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G-I Boston Chapter/Dams

UPCOMING EVENT

SEI Boston Chapter Dinner Meeting
January 25, 2018

Further Details Inside



Association of State Dam Safety Officials— 2017 Annual Conference Proceedings Game Changer: Development of Web-Based, Geospatial, Interactive Dam Breach Inundation Maps for Great River Hydro's Dams

by Christine Stonier, PE, Assistant Project Manager, GZA GeoEnvironmental, Inc.; Daniel J. Boudreau, Jr., GISP, Geospatial Systems Lead, GZA GeoEnvironmental, Inc.; Christine Suhonen, PE, Project Engineer, GZA GeoEnvironmental, Inc.; Peter H. Baril, PE, Vice President, GZA GeoEnvironmental, Inc.; Jeffrey Blaney, PE, Senior Dam Safety Engineer, Great River Hydro, LLC

Abstract—GZA was retained by Great River Hydro, LLC to update Emergency Action Plans (EAPs) for 16 dams. A key component of an EAP is the inundation maps, which illustrate the anticipated extent of dam breach flooding. This project included dam breach modeling and flood wave mapping for over 450 river miles, resulting in 81 impacted towns. EAPs are typically provided to stakeholders as hard copy reports. A goal for this project was to provide an innovative and efficient means to access and distribute the EAPs and inundation maps. The solution was to provide web-based interactive inundation maps hosted through GZA's GeoTool® web mapping application. This innovative tool provides

interactive access to EAP information including the inundation mapping, dam locations, hydrographs and other EAP documents, via desktop and mobile devices.

Introduction

Great River Hydro, LLC (GRH) is the owner and operator of 16 dams, 13 of which are hydropower dams, in New England (Massachusetts, Vermont, and New Hampshire). GRH was recently required to perform Federal Energy Regulatory Commission-mandated, Emergency Action Plan (EAP), dam break modeling and inundation mapping updates for six of their large hydropower dams. GRH's

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consultant, GZA, performed these updates. Enormous potential energy is contained within large reservoirs, which could cause extensive loss of life and property in the event of a sudden, rapid, and uncontrolled release of the water. EAPs are necessary to help respond to emergency situations and set forth the basic procedures, duties, and responsibilities to be implemented by dam owners, operators, and key public safety personnel in the event of dam failure. Having an

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President's Report

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



Dear Members,

As we celebrate holidays with family and friends this season, ringing out the old year and embracing the new year, I want to wish you and your families health, peace and prosperity.

The BSCES Board and I thank each of you for your participation in our Society. Your membership, volunteer work, and sharing of expertise is what makes our organization the successful, prestigious professional organization that we are. Our reputation for excellence that was built by our founding members in 1848

continues today. We can all be proud of what they built and we continue to sustain and grow.

I am sure that there are many worthy charitable organizations that you support. Please consider BSCES as one of them as you make your final contributions before the end of this tax year. As we are 501(c)(3) nonprofit professional organization, your contribution to BSCES is tax deductible.

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program and are encouraged to advance in their professional endeavors.

2. Funding of our public awareness and outreach program exceeds \$20,000 every year. We are reaching out to middle and high school students and the public educating them about the engineering profession and encouraging students to consider engineering as their future profession.
3. We hold several events for our younger and student members at nominal cost to provide opportunities for their networking and professional advancement.

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**Dam Breach Inundation Maps***continued from page 1*

effective EAP is necessary to reduce the risks of loss of life and property damage due to dam failure. For the EAP to function as intended, it needs to be easily accessible, editable, and sharable. In reality, EAPs often end up on shelves largely forgotten. Recent events, such as the Oroville Dam spillway failure in California and the failure of an earthen embankment dam in Nevada, illustrate that dam safety emergencies remain a real and present danger.

Inundation Mapping

One of the key components of the EAP are the inundation maps. The primary purpose of the inundation maps is to illustrate the anticipated extent of flooding and provide key pieces of information such as water surface levels, flood wave arrival time and the time to the peak water surface elevation. The inundation maps are visual representations of the results from numerical hydraulic dam break modeling, which can be performed either one- or two-dimensionally. The dam break analyses for this project was performed with a one-dimensional unsteady flow model using U.S. Army Corps of Engineers computer program HEC-RAS version 5.0.1.

Project Challenges

This project involved a large amount of data due to two primary reasons: (1) the project encompasses a large area, and (2) the quality of the data is very detailed. The vast amount of input data for the project included 450 river miles of terrain, bathymetry, land roughness, bridges, and dams along the Connecticut and Deerfield Rivers. This created several challenges for the project team, including: (a) large and potentially labor intensive HEC-RAS model; (b) extensive inundation mapping; and (c) distribution of the EAPs to the 81 impacted towns. Historically, the EAPs have been bound within large three ring binders. The hard copies of the EAPs and electronic copies of the inundation maps, which were stored on USB drives, were distributed to the stakeholders.

The original electronic inundation maps were stored as ArcReader files. The ArcReader platform proved to be an inefficient means of relaying the electronic inundation maps. The EAP distribution was a cumbersome task at best and prone to inefficiencies as the EAP documents are often misplaced and become outdated fairly rapidly. Therefore, the goals of this current project were to deliver innovative and efficient means to: access EAP content, keep the inundation base maps current, and

facilitate communication and training for emergency responders.

Dam Breach Modelling & Mapping Process

GZA used an array of computer programs to increase the efficiency of working with the large datasets. The river reaches were defined using approximately 900 hydraulic cross sections. Two sets of data were used to build the cross sections: (a) terrain data (i.e. LiDAR data of the ground elevation) and (b) bathymetry data (i.e. Federal Emergency Management Agency (FEMA), river channel minimum elevation). Historically, each cross section is manually adjusted within HEC-RAS to combine the two data sets. For this project, the channel was defined in ArcMap as a 3D object allowing it to be merged with the terrain data. As a result, the elevation data for all the cross section can be extracted in one step. GZA used the HEC-GeoRAS tool, which interfaces with ArcMap to import cross section data to HEC-RAS. With this tool, GZA could define all the cross sections in ArcMap, and in one step, import all 900 cross sections with elevation data, spacing, and land roughness. Without the tool, each cross section and each data type (elevation data, cross section spacing, and land roughness) would have been imported individually. The new mapper feature within the HEC-RAS program can produce results within minutes after breach runs were simulated. In total, the inundation area from hypothetical failure of the six dams effect 81 towns along the Connecticut and Deerfield Rivers. The Data Driven Pages feature within ArcMap lessened the level of effort by automating the printing process of each map series. The resulting inundation layers were exported to an ESRI's ArcGIS Enterprise Geodatabase and were published as secure web services for use in a custom web mapping application.

