

Climate Ready East Boston and Charlestown

by Nasser Brahim, Senior Climate Resiliency Planner, Kleinfelder and Robin Seidel, LEED AP ND, Climate Resiliency Designer, Kleinfelder

One year ago, the City of Boston issued the *Coastal Resilience Solutions for East Boston and Charlestown* report. Kleinfelder was the lead consultant and technical lead for the study, supported by design lead Stoss Landscape Urbanism, urban designer One Architecture, and coastal flood modelers at Woods Hole Group. This article provides a summary of the process to develop the plan, findings, and outcomes one year into the plan's implementation.

Background

Much of Boston was built by filling in tidelands between naturally-occurring islands and peninsulas. Two neighborhoods we know today as East Boston and Charlestown were filled to elevations just above the tide and flood levels that were historical to engineers of the time.

What engineers understand today is that these benchmarks are no longer static. Tide and food levels will be significantly higher in the future because of sea level rise. That will put low-lying land, critical infrastructure, buildings, businesses, and, most importantly, populations in these areas at growing risk.



Installation of deployable flood wall on the East Boston Greenway (Image courtesy of Kleinfelder-Stoss-One Architecture)

The City of Boston is planning for 36 inches of sea level rise by 2070, based on the findings of Climate Ready Boston's Boston Research Advisory Group. By 2070, the flooding experienced during the highest monthly tides will closely resemble that of today's 100-year flood.

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President's Report

by Geoffrey B. Schwartz, PE, Sr. Project Manager, GZA



Dear Members,

I would like to begin the newsletter by highlighting upcoming training programs put on by our Programs Committee. These programs have been developed so that our 3,200+ members can receive competitively priced training locally within or near the Metro-Boston area. Recent and upcoming courses include Fracture Critical Inspection Techniques for Steel Bridges Course (October 16–19, 2018 at Mott MacDonald in Westwood, MA), Safety Inspection of In-Service Bridges (December 10–21, 2018 at Hilton Garden Inn Worcester in Worcester, MA), Bridge Inspection Refresher Training (February 12–14, 2019, details TBD),

Professional Engineering Exam Refresher Course (February 2019, details TBD), and a Lunchtime Transportation Webinar Series at MassDOT in Boston, MA held approximately every two months. We have capacity to put together a few more training programs this year, so if you or your company or college has a training need, please send me a note to president@bsces.org and include the need and approximate number of people requiring the training.

Another exciting training opportunity is linked to our newly established Massachusetts Architects & Engineers Emergency Response Task Force (the MA AEER TF) that I described in the September newsletter. This task force is a collaboration by BSCES, Structural Engineers Association of Massachusetts, and the American

UPCOMING EVENTS

**Lunchtime Transportation Webinar Series:
Complete Streets Design**
October 25, 2018

Alewife Wetland Tour & Networking Social
November 7, 2018

Arthur Casagrande Lecture
November 8, 2018

Presentation Workshop
November 29, 2018

CI Boston Chapter Day Summit
November 30, 2018

**Unmanned Aerial Vehicles—
Another Tool for Assessing Structures**
December 3, 2018

Further Details Inside



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Institute of Architects Massachusetts Chapter. There is a training session titled *Disaster Assistance Building Evaluator Training Workshop* on November 27, 2018 at the Boston Convention & Exhibition Center. Details will be provided shortly.

For those new to BSCES, we are trying to identify volunteers who can help support and play key roles in our BSCES committees. For anyone who wants to help contribute to BSCES in a volunteer capacity, we have a roll for you. The ability to put on programs, run committees and other activities is only as strong as our volunteers. If you would like to get involved, we have some immediate needs with our Programs

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Boston Society of Civil Engineers



Climate Ready East Boston and Charlestown

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100-year flood extents and pathways for present, 2030, and 2070 (Image courtesy of Kleinfelder-Stoss-One Architecture).

A helpful frame of reference is the flooding experienced on January 4, 2018 when astronomical high tides aligned with storm surge from a nor'easter to produce the highest flood levels ever recorded in Boston Harbor. Imagine that flood level recurring once a month, on average, even on sunny days.

East Boston and Charlestown were the first neighborhoods that the City of Boston selected for coastal resiliency planning. East Boston is arguably the most vulnerable neighborhood in Boston due to the extensive exposure to coastal flooding of its dense populations and buildings, large environmental justice community, and critical transportation infrastructure. Charlestown is an Imagine Boston 2030 focus area for infrastructure investment and redevelopment and plays an outsized role in future coastal flood risk for other Boston neighborhoods. Flooding could bypass the Charles River Dam through Charlestown, putting the Back Bay, South End, and low-lying areas along the Charles River at risk.

