction phase (permanent structures). This presentation will address both areas of structural issues during construction. The first half will address the design of structures used for constructing the project structure including the standards and resources available upon which to base the design. The second half will address the design of project structures for the construction phase including the standards and resources available for this work. Participants will be shown the extent of the design effort required to put a project structure in place and what can go wrong when the construction phase of a project structure is not considered. Design-side participants will gain insight to why the constructor keeps complaining that something can't be built. Constructor-side participants will appreciate that construction structures are finally getting recognized as the complicated structures they are. Owner-side participants will recognize that asking the designers to consider the construction phase is in their overall best interest. Finally, academic-side participants will see an additional course of study to inflict on their students.



### **Lecture 4 – Tuesday, October 24, 2017**

#### **Legal Aspects / Risk Management**

**David Hatem, PC, Partner, Donovan Hatem LLP  
Paul Kelley, PE, Senior Principal, Simpson Gumpertz & Heger**

Over the past three decades, the construction industry has been gradually introducing alternative project delivery systems that integrate design and construction in efforts to save time and cost, and often to shift risk. The project participants beyond the design professionals increasingly may have roles, responsibilities and risk allocations relating to design adequacy. The key is to maintain focus on how these evolving roles, responsibilities and risk allocations (the 3Rs) affect the risk profile and the prudent and successful operations of design professionals and constructors. Participants will learn to conscientiously evaluate project delivery approaches in order to identify the roles, responsibilities and risk relating to design adequacy relative to their involvement. Moreover, they will learn to prepare a matrix of roles, responsibilities and risks allocation as to design adequacy that identifies and distinguishes those 3Rs among the various project participants. This presentation will also discuss certain topics of engineering risks that practitioners should be aware of as they procure work, execute work, and prepare to improve performance with alternative delivery systems that appear to become increasingly popular. The topics will include discussion on precautions in specifying new materials and systems, delegated and deferred design and recognizing risks in design-build assignments.

### **Lecture 5 – Tuesday, November 7, 2017**

#### **You Want to Build It How?**

**Tom Zieman, PE, Principal, Zieman Engineering**



This lecture will showcase two projects: Large Scale, High Production Preassembly and Erection of Girder Units for the new Tappan Zee Bridge and Construction of Las Vegas High Roller Ferris Wheel. The new Tappan Zee Bridge consists of over two miles of plate girder approaches that are being built off-site in 135 large preassemblies, up to 420 feet long and weighing up to 2200 kips, which are then transported to the site and erected by a large barge crane. This presentation will focus on construction methods used to preassemble and erect the girders. The Las Vegas High Roller Ferris Wheel, at 550' tall, is currently the tallest observation wheel in the world. This presentation will focus on the erection methods used to construct the wheel, which was built by adding rim segments at the bottom of the wheel and then rotating the

wheel to allow installation of the next rim segment. The presentation will describe erection of the support legs and temporary bracing, the erection of the hub and spindle, and erection of the wheel.

## **SPEAKERS**

### **David Odeh, SE, Principal, Odeh Engineers**

David Odeh is a Principal at Odeh Engineers, Inc. in Providence, Rhode Island. David has over 20 years of experience in the design and analysis of building structures, with particular emphasis in the development and application of digital design tools to structural engineering practice. He is a registered PE in 23 states and SE in Illinois and California. David is certified in the structural engineering practice by the Structural Engineering Certification Board (SECB). David served as the President of the SEI in 2015-2016, and has been on its Board of Governors since 2012. He is a SEI and of ASCE Fellow. David has also been an adjunct faculty member at the Brown University School of Engineering for over 14 years. He has published articles in conference proceedings and journals.