Given the large and complex nature of the resulting inundation data, combined with other internal data libraries, the use of a SQL Server Geodatabase was employed to store the data. An ArcGIS Server was used to publish and host web services that were served through GZA's GeoTool® web mapping application. This innovative tool provides interactive access to EAP information including the inundation mapping, dam locations, hydrographs and other EAP documents, via desktop and mobile devices.

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Dam Breach Inundation Maps

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The GZA Geo-Tool® (as shown in Figures 1 and 2), is a password-secured, web-based application developed on ESRI's ArcGIS Enterprise Platform and customized using ESRI's Web App Builder. The Geo-Tool® is accessed by username and password credentials, and any number of unique users can be added. Usage of the tool can be tracked by community or individual user. It can be hosted on the consultant's or dam owner's dedicated infrastructure. The benefits of this mapping approach include:

- Specialized GIS software not required as it is accessible via a web browser;
- Interactive access to dam and EAP information for stakeholders, emergency responders, and plan preparers;
- Remote access from various desktop and mobile devices;
- Efficient approach for managing data and map updates;
- Ability to quickly overlay publicly available GIS data layers;
- Using a variety of mobile devices, users can collect and input additional data in the field to augment other key dam design and record data, attach documents, photos and video; and
- Valuable tool for subsequent staff training and other EAP tabletop exercises.

Conclusion

The inundation maps were developed using geospatial information management methods on a Web-based platform. The project successfully used geospatial tools to manage and present complex and varied dam breach hydraulic data. This approach raised the bar beyond traditional visualization and delivery of EAP information and flood wave propagation hydraulic data. The geospatial/Web-based approach is a state-of-the-practice game changer in how the dam safety engineering community will produce inundation maps and manage dam information going forward.

Author Biographies

Christine Stonier, PE, is a registered professional engineer specializing in surface water hydrology and open-channel hydraulics. She has seven years of experience in the field of water resources with a specialization in flood hazard evaluation analysis. She is well versed in the use of practice computer applications for hydrologic and hydraulic modeling, hydrodynamic modeling, and trains staff in developing and executing models. Christine also has experience in the area of dam safety engineering having inspected numerous dams through New England. She can be reached at christine.stonier@gza.com or 781/278-5716.

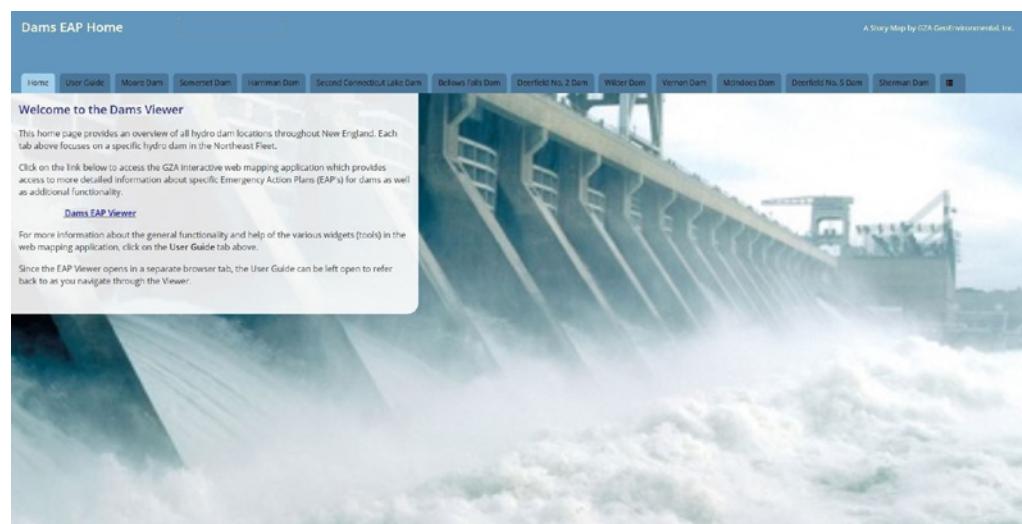


Figure 1. GIS Web Mapping Application – Home Page

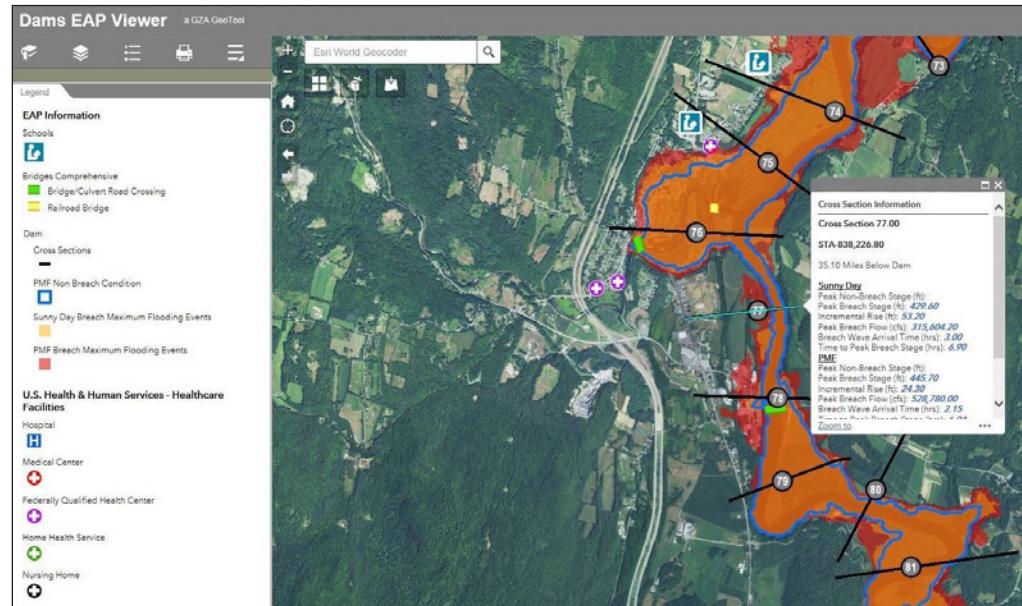


Figure 2. GIS Web Mapping Application – Site-Specific Inundation Map

Daniel J. Boudreau, Jr., GISP, has extensive experience in all aspects of geospatial technology. He brings over twenty-nine years of combined CAD and GIS experience in data management, data development/conversion, spatial analysis, cartographic design and production as well as field data collection for asset management and environmental assessment. As a member of GZA's Enterprise IT Group, Dan serves as the Geospatial Systems Lead and heads the Geospatial Information Management and Solutions Team overseeing the deployment of GZA's