Owing to these unique characteristics, the City rightly prioritized these areas for coastal resiliency planning. The hope was that the planning process would serve as a testing ground for defining more broadly-applicable design strategies.

Process

To apply more granularity to the Climate Ready Boston vulnerability assessment, updated flood models, development plans, and conditions on-the-ground were analyzed in East Boston and Charlestown. Technical analysis identified the Marginal Street and Border Street waterfronts in

East Boston and the Sullivan Square waterfront in Charlestown to be the most critical pathways for coastal flooding to reach inland areas. These flood pathways were assessed using the Boston Harbor Flood Risk Model developed by Woods Hole Group for the Massachusetts Department of Transportation to better understand the flood pattern, probability, and elevation of flooding in each over time.

The stakeholder engagement process occurred in tandem with the design process, functioning as a means to collect data, ideas, and feedback. Stakeholder engagement activities included:

- Administering an online and print survey in Spanish and English.
- Producing outreach and educational material on the project in both Spanish and English.
- Organizing three community open houses to educate and collect feedback from residents on the project.
- Engaging directly with residents about the project at events organized by the City, civic associations, and interest groups, and engaging with local media.
- Interviewing public agencies, non-profit organizations, and private property owners.

The stakeholder process produced valuable input and feedback from over 400 residents from East Boston and Charlestown. This level of engagement could not have been achieved without the support of Greenovate Boston, the Mayor's Office of Neighborhood Services, and

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A Smarter Approach for Combined Sewer Overflow Reporting

by Martha Fernandes, PE, Associate, Civil Engineer at Stantec, and David Bedoya, Ph.D., PE, ENVSP, Senior Associate, Civil Networks Engineer at Stantec

Reporting accurate and meaningful combined sewer overflow (CSO) data has long been a challenge. That's especially true in New England, where unpredictable weather patterns and increasing frequency of severe weather events create the need for extensive long-term analysis of metering data against predictive models. Variables like the amount of snow on the ground during a rainstorm, temperature fluctuations, or local groundwater levels all impact the ability for consistent measurement and confident reporting.

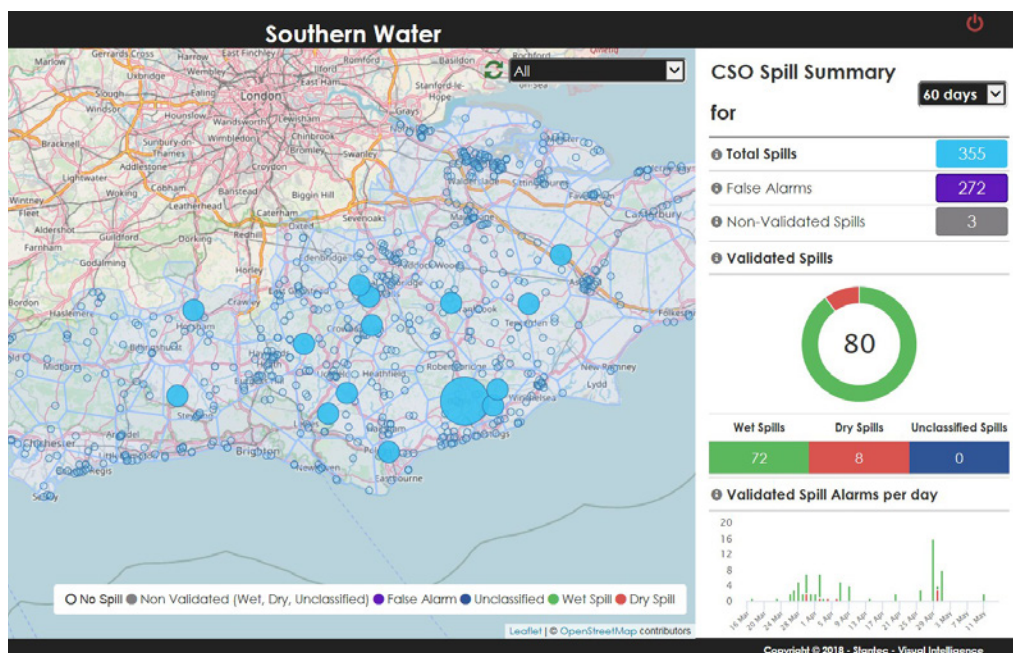
However, a growing need for a real-time approach to CSO reporting—in some cases requiring municipalities to report a CSO spill within hours—is driving a more holistic, consistent approach to monitoring and modelling. Increasingly, agencies responsible for managing CSOs are recognizing the fact that a full picture can't be achieved without taking a systematic approach to the analysis of CSO flows that is supported by comprehensive historic data.