### **Joseph P. Gill, PE, President, Gill Engineering Associates, Inc.**

Joe is the President/Owner of Gill Engineering Associates, Inc. in Needham, MA. Before founding Gill Engineering in 2000, Joe had over 17 years of project and managerial experience with the Massachusetts Highway Department and Massachusetts Turnpike Authority. As former MassHighway Bridge Engineer and MassPike Chief Engineer, Joe gained a thorough knowledge of all aspects of bridge projects. Joe was involved in the successful completion of accelerated bridge construction projects, including the award-winning Wellesley Cedar Street Heavy Lift and Medford Fast 14 Bridge Replacement.

### **Kevin Lampron, Jr., Area Manager, J.F. White Contracting Co.**

Kevin Lampron is an Area Manager for J.F. White Contracting Co., where he has worked for over 30 years. He is currently responsible for the oversight of multiple projects with an approximate value of \$250 million. His experience ranges in the planning, construction and overall management on some of the most challenging and complex excavation, foundation, tunnel, bridge and railway projects. His most current projects include the Fore River Bridge Replacement Project, I-93 Medford Superstructures (FAST14) Project, Fore River Bridge Project and Chelsea Street Drawbridge Project amongst others.

### **Alan Fisher, PE, Construction Structures Group Leader, Cianbro Corporation**

Alan Fisher leads the Construction Structures Group for Cianbro Corporation, a heavy civil construction contractor. Alan is an active member with FEMA's Urban Search and Rescue System, acting as a Structural Specialist and Planning Manager with the MA US&R Task Force. He is a member of the Structures Sub-Group which advises FEMA and a lead instructor for the Army Corps of Engineers US&R Program. Alan has been a member of ASCE since 1982. He is the current chair of the ASCE/SEI 37 Design Loads on Structures during Construction Committee. He is a member of several committees including ASCE Construction Institute Temporary Structures in Construction, TRB AFH40 Construction of Bridges and Other Structures and SHRP2 Renewal TCC.

### **David Hatem, PC, Partner, Donovan Hatem LLP**

David J. Hatem is a partner with Donovan Hatem LLP in Boston, MA and leads the firm's Professional Practices Group. David has served as ACEC/MA Counsel since 1988. David received the Engineering Center Education Trust 2016 "Leadership in Professional Practice Legal Services" award and the 2008 ACEC Distinguished Service Award. David teaches courses on Legal Aspects of Engineering at Tufts University and Northeastern University. He has authored and edited numerous articles and publications, including the 2nd edition of Public-Private Partnerships and Design-Build: Opportunities and Risks for Consulting Engineers, Subsurface Conditions: Risk Management for Design and Construction Management Professionals.

### **Paul Kelley, PE, Senior Principal, Simpson Gumpertz & Heger**

Paul Kelley is a Senior Principal and Director at Simpson Gumpertz & Heger Inc. in Boston, MA. He is a registered Structural Engineer in MA, CT, NY, FL and many other states. He has vast experience in structural design of hospitals, university science, library buildings and office buildings and in determining causes and costs of large complex claims involving buildings and civil structures. He has testified as an expert in many depositions, arbitrations, administrative hearings, mediations, and municipal, state, and federal trial courts in cases involving structural collapse, concrete technology and construction cost.

### **Tom Zieman, PE, Principal, Zieman Engineering**

Tom Zieman is founder and Principal at Zieman Engineering, LLC, which was formed in 1992. The firm is located in Stamford, CT and specializes in structural and construction methods engineering on complex construction projects. . Notable projects by the firm have included Brooklyn Bridge, Richmond/San Rafael Bridge, Providence River Bridge, the Las Vegas High Roller Ferris Wheel, Madison Square Garden and many others. Prior to starting his firm he worked for as a Field Engineer, Project Engineer and Project Manager for a general contractor in New York City that specialized in complex bridge work.

## Registration Deadline: Wednesday, September 27, 2017

Register to attend individual lectures or the full lecture series and pay by credit card online at <http://bit.ly/BSCESFallLectureSeries>. 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. To register for multiple lectures, please complete the registration form below and mail, email or fax it to BSCES, The Engineering Center, One Walnut Street, Boston, MA 02108, [bscesreg@engineers.org](mailto:bscesreg@engineers.org) or 617/227-6783, respectively. Cancellations received after September 27, 2017 and no-shows will be billed.