ArcGIS Server, management of the central data repository and development/deployment of GIS web and mobile applications. He co-developed the GZA Natural Hazard Mitigation and Resiliency GeoTool. Dan recently provided advisory services to the Geographic Information Certification Institute Advisory Panel for GISCI GISP testing requirements. He is also a board member of the New England Chapter of URISA. He can be reached at daniel.boudreau@gza.com or 781/278-3834.

The French Dam—24-feet-long and 16-feet-high prototype constructed in 3.5 hours

by Andrew Sanna, PE, Project Manager, GEI Consultants, Inc., and Peter Drown, President, Cleantech Analytics LLC

The French Modular Impoundment, or “French Dam” is a precast concrete technology for the construction of small- to medium-size hydroelectric dams and water control systems. The French Dam technology was developed and patented by French Development Enterprises (FDE), LLC, of North Billerica, MA.

Designed for new or retrofit projects, the system is based on modular segments manufactured offsite in a controlled environment. After delivery to the project site, modules will be secured to the riverbed using underpinning (for example rock anchors) and interconnected with the adjacent modules to rapidly assemble a dam.

The Prototype French Dam technology was developed through funding provided by the United States Department of Energy (US DOE) to advance the manufacturing and installation of hydroelectric facilities with low environmental impact.¹ Additional support came from the Massachusetts Clean Energy Center (MassCEC), Boston, MA.

Prototype Design

Using the technology developed by FDE, the project team of FDE, Oldcastle Precast, GEI Consultants, and Hydro Consulting Specialists designed the prototype with decisions driven by (1) existing forms availability at the Oldcastle Precast plant, (2) ability to transport modules efficiently given transportation load restrictions in New England, and (3) desire to demonstrate a French Dam at an appropriate scale.

The final design featured six precast concrete modules as open-top cubes measuring about 8 feet x 8 feet in plan and 8 feet in height. Stacking the precast concrete modules two high created a dam 24-feet-long and 16-feet-high.

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Fully assembled French Dam prototype.



Aerial image of French Dam with full reservoir.



Precast module installation using 30 ton crane and six man crew.

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The French Dam

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Each module weighed approximately 27,000 pounds, low enough to allow the modules to be shipped and handled using conventional equipment and methods. At each horizontal or vertical interface, modules were interconnected using four 1-inch diameter bolts to form a monolithic structure. The bottom row of modules was anchored to the base slab of the test tank with four 1¼-inch diameter bolts. The joints between modules and between the tank slab and modules were sealed using hydrophilic waterstops.

GEI performed stability analyses of the final dam configuration for both sliding and overturning loads and designed the anchorage into the mat slab.

Installation and Testing

Modules were positioned in the concrete test tank using a 130 ton crane and six man crew. The crew aligned the modules and tightened all bolted linkages. The installation was completed in just 3.5 hours during a heavy rainstorm—conditions that would render conventional cast-in-place construction impossible.

To complete the test assembly, two bulkheads were constructed at each end between the end modules of the prototype dam and the tank walls at the upstream edge of the end modules.

To test the installation of the French Dam prototype, a reservoir was created behind the modules with approximately 30,000 gallons of water to a head of 12 feet. Water elevation and



Reservoir behind assembled dam with 12 feet of head.

leakage was assessed over a period of four weeks by project staff, GEI Consultants, and an independent consultant from Knight Piesold and Co. Measurements were obtained by painting 1 foot increments on the inside of the tank, and by a manometer located outside the tank. The test successfully demonstrated that the modules met the desired structural and hydraulic integrity. Ultimately the dam gained water during the test period from rain events.

Final Thoughts

The DOE office of Energy Efficiency and Renewable Energy published an article on their website² stating that the “French Dam” was a success story. Manufacturing the precast modular segments off-site in a controlled environment, and delivering them to and

installing them at the project site provides many benefits including:

- Highest level of product quality, batch consistency, and curing environment.
- Separating the manufacturing from installation allows for scheduling flexibility and better control of project schedule.
- Reduction in project risk.
- Reduction in project duration and cost.

The construction of the French Dam prototype came less than three months after the release of the US DOE Hydropower VISION report,³ which recognized modular components as one of future hydropower technologies “essential to attaining the necessary outcomes of cost reduction, improved performance, and environmental stewardship.”

References

1. “Energy Department Awards \$6.5 Million to Advance Low Environmental Impact Hydropower Technologies,” US Department of Energy, Office of Energy Efficiency & Renewable Energy, Washington, DC, Sept. 14, 2015, <http://energy.gov/eere/articles/energy-department-awards-65-million-advance-low-environmental-impact-hydropower>.
2. <https://energy.gov/eere/success-stories/articles/eere-success-story-innovative-french-dam-cuts-cost-and-construction>.
3. “Hydropower Vision: A New Chapter for America’s 1st Renewable Electricity Source,” US Department of Energy, Washington, DC, July 2016, 396 pp., http://energy.gov/sites/prod/files/2016/10/f33/Hydropower-Vision-10262016_0.pdf.