The U.S. Environmental Protection Agency's CSO Control Policy has urged utilities to develop a thorough understanding of the wet weather hydraulic responses of their combined sewer systems. To support continuous system improvement, the EPA directed permittees to follow nine minimum controls, with the ninth control requiring that permittees: "Monitor to effectively characterize CSO impacts and the efficacy of CSO controls."

To adapt to this challenge, Stantec has found themselves increasingly working with clients across New England to advise on strategies for greater accuracy in monitoring and reporting. At the same time, they are also preparing them for a more real-time reporting approach. From CSO projects in South Boston to CSO abatement in Providence, and long-term control plans in between, the principal lesson learned is that if there's one consistency in this work, it is that all clients require a tailored solution.

A multi-pronged approach

New advances in metering technology have allowed municipalities to gain a more accurate picture over levels and flows, but that metering information is only as good as the quality of data that's being recorded. To gain an accurate picture, there is a great deal of follow-up research and data validation needed. There's always the chance of a meter malfunction or an uncertain meter placement (such as along an outfall experiencing high river levels) that can skew results.



Mapped CSO spill summary from the OpsGenie web-based CSO analytics and reporting platform. (Image courtesy of Stantec.)

Metering on its own is not especially informative. The full picture truly comes into view when metering data is paired with modelled simulations that have been calibrated and validated over a long period of time during a range of storms.

As you can imagine, this validation and calibration takes time and resources. Our team works with many municipalities for annual reporting that not only takes into consideration metering and monitoring data but also the impacts of external factors. By taking a parallel review of influences like tidal elevations, river levels, and National Oceanic and Atmospheric Administration (NOAA) data, one is able to paint a more in-depth picture that takes all variables into account.

With the need in many municipalities for a greater frequency in CSO spill report analysis (in some cases requiring CSO spill data to be validated in a monthly report as opposed to annually), how can this extensive analysis and validation be streamlined?

The future of CSO reporting

As with many aspects of our lives, smart technology has the potential to bring a more systematized and adaptive approach to analysis and CSO reporting. Cyclic in nature, the approach focuses on continual learning with frequent interventions to check confidence and, where necessary, apply course corrections.

Stantec has embraced new and emerging technologies to pioneer a tailored platform-based solution through their own internal research and development. Known as Ops Genie/Infinity, this tool provides real-time analysis of combined sewer overflow spill compliance in an integrated platform that can pair with a municipality's current asset management tools to compile all data relevant to operations and maintenance.

This web-based platform allows for the analysis of rainfall in comparison to additional influences like flow metering information, rain gauge data, and regional CSO network-related data. Looking to the future, there's also the potential for machine learning to develop more predictive analytics that consider the connections between a CSO spill and impacts to asset performance in relation to data like rainfall, river level, and pump station operation.

The platform is also capable of providing an early warning, through predictive analytics, that a spill or flooding could occur based on historical data in the platform.

The implementation of an integrated, real-time approach not only helps to streamline the reporting process. These in-depth, and eventually predictive, analytics can serve to help communities with their future capital projects, with compliance to shifting monitoring and reporting regulations, and overall asset management.

Massachusetts Releases First of its Kind, Hazard Mitigation and Climate Adaptation Plan

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

On September 17, 2018, Governor Baker adopted the Commonwealth's first-ever, combined and comprehensive State Hazard Mitigation and Climate Adaptation Plan (SHMCAP). The plan was developed under Executive Order (EO) 569 and will be updated every five years as required by "An Act Promoting Climate Change Adaptation, Environmental and Natural Resource Protection, and Investment in Recreational Assets and Opportunity" passed by the state legislature. In addition to fulfilling the requirements for developing such a plan under EO 569, this combined plan also updates the Commonwealth's State Hazard Mitigation Plan, which is required by the Federal Emergency Management Agency (FEMA) for the Commonwealth to be eligible for certain FEMA grants.

According to the MA Executive Office of Energy and Environmental Affairs (EOEEA), the SHMCAP is the result of a "multi-step planning process with a robust outreach and engagement program to incorporate diverse stakeholders across the Commonwealth in all phases of plan development, including identification of risks and vulnerabilities as well as goal setting and action development. The planning process was

managed through a close partnership among the Executive Office of Energy and Environmental Affairs (EOEEA), the Executive Office of Public Safety and Security (EOPSS), and the Massachusetts Emergency Management Agency (MEMA), and involved a Project Management Team composed of technical specialists from several key state agencies."