## Directions to Lecture Hall and Parking:

Lecture Hall: Tufts University, Barnum Hall Room 008, 163 Packard Avenue, Medford, MA

<http://campusmaps.tufts.edu/medford/>

Parking: Tufts University, Dowling Hall Garage, 419 Boston Avenue, Medford, MA

<http://publicsafety.tufts.edu/admsvc/files/Medford-Parking-Map2015FINAL-21.pdf>

**Handouts:** Registered attendees will be provided a website reference for downloading handouts/notes.

**Pizza!** We begin each evening with pizza starting at 6 pm during registration.

## Registration Form

BSCES SEI Boston 2017 Fall Lecture Series

Tuesdays, October 3, 10, 17, 24 and November 7, 2017

Tufts University, Barnum Hall, 163 Packard Avenue, Medford, MA

6:00 PM Registration, 6:30 – 8:30 PM Lecture

### Registrant Information

Name: \_\_\_\_\_  
Company (if applicable): \_\_\_\_\_  
Address: \_\_\_\_\_  
City: \_\_\_\_\_ State: \_\_\_\_\_ Zip Code: \_\_\_\_\_  
Phone: \_\_\_\_\_ Fax: \_\_\_\_\_ Email: \_\_\_\_\_

### Registration Fees

#### Full Series of Five Lectures

- \$195 BSCES/ASCE Member
- \$245 Non-Member
- \$170 Public Employee Member
- \$195 Public Employee Non-Member
- \$70 Senior/Student

#### Single Lectures

- \$60 BSCES/ASCE Member
- \$75 Non-Member
- \$55 Public Employee Member
- \$60 Public Employee Non-Member
- \$25 Senior/Student

Check Lectures Attending:  1  2  3  4  5

**Total Amount Enclosed** \$ \_\_\_\_\_

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

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

Card Name: \_\_\_\_\_  
Card Number: \_\_\_\_\_ Exp. Date: \_\_\_\_\_  
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City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_  
Signature: \_\_\_\_\_

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## Second Charles C. Ladd Memorial Lecture *Selected Case Histories of Ground Characterization and Performance: SHANSEP and Beyond*



**Demetrious C. Koutsoftas, PE, GE**  
*Geotechnical Consultant*  
*DKGC, Inc.*

**Monday, November 6, 2017**

**Northeastern University**

**Registration and Social: Alumni Center, 716 Columbus Ave, 6<sup>th</sup> Floor, Boston, MA**

**Presentation: Auditorium of the Interdisciplinary Science and Engineering Complex Building  
805 Columbus Ave, Room 102 ISEC, Boston, MA**

**5:30 PM Registration and Social; 6:30 PM Presentation**

The lecture highlights important lessons learned from several case histories involving projects for which Professor Ladd served as a consultant and made important contributions in the development of the site investigation/ground characterization programs, development of design parameters and, where applicable, in the evaluation of the performance of the completed structures. The lecture presents information from investigations for the following: (1) an offshore nuclear power plant that was planned to be constructed three miles off the coast of New Jersey, known as the Atlantic Generating Station (AGS) project; (2) the investigations for the new Hong Kong Airport and the prototype test fill constructed to evaluate issues of slope stability and ground improvement involving vertical drains with and without surcharge; (3) characterization of the San Francisco Bay Mud and lessons learned from a prototype test fill; a deep excavation in downtown San Francisco; and an excavation failure in soft Bay Mud; (4) the investigation and the results of a special testing program focused on the determination of the drained strength properties (effective-stress-strength parameters) of a variety of different clays at low effective stresses.

The common thread to all these projects is the application of the SHANSEP method in the test procedures and interpretation of field and laboratory test results in order to characterize the different clay formations involved in each project, to solve problems of stability and deformation analysis. The other common characteristic is that the case histories involve complex and high profile projects which required extensive investigations, laboratory testing, and, in special cases, prototype field tests to properly characterize the soils and develop design and construction recommendations.