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Pump Station Resiliency Pilot—Leading by Example

by Indrani Ghosh, PhD, Senior Professional, Kleinfelder; Jim Cosgrove, PE, Vice President/Principal, Kleinfelder; Larry Vandeventer, Vice President-Water Treatment; Kleinfelder

Kleinfelder performed a comprehensive climate resiliency pilot study for a drinking water pumping and storage facility located within a vulnerable floodplain and owned by a private utility company in New Jersey. This pilot offers some compelling insight into asset vulnerabilities and risks. The lessons learned in this study will help the company to prioritize capital investments, ensure business continuity under extreme weather events, as well as establish a proven methodology to scale the program across the company's extensive network.

The purpose of the pilot study was to determine the impact of future storm events on the safe operation of the pump station, and make preliminary recommendations regarding adaptation strategies for resilience at the site. This study will also enable the company to consider these impacts into future work planned for the facility.

The pump station site has experienced moderate flooding in the past during nor'easter storms and hurricanes. In fact, the site was inaccessible during Superstorm Sandy, and one building experienced extensive flooding. The operations staff deploy storm preparation protocols (sand bags and flood gates) prior to predicted storm events. Fortunately, they have been able to keep the main pump station building operational during all past storms. The likely threat of more frequent and intense storms combined with predicted sea level rise in this area, and the concerns about the station's ability to maintain operation under more severe weather events provided the motivation for this study.

Scenario Planning

The study focused on the most critical assets at the pump station site that are needed to maintain minimal functionality during flooding conditions due to major storm events and sea level rise (SLR) for the 2030 and 2070 planning horizons. Sea level rise and storm surge modeling was conducted using the Sea, Lake and Overland Surge from Hurricanes (SLOSH) model to simulate the extent and depth of flooding for various storm scenarios at the pump station site.

Vulnerability and Risk Assessment

For each flooding scenario, Kleinfelder determined vulnerability based on exposure, sensitivity and adaptive capacity of the critical components in the main pump station building, surge protection building, clearwell, reservoir, standpipe, rear pump building, maintenance yard, and in the adjacent electrical substation

building. This study also highlighted some "outside-the-fence" vulnerabilities, such as flooding of the adjacent electrical sub-station, as well as flooding of the access roads to site that are outside the water utility's jurisdiction, and will require coordination with external agencies to mitigate flooding issues at this location.

Adapting to Change

Investment decisions concerning adaptation to possible climate change impacts are dependent on the risk, cost of adaptation, and benefit derived from the investment that mitigates the risk. In this study, the resiliency goal was defined as providing a minimum functionality of 5.0 MGD pumping capacity for water distribution to the service areas.

Based on the results of the risk assessment, different resiliency alternatives were evaluated for both short-term and long-term considerations. The long-term solutions evaluated ranged from constructing a watertight barrier (removable or poured concrete) around the entire pump station site, constructing barriers at individual buildings in the site, building a new pump station at a higher elevation at the same location, or relocating the pump station in a different location entirely. Based on a preliminary assessment of order of magnitude costs, building a new pump station or relocating to a new location was prohibitively expensive. It was concluded that protecting the pump station site with a full perimeter flood barrier constructed of concrete appears to offer the best overall value for adaptation to long-term possible flooding impacts out to 2070. Targeted improvements to protect critical station components are a possible near-term solution to protect assets from smaller, yet significant flooding events (such as the FEMA 100-year and 500-year floods, and the Category 1 hurricane storms by 2030 and 2070.

Scaling to Other Locations

The stepped approach to frame this analysis, which includes identifying critical assets, developing appropriate future planning scenarios, conducting a vulnerability and risk assessment, and developing adaptation strategies for resiliency can be applied for other projects.

For climate scenario development, readily-available data sources exist for nearly all locations throughout the United States. While there are varying levels of resolution among these data, it is almost always the case that the current data can be leveraged to inform planning-level assessments of at-risk assets regardless of the



Pumps and distribution piping within the main pump station building

		Probability	
		Low	High
Consequence	High	R3	R4
	Medium	R2	R3
	Low	R1	R2

Matrix used for risk ranking at NSPS site—function of probability and consequence of impact. Probability criteria: Low = vulnerable only under extreme flooding (e.g. Category 2 hurricane) events; High = vulnerable under both extreme and more moderate flooding (e.g. Category 2 and 1 hurricane) events; Consequence criteria: Low = can adequately maintain 5 MGD; Medium = can partially meet 5 MGD; High = cannot meet 5 MGD requirement.

scenario selected. The key is to tailor the focus (and therefore limit the extent of the climate analysis) to those parameters which have the potential to cause the most immediate and extensive impact.

Another important strategy that can be translated to other studies is the implementation of various filters to hone both the overall focus of the study and resultant investment in adaptation solutions. Areas of focus can be determined by considering criteria, such as what critical assets/resources are necessary for "bare bones" functionality of a system, which components are exposed to a climate hazard, how vulnerable is that asset, and what is the overall risk if that component were to fail. When analyzing adaptation alternatives, prioritization (another type of filtering) can be based on numerous criteria including synergies with ongoing initiatives, funding sources, and near-term versus longer-term needs.

Finally, the overall vulnerability and risk assessment at any site will rely on locally-derived consequence criteria (in this case meeting the 5 MGD requirement) that can be easily tailored to other sites. The overall methodology remains the same—it is only the performance metric that changes.

Want to Make Your Community More Resilient to Climate Change? Remove That Obsolete Dam!

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

As previously reported in *BSCESNews*, Governor Charlie Baker signed Executive Order (EO) 569 last year, instructing state government to provide assistance to cities and towns relative to climate change vulnerability assessments and resiliency planning. Following EO 569, the Commonwealth created the Municipal Vulnerability Preparedness (MVP) Program and has given grants to more than seventy communities in the Commonwealth to help them develop MVP Plans.

As communities assemble their MVP Planning teams and begin to assess their vulnerabilities, one good place for them to start is by looking at the dams that are located within their area to determine if they are still needed. There are approximately 3,000 dams located within the 351 Massachusetts municipalities. Of these 3,000 dams, many are either privately owned or owned by municipalities themselves. Also, many of the dams in Massachusetts were originally built for hydro-power during the industrial revolution and are now obsolete. While these mill dams served a critical role for the northeast economy between the mid 1800's and the early 1900's by providing clean and inexpensive energy for industry, they had a major impact on anadromous fish populations and severely depleted a very sustainable local food source.

In my hometown of Haverhill, legend has it that when the city was first settled in the early 1600's, the salmon were so numerous in the Merrimack River that a man could "walk across the river over them." Hyperbole for sure, but there is no doubt that fish populations suffered tremendously when major dams in Lawrence, Lowell, Nashua, Manchester and Concord were constructed along the Merrimack to power the mills in these cities and cut off spawning areas all the way up to the White Mountains in NH. Not to mention that during this time the river itself was treated as an open sewer for domestic/industrial waste.

Since most mill dams do not provide any flood protection and in fact, pose both a flood and

Salmon, shad and Alewives were formerly abundant here ... until the dam, ... and the factories at Lowell, put an end to their migrations hitherward, ... Perchance, after a few thousands of years, if the fishes will be patient, and pass their summers elsewhere ... nature will have levelled ... the Lowell factories, and the Grass-ground River [will] run clear again.

—Henry David Thoreau, *A Week on the Concord and Merrimack Rivers*, 1849.

environmental risk should they fail (through the release of impounded water and potentially contaminated streambed sediment), the removal of this type of legacy infrastructure will make communities less vulnerable to climate change. Furthermore, the possibility of re-establishing spawning areas for anadromous fish by the removal of obsolete dams will increase sustainability and resiliency for an area larger than the community itself by replenishing a local food source.

The Commonwealth of Massachusetts Division of Ecological Restoration (DER) has developed a tool that performs a preliminary evaluation of the potential benefits of removing a dam from an ecological standpoint. DER's Restoration Potential Model (RPM) Tool provides easily-accessible information about the ecological benefit of removing any known dam in Massachusetts. DER notes that dam removal is most ecologically beneficial when a dam is the primary stressor on a river. Using the tool would allow a community to determine if further study and investigation related to the removal of a particular dam would be beneficial. [Click here](#) to see DER's RPM Model.

The Anadromous Fish Conservation Act of 1965 led to a joint state-federal effort to restore migratory fish, such as salmon and shad, and as a result, fish ladders and other methods of providing for fish migration in rivers were implemented at numerous dams with varied

amounts of success. Throughout history, civil engineers have developed solutions that have allowed human populations to advance and live healthier and safer lives. Unfortunately, negative unintended environmental consequences sometimes resulted from civil works projects in the past because the environmental impacts were not predicted as well as they could have or should have been.

As the civil engineering profession embraces sustainability and resiliency more and more, civil engineers are accounting for the "triple bottom line" and as such, will be less likely to create unintended negative environmental and social consequences in the future. When considering the sustainability and resiliency of a community relative to its rivers and streams, avoiding new development in the floodplain is paramount. However, other sustainable measures can be taken too. For example, implementing Green Infrastructure will reduce heat island effects, improve base flow and improve water quality related to stormwater. Continued investment in Clean Water projects will reduce, and hopefully someday, eliminate combined sewer overflows (CSO's). Lastly, the removal of obsolete dams, combined with more natural "by-pass streams/channels" at dams that must remain, will allow anadromous fish to migrate more naturally and successfully upstream to spawning areas. These steps will increase the resiliency and sustainability of communities to both climate change and population growth.

Our profession can develop solutions that will allow the built and natural environments to thrive together, when we work with project owners, stakeholders, and lawmakers to set comprehensive sustainability goals. And, I am willing to bet that if we continue looking at our rivers and streams in a more sustainable way, we can correct the unintended consequences of the past much faster than Henry David Thoreau would have ever dreamed possible.

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

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



The first annual session of the 190th General Court is winding down. In the second session, February 7 of next year is the last day for reports to be made from the joint committees on bills that were filed this year (except for health care financing).

The Joint Committee on Environment, Natural Resources and Agriculture continued to evaluate H. 2777. This is Governor Baker's proposed bill to allow Massachusetts to administer the federal

National Pollutant Discharge Elimination System (NPDES) permit program. Concerns remain about the cost of the program and how it would be funded. The Committee is expecting further testimony pertaining to this.

The Joint Committee on Environment, Natural Resources and Agriculture held a hearing on November 29. This included bills pertaining to dredging needs and funding (H. 405, 406, 471, S. 403, and S. 468); funding for coastal infrastructure, waterway projects, and coastal protection (H. 396 and H. 401); studies of the effects of coastal and ocean acidification (H. 472, 2122, and S. 410); establishing a Cape Cod

Water Protection Trust for wastewater and water projects (H. 3902/S. 2163), and development in Designated Port Areas (H. 455/S. 487).

The Joint Committee on Transportation held a hearing on November 13. The bills included insurance coverage requirements for privately owned, publicly used railway and roadway tunnels (H. 2741).

Further information on specific bills is available on the Legislature's [website](#). There are links to legislators, bills, hearings, and session laws. You may contact me, as well, at bclemence@verizon.net.

President's Report

continued from page 1

4. We subsidize most of our events, lectures, and programs to provide you with networking opportunities and valuable technical knowledge and assist in your professional development while keeping your cost down.
5. We finance several activities to advocate for infrastructure investment and our profession such as the BSCES legislative fellow and Engineers and Land Surveyors Day at the State House, and other activities.

BSCES is considered one of the best ASCE sections and has won numerous awards and continue to gain recognition among the professional organizations nationwide and internationally thanks to you our BSCES members. However, these programs and events could not be sustained without financial support.

With a contribution of \$50 or \$100 from each of our members we can achieve our financial goals and maintain our activities and programs. Many firms have charity matching programs that will match your contribution with corporate funds. Your company's human resources department can advise you of their matching program. Please check with them to maximize your contribution. BSCES's Federal Tax Identification Number is 04-2103915.

Our volunteer organization is worthy of your serious consideration for financial support. Simply send a check payable to "BSCES Fundraising" to the Boston Society of Civil Engineers Section/ASCE, One Walnut Street, Boston, MA 02108 by year end.