The lecture concludes with some personal observations on current practice involving “soft” ground construction, strength characterization, and the state of application of numerical analysis techniques in practice.

## Speaker

Demetrious holds a BS degree in Agricultural Engineering from the Technion Israel Institute of Technology, and MS and CE degrees in geotechnical engineering from MIT. He had been practicing geotechnical engineering for 45 years and during that period he held a number of key positions including Vice President of Dames & Moore, where he practiced for 30 years; Vice President of URS for 3 years; and Associate Principal/Principal at Arup where he practiced for 7 years. At Arup he was responsible for the establishment and development of the Geotechnical Group at the San Francisco office. In 2009 he established his own firm, Demetrious Koutsoftas Geotechnical Consultants, Inc., in San Francisco, to provide advisory services to project owners and other geotechnical consulting firms, on technical issues involving complex and difficult ground conditions particularly on major and high profile projects. His experience covers the full range of geotechnical applications but most importantly on: (1) soft ground construction and coastal reclamations; (2) deep excavations, shoring, dewatering, control of excavation-induced deformations and evaluation of potential impacts on existing adjacent structures; (3) deep foundations for high rise buildings, and major industrial facilities; (4) ground stabilization, particularly involving cement deep soil mixing (CDSM), and jet-grouting; (5) design and evaluation of levees, embankments and slope stabilization; (6) construction services, including the planning, implementation and monitoring of geotechnical instrumentation, as well as data analysis and interpretation; and (7) site characterization and specialized laboratory testing and interpretation.

He has completed successfully a large number of diverse and unique projects throughout the United States and overseas, including projects in: Hong Kong, Indonesia, Iraq, Angola, Nigeria, Trinidad, Panama, and Cyprus. His work has been recognized nationwide and locally with a number of engineering excellence awards including: (1) the Thomas Middlebrooks Award (1988) from ASCE for the paper: "Test Fill at Chek Lap Kok, Hong Kong"; (2) The Martin S. Kapp Foundation Engineering Award (2000) from ASCE: "for his numerous contributions through innovative solutions to foundation engineering problems, particularly those with soft and weak ground"; and (3) the Ralph B. Peck (2004) Award, also from ASCE: for his insightful discussion of the complex behavior of soft soils entitled: "Post-Preload settlements of a soft Bay Mud Site."

A number of his projects have been recognized with nine engineering excellence awards, including the "The Grand Conceptor Award" (1998) from the American Consulting Engineers Council for the MUNI Metro Turnback project in San Francisco. He is the author/co-author of over 40 technical publications. He was elected to the National Academy of Engineering in 2006.

## Charles C. Ladd Memorial Fund

Professor Charles C. Ladd was renowned as a gifted teacher (with a style emulated by many former students who became faculty members) and innovative researcher on advanced technical topics. He was internationally sought after as a consultant working on large, complex and difficult civil projects. Among his numerous professional achievements, Professor Ladd was elected in 1983 to the US National Academy of Engineering and was the recipient of many research awards from the American Society of Civil Engineers (ASCE) including the Walter L. Huber Civil Engineering Research Prize, the Croes Medal, the Norman Medal and the Terzaghi Lecture Award. In 1995, he was elected as a distinguished member of ASCE and received the Hogentogler Award from the American Society for Testing and Materials. In 2012, Professor Ladd was awarded the ASCE Outstanding Project and Leaders lifetime achievement award for his contributions to engineering education. Professor Ladd leaves a lasting legacy and tribute to his life's work with his commitment to his students at M.I.T. and significant contributions to geotechnical engineering.

The Charles C. Ladd Memorial Fund was established in 2015 to support a lecture presented biennially by an eminent academic or practitioner on a topic related to soil behavior and construction on soft ground. Donations to the fund can be made with check payable to BSCES with Charles C. Ladd Fund noted in the memo line. Check should be mailed to BSCES, Charles C. Ladd Fund, The Engineering Center, One Walnut Street, Boston, MA 02108-3616.