Please be aware that a donation of \$50,000 or more can be placed in a special fund with interest of such fund used for providing scholarship or grants in a civil engineering field of your choice. Your name, or the name of a loved one, will be recognized in every event associated with the fund. This legacy fund is done in our organization and some donations have been recognized for more than 80 years

Many people commit to new goals for the next year. I commit to get maximum benefits for you by collaborations, partnerships and teams. The talent, resources, and energy that we have in BSCES is enormous and we see that teams working together are more than the sum of their parts. By volunteering with friends, and serving on committees with friends, we are able to accomplish more and have fun at the

same time. Sharing the responsibilities is an easier activity, especially when we hold each other accountable.

I'd like to once again thank our Society Sponsors especially GZA GeoEnvironmental, Inc., which is the sponsor of this newsletter, and encourage you the read GZA's page 1 article entitled, "Game Changer: Development of Web-Based, Geospatial, Interactive Dam Breach Inundation Maps for Great River Hydro's Dams."

The Geo-Institute Boston Chapter, chaired by David Finocchio of Hayward Baker, Inc., is the featured group for this month. To learn more about this group, please read David's article on page 9 of this issue of *BSCESNews*.

I want to end with wishing you and your families Happy Holidays and Happy New Year!

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



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

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Featured Group

Geo-Institute Boston Chapter

by David Finocchio, PE, Senior Engineer, Hayward Baker, Inc. and Chair, Geo-Institute Boston Chapter

BSCES established the Geotechnical Group, a technical committee made up of local geotechnical engineering professionals, in 1969 for the purpose of “*promoting and coordinating technical and professional activities in order to disseminate information*” for the benefit of its members. The committee name was changed in 1999 to the ASCE GeoInstitute Boston Chapter to better align with ASCE’s national geotechnical committee, but our basic mission remains the same: to foster continuing education and to provide a venue for the sharing of knowledge between engineers, geologists, and contractors in the geotechnical community.

As part of the Geo-Institute commitment to promote technical and professional activities and the dissemination of information, the Geo-Institute Boston Chapter sponsored the Second Charles C. Ladd Memorial Lecture, with support of the BSCES Charles C. Ladd Memorial Fund. Special thanks to the Ladd Family, Professor Thomas Sheahan, Anna McAvinchey, and Northeastern University for hosting the jam packed event. We had over 150 attendees, including 61 students and faculty; a true testament to Professor Ladd’s lasting memory!

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 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 MIT and significant contributions to geotechnical engineering.

The BSCES 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.

This year’s lecture, entitled *Selected Case Histories of Ground Characterization and Performance: SHANSEP and Beyond*, was presented by Demetrious C. Koutsoftas, PE, GE, on Monday, November 6. The lecture highlighted 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 further presented 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.

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

Upcoming events sponsored by the Geo-Institute Boston Chapter include:

- A full-day course entitled, **Seismic and Construction-Induced Vibrations: State of the Art and Practice**, will be held at Tufts University on Saturday, January 27, 2018. This seminar will present a selection of speakers to provide an overview of the latest research on the assessment of seismically-induced liquefaction, application of seismic building code provisions, remediation concepts for liquefaction-susceptible sites, and strategies for monitoring construction-induced vibrations. The seminar will be of great value to geotechnical engineers, structural engineers, construction engineers, federal and state agency engineers, general and foundation contractors, professors, and students.

- The **2018 Dinner Lecture Series** will begin in February 2018. Additional details will be forthcoming.

The Geo-Institute Boston Chapter also helps organize the Arthur Casagrande Memorial Lecture held every other year to honor the work and memory of Professor Casagrande, who had a profound influence on the geotechnical community as a whole, and particularly in Boston. Please check future editions of *BSCESNews* for details.

I would like to thank all past and present committee members, their employers, our presenters, and all of you that attend Geo-Institute Boston Chapter events for your support.

Currently, the Geo-Institute Boston Chapter Committee consists of 20 geotechnical professionals from local consulting firms, specialty construction companies, and academic institutions, who proudly volunteer their time to serve BSCES and the engineering community in the manner originally set forth in 1969. We are always looking for additional members—geotechnical practitioners in the public or private sector or educators who are interested in getting involved in the committee’s activities and promoting our mission. For more information, please contact me at DWFFinocchio@HaywardBaker.com.

Volunteer Opportunities

Outreach Volunteers Needed!

by Olivia A. Richards, PE, Structural Engineer, Gill Engineering and BSCES Public Awareness & Outreach Committee Chair

The BSCES Public Awareness & Outreach Committee needs volunteers to serve as judges and perform other duties for the following committee-sponsored student contests:

New England Future City Competition Online Judges

Dates:

Virtual City Design—

December 19, 2017 – January 14, 2018

City Essay—

December 26, 2017 – January 14, 2018

Looking for: Volunteers to judge Virtual City Designs and City Essays for Future City teams prior to competition day. Teams of students from grades 6 through 8 will design a city using the SimCity program. They will then create a PDF slideshow of their city's progress to be judged by volunteers online. Teams will also write a 1,500 word essay describing their city. Judging will take place from December 19, 2017 – January 14, 2018. The average scores for these items will then be used during the Regional Competition on January 20, 2018. Volunteers can sign up to judge either the Virtual City or City Essay or both using the link below. Once enrolled, judges will be assigned essays and/or city designs.

[Sign-up here.](#)

New England Future City Competition Day: Saturday, January 20, 2018

Overview: Competition day for all teams to present model cities

Location: MassDOT Headquarters, 10 Park Plaza, 2nd Floor, Boston, MA

Time: 8:00 AM to 3:00 PM

Looking for: Engineering volunteers to be judges on competition day (model judges, presentation judges, or special awards judges). Judges can be any engineer or engineering college student. No previous judging experience needed. Volunteers should check-in at volunteer check-in table, which is located at MassDOT, 2nd floor mezzanine, by 8:00 AM to attend the judges' orientation session before competition day begins. Presentation and model judges will be placed in conference rooms where student teams will present their Future Cities and judges will use rubrics to provide scores. Special awards judges will be in the mezzanine area walking around to various Future City team tables and scoring Future City models according to the special award rubric. Please email me if you have further questions regarding the event at outreach.comm@bsces.org.

[Sign-up here.](#)

BSCES Model Bridge Competition Day:

Saturday, February 3, 2018

Overview: Competition day for all teams to present model bridges and load test models

Location: Wentworth Institute of Technology, 550 Huntington Ave, Boston, MA

Time: 8:00 AM to 1:00 PM

Looking for: Volunteers to help run the competition. Volunteers will be running the registration table, distributing t-shirts, loading the bridges, guiding teams to the stage, etc. Please email me if you have further questions regarding the event at outreach.comm@bsces.org.

[Sign-up here.](#)

For more information on volunteering opportunities or becoming part of the BSCES Public Awareness & Outreach Committee, please contact me at outreach.comm@bsces.org.

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Recent News and Updates

BSCES Welcomes its New Members

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

Members

Caroline Bishop, EIT, Resource Options, Inc.
Seth Bryant, Opti
Jason Fischer, EIT, Gill Engineering Associates, Inc.
Christopher Long, Stantec
Morgan Marlow, Hill Engineers
Matthew McNally, PE, Attleboro, MA
Ryan Murphy, EIT, Geosciences Testing & Research, Inc.
Steve Stanish, PE, Boston, MA

Students

Ignacio Arzuaga Garcia, Massachusetts Institute of Technology
Jesus Bastardo, University of Massachusetts Amherst
Brendan Berkeley, University of Massachusetts Lowell
Isabella Bernardi, University of Massachusetts Dartmouth
Jeremy Bourque, University of Massachusetts Amherst
Tyler Brinson, Wentworth Institute of Technology
Michael Caputo Jr., Purdue University
Alek Chongris, University of Massachusetts Lowell
Ryan Cobb, University of Massachusetts Lowell
Jay Cobleigh, Roger Williams University
Allison Davis, University of Massachusetts Amherst
Icaro De Andrade, University of Massachusetts Lowell
Nicholas Federico, University of Massachusetts Amherst
Benjamin Foley, University of Massachusetts Dartmouth
William Garner, University of Massachusetts Amherst
Chunwei Ge, Massachusetts Institute of Technology
Sarah Godschall, Villanova University
Isaac Gonzalez, University of Massachusetts Amherst
Owen Guinessey, Northeastern University
Khin Ha, University of Massachusetts Lowell
Christopher Haramut, University of Rhode Island
James Harizi, Roger Williams University
Chi-Chun Juang, Harvard University
Robert Kennedy, University of Massachusetts Amherst
Mudassar Khan, University of Massachusetts Dartmouth
Spencer King, Roger Williams University
Mike Lavoie, Roger Williams University
Nicholas Lewry, University of Massachusetts Dartmouth
Caden McKenna, University of Massachusetts Amherst
Jeremy Mei, University of Massachusetts Amherst
Panagiotis Nikitas, Purdue University

Evan Raffi, Roger Williams University

David Salinas III, University of Massachusetts Lowell
Neel Shah, Northeastern University
Sarah Simon, University of Massachusetts Amherst
James Simpson, University of California, Berkeley
Zoe Sloane, University of Massachusetts Amherst
Thomas Stolk III, University of Massachusetts Dartmouth
Matt Stordy, University of Massachusetts Amherst

John L. Elsey Wins the 2017 Jonathan B. Golden Scholarship

Last May, the BSCES Board of Government approved the EWRI Boston Chapter Committee's recommendation that John "Jack" Elsey receive the 2017 Jonathan B. Golden Scholarship. Jack is a graduate student at Tufts University and a PhD candidate in environmental and water resources engineering. The focus of Jack's study is on remediation and contaminant fate/transport to support a career cleaning up hazardous waste in China, which he saw firsthand in his experience as an assistant project manager for Suntime Environmental presented Jack the \$5,000 scholarship check at a recent committee meeting.

Thomas J. Harrigan Wins the 2017 Francis M. Keville Memorial Scholarship

In early spring, the BSCES Board of Government approved the Francis M. Keville Memorial Fund Committee's nomination of Thomas J. Harrigan as the recipient of the 2017 Francis M. Keville Memorial Scholarship. Thomas is a graduate student at Northeastern University pursuing an MS degree in the construction management program, where he is in the top 10% of his class. He has experience in transportation construction inspection from the New York State Department of Transportation and was the lead member of a semester-long bridge design project in his undergraduate studies at Syracuse University. Thomas' receipt of the \$5,000 scholarship payment was contingent upon proof of enrollment in fall 2017 master's program classes, which was provided to BSCES in late September.

Renew Your BSCES Membership Today!

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

ASCE Announces a New Membership Benefit

Looking to provide enhanced member value, ASCE just launched a significant new membership benefit—free access to a wealth of useful technical reference material. ASCE recently unveiled their AccessEngineering resource, an online archive of popular handbooks, tutorial videos, calculators, and other practical content. AccessEngineering offers the following free features to encourage practice-oriented technical information:

- Fast, faceted search quickly gets the information you need
- 1,000+ instructional videos demonstrate step-by-step solutions to real-world engineering problems
- Excel spreadsheet calculator tools save you time
- A business suite of references and videos help build management, presentation, and process skills
- 5,000+ interactive graphs, plus thousands of downloadable tables to make it easier to use and analyze key data
- Critical global engineering news across all major disciplines

For more information about this member benefit, please [click here](#).

You Could Have the Next Infrastructure Breakthrough

The ASCE Innovation Contest serves as an avenue to transform our nation's infrastructure. Now in its third year, the contest has a track record of reaching a worldwide audience and attracting industry attention. Winners will present their ideas to network and industry leaders. Be part of the movement and share your innovation. To learn more about this ASCE contest, including how to enter [click here](#).

Geocomp Names Gary T. Torosian Chief Operating Officer

Geocomp Corporation announced the appointment of Gary Torosian as chief operating officer. Gary will be responsible for improving operational efficiency and providing support to the execution of Geocomp's corporate strategy. He has been with Geocomp for 25 years, since he joined as laboratory manager of GeoTesting Express (GTX) in 1992. As GTX expanded to multiple locations with increased capabilities, Gary took on the leadership role of director of testing services. He was appointed the chairman of Geocomp's Executive Committee in 2015 and will now serve as COO.

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.