## Registration Deadline: Monday, 30 October 2017

### Free to Members and Non-Members

Register to attend this lecture at <https://www.surveymonkey.com/r/2017Ladd>. 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. If you have questions about registration, please call The Engineering Center at 617-227-5551. If you have questions regarding this event, please contact Lucy Jen at [lcjen@comcast.net](mailto:lcjen@comcast.net) or 617-642-0502.



## Public Awareness & Outreach Committee

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## Fall 2017 Volunteer Opportunities

### One-day Volunteer Opportunities

#### **Girl Scouts Geek is Glam STEM Event**

**Saturday, October 14, 2017**

**12:25 PM – 4:35 PM**

#### **Worcester Polytechnic Institute**

**100 Institute Road**

**Worcester, MA**

Volunteers needed to help at the BSCES booth at the STEM expo to showcase civil engineering and the cushion arch model. The Public Awareness & Outreach Committee is also looking for volunteers interested in participating in a career panel occurring during a morning session at the expo from 10:15 AM – 11:15AM or 11:20 AM – 12:20 PM.

#### **Massachusetts STEM Summit**

**Tuesday, November 14, 2017**

**8:00 AM – 3:45 PM**

#### **DCU Center**

**50 Foster Street**

**Worcester, MA**

Volunteers needed to help at the BSCES booth at the Massachusetts STEM Summit on the open floor during the conference to exhibit some of the hands-on engineering activities involving bridge models and shake table.

If you are interested in getting involved in the BSCES Public Awareness & Outreach Committee, please contact Olivia Richards at [Outreach.Comm@BSCES.org](mailto:Outreach.Comm@BSCES.org).

## Mentorship Opportunities

### Future City Mentors

Future City teams are signing up to compete in this year’s Future City Competition on January 20, 2018. The Public Awareness & Outreach Committee is looking for engineers to mentor Future City teams. Mentoring consists of advising the students on how to design a successful city. This year’s theme is Age-Friendly City Design. Ideally, mentors would be able to work with middle school students to provide engineering advice throughout the project in person, via email, or even Skype. Typically, most engineers dedicate an hour a week until the competition in January. There are teams from all over Massachusetts and surrounding states in New England, see below. If you are interested in this mentorship opportunity, please contact Sofia Puerto at [sofiapuerto@gmail.com](mailto:sofiapuerto@gmail.com). The following schools are signed up to participate in the Future City Competition:

School	City	State
CREC Two Rivers Magnet Middle School	East Hartford	Connecticut
City of Brockton	Brockton	Massachusetts
Curious Science & Learning	Chelmsford	Massachusetts
Dartmouth Middle School	Somerset	Massachusetts
Dennis-Yarmouth Regional High School	South Yarmouth	Massachusetts
Dr. Albert F. Argenziano School at Lincoln Park	Somerville	Massachusetts
Ellis School	Fremont	Massachusetts
Holy Family School	Rockland	Massachusetts
LEAP for Education	Salem	Massachusetts
Odyssey Day School	Wakefield	Massachusetts
Provincetown Schools	Provincetown	Massachusetts
The Learning Center for the Deaf Walden School	Framingham	Massachusetts
Waldorf School of Cape Cod	Cotuit	Massachusetts
Westfield South Middle School	Westfield	Massachusetts

### Model Bridge Mentors

Model Bridge teams will begin registering for the BSCES Model Bridge Competition that kicks off at the end of October and the Public Awareness & Outreach Committee needs engineers to mentor these teams. Mentoring consists of advising the students while they design a small-scale bridge (40 inches in length) with the specified materials. Ideally, the mentor will be able to work with the kids and provide advice throughout the project – which ends in February – in person, via email, or even Skype. Typically, most engineers visit the school weekly or every other week from November to January. Please contact us at [BSCESModelBridge@gmail.com](mailto:BSCESModelBridge@gmail.com) if you are interested.