SEI Boston Chapter Dinner Meeting

Thursday, January 25, 2018

Wentworth Institute of Technology, Boston

6:00 PM Registration, Social, and Pizza

7:15 PM Presentation

We Don't Need More Engineers, We Need Better Engineers—Automation and its Effects on Both Trades and Professions

Paul Kassabian, PE, Associate Principal, Simpson Gumpertz & Heger

We are at an exciting time in the design and construction profession. With computational design and automation, we provide more and better technical information for projects than ever before. However, with that, we require a

different skill set from our engineers; one which the typical academic degree and subsequent PE exam does not currently provide. In this talk, Paul Kassabian will provide: a review of automation and its effect on both trades and professions; examples of current computational automation of engineering tasks; and thoughts on where education and training for engineers should go from here.

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

Save the Date!

Friday, February 2, 2018

2018 Public Private Partnership—Innovative Financing Methods for Large Projects in Massachusetts

Sponsored by the Construction Institute Boston Chapter, the Transportation & Development Institute Boston Chapter, and the Government Affairs & Professional Practice Committee

Federal Reserve Plaza, Boston, MA

7:00 AM – 1:00 PM

This seminar will focus public-private partnership (P3) including the design, build, finance, operation and maintenance. Panel discussions and the keynote address will cover topics such as the Maryland DOT and how the Maryland Transit Administration pursued an innovative solicitation approach with the Purple Line, and the Denver CO Eagle P3 Project or LA Metro.

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

Plan to Attend!

Thurs.–Sat., April 19–20, 2018

ASCE SEI Structures Congress 2018

Fort Worth Convention Center, Fort Worth, TX

Join the ASCE Structural Engineering Institute at Structures Congress in Fort Worth, Texas, April 19–21, 2018 to be inspired, connect with leaders in the profession, learn from the experts, and earn Professional Development Hours (PDHs). Stay an extra day to enjoy the seven primary entertainment districts each offering distinct dining, shopping, entertainment and cultural amenities.

For more information about this event, [click here](#).

Mark Your Calendar!

Saturday, January 27, 2018

Seismic and Construction-Induced Vibrations: State of the Art and Practice

Sponsored by the Geo-Institute Boston Chapter

Tufts University, Medford, MA

8:15 AM – 4:15 PM

This seminar will present a selection of speakers to provide an overview of the latest research on the assessment of seismically-induced liquefaction, application of seismic building code provisions, remediation concepts for liquefaction-susceptible sites, and strategies for monitoring construction-induced vibrations.

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

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

Suggest a Seminar Topic

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

Charged with developing technical training programs that address members' professional development needs, the Program Committee oversees the Society's National Highway Institute training, spring and fall Professional Engineer Refresher Courses and other topical workshops.

If you have a technical topic that you would like the Program Committee to consider, send your suggestion to BSCES Program Committee Chair Jeff Lewis at jlewis@garofaloassociates.com or BSCES Association Manager Rich Keenan at rkeenan@engineers.org.

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We Don't Need More Engineers, We Need Better Engineers – Automation and Its Effects on Both Trades and Professions

Paul Kassabian, PE

Associate Principal, Simpson Gumpertz & Heger

Thursday, January 25, 2018

Wentworth Institute of Technology, Beatty Multipurpose Room in Beatty Hall

550 Huntington Ave, Boston, MA

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

We are at an exciting time in the design and construction profession. With computational design and automation, we provide more and better technical information for projects than ever before. However, with that, we require a different skill set from our engineers; one which the typical academic degree and subsequent PE exam does not currently provide. In this talk, Paul Kassabian will provide a review of automation and its effect on both trades and professions, examples of current computational automation of engineering tasks, and thoughts on where education and training for engineers should go from here.

Registration Deadline: Monday, January 22, 2018

\$30 Members, \$40 Non-Members

\$25 Public Sector Members, \$30 Public Sector Non-Members

\$10 Student Members and Senior Members (65+)

Wentworth Institute of Technology Student Members: No Charge

Registration Information

Register to attend this meeting and pay by credit card online at <http://bit.ly/SEI1252018>. To register online for an event at the BSCES member rate you must login using your BSCES assigned username and password. If you do not know your BSCES member login information call 617/227-5551. You can also register for this event by mail or email. To do so, download and complete a [BSCES Event Registration Form](#) and follow the submission instructions. Cancellations received after January 22, 2018 and no-shows will be billed.



This presentation provides 1.0 Professional Development Hours (PDH)

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Department of Civil and Environmental Engineering, Northeastern University

Skanska Civil
Tufts University
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Save the Date & Watch for Future Announcements!

Geo-Institute Boston Chapter One Day Seminar *Seismic and Construction-Induced Vibrations: State of the Art and Practice*

Saturday, January 27, 2018

Tufts University, Medford, MA

Preliminary Event Schedule

8:15 AM – 8:45 AM	Registration
8:45 AM – 9:00 AM	Opening Remarks
9:00 AM – 12:00 PM	Morning Session
12:00 PM – 1:00 PM	Lunch (provided)
1:00 PM – 4:00 PM	Afternoon Session
4:00 PM – 4:15 PM	Closing Remarks

This seminar will present a selection of speakers to provide an overview of the latest research on the assessment of seismically-induced liquefaction, application of seismic building code provisions, remediation concepts for liquefaction-susceptible sites, and strategies for monitoring construction-induced vibrations. The seminar will be of great value to geotechnical engineers, structural engineers, construction engineers, federal and state agency engineers, general and foundation contractors, professors, and students.

See future BSCES emails for further details.



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Engineering,
Northeastern
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Skanska Civil

Tufts University

VHB

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Save the Date and Watch for Future Announcements!

2018 Public Private Partnership Innovative Financing Methods for Large Projects in Massachusetts

Joseph Aiello

Partner, Board Member, Meridiam Infrastructure

Friday, February 2, 2018

Federal Reserve Plaza

600 Atlantic Avenue, Connolly Center, 4th Floor, Boston, MA

7:00 AM – 1:00 PM

7:30 AM Registration; 7:50 AM Opening Remarks; 8:00 AM Panel Discussion

About the Seminar

This seminar will focus public-private partnership (P3) including the design, build, finance, operation and maintenance. Panel discussions and the keynote address will cover topics such as the Maryland DOT and how the Maryland Transit Administration pursued an innovative solicitation approach with the Purple Line, and the Denver CO Eagle P3 Project or LA Metro.

More information will follow as the event date approaches.