As we have reported in previous BSCES News issues, Governor Baker's EO 569 created the Municipal Vulnerability Preparedness (MVP) Program that provides grants for communities to prepare their own MVP plans. Once a community has an approved plan, they become eligible for additional grants to cover the costs of projects that will make the community more resilient to climate change. The MVP Program in many ways compliments the FEMA Hazard Mitigation Planning process. Therefore, to promote efficiency and consistency, EOEEA combined the state's Climate Adaptation Plan with the State Hazard Mitigation Plan into one, new comprehensive plan.

The previous State Hazard Mitigation Plan (which was due to be updated this year) was based on "current" risks from natural hazards.

Current natural hazard risks, at least for flooding, are typically calculated from historic statistical data (i.e. FEMA flood studies) and this data can often be outdated. The new SHMCAP considers risk-based, future climate change projections and develops resiliency strategies accordingly. In addition, the SHMCAP also provides strategies for greenhouse gas emissions (GHG) reductions. As a result, the SHMCAP uses a two-pronged approach to improve sustainability and resiliency in the Commonwealth by reducing GHG impacts and improving the resiliency for both the built and natural environments. The MA SHMCAP can be found on the [state's website](#).

The creation of the SHMCAP is the result of extensive collaboration between engineering, environmental, and business groups, who worked together with EOEEA to help make Massachusetts more sustainable and resilient to future natural disasters. BSCES has been advocating for a Comprehensive Adaptation Management Plan (CAMP) for a few years now as part of the [Massachusetts Climate Change Adaptation Coalition](#) and our efforts have finally paid off!

Updated Envision v3 Sustainability Framework—What You Need to Know

by Alexis Holmdal, PE, PMP, ENV SP, Civil Engineer, Stantec

Now in its eighth year, the Institute for Sustainable Infrastructure's (ISI) Envision® framework is gaining popularity for the planning, design and construction of infrastructure development, and is on track to guide and impact the civil engineering industry much like the LEED® green building program has for architecture.

The Envision framework consists of sustainability "credits", which are effectively a suite of best practices covering a range of social, environmental, and economic issues that typically impact infrastructure projects. The framework is freely accessible to all as a reference to achieve sustainable environmental and community benefits with infrastructure projects; however, an Envision Specialist (ENV SP) must be involved in the project for it to be eligible for an award through ISI's independent, third-party review.

Approximately 50 projects across North America have been recognized with Envision awards to date, while more than 20 projects are currently participating in the verification process. This includes two projects in the Boston area: the Massachusetts Department of Conservation and Recreation's Greenough Greenway project in Watertown and the MBTA's Boston Landing Station in Allston-Brighton.

In April 2018, ISI announced the launch of Envision v3, the next iteration of this framework. Envision v3 adds construction-focused credits for reducing construction waste, improving construction safety, and minimizing construction impacts. Projects will need to be verified post-construction to confirm that credits were achieved. In addition, ISI has expanded the scope of the former Climate and Risk category by renaming it to Climate and Resilience and

including credits for establishing resilience goals and strategies. Envision v3 has also improved on addressing social and economic issues by adding credits for advancing equity and social justice, as well as conducting a life-cycle economic evaluation.

ISI began accepting project registrations under Envision v3 in July 2018. Projects can still register under Envision v2 until December 31, 2018, but verification must be complete by December 31, 2020. Credentialed ENV SP professionals must also enroll this year in an annual credential maintenance program requiring continuing education and an annual renewal fee (waived for full-time students and faculty).

Visit [ISI's website](#) for additional information.

MassCEC Wastewater Technology Program Accelerates Adoption of Innovative Technologies

by Michael Murphy, Director of Water Innovation, MassCEC, Leslie Nash, Project Manager, Innovation and Industry Support, and Dorothy Chaput, Clean Tech and Water Innovation Fellow

The wastewater treatment sector is traditionally risk averse and typically does not have access to research and development funding to test new, innovative water technologies. When a publicly-owned wastewater utility attempts to pilot a newly approved technology, they are often faced with heavy risks that typically outweigh the benefits. Public utilities usually do not have the extensive budgets necessary to endure the long and risky process of implementing the next ground-breaking technology. Public health is central to this and facilities must also meet their daily permit limits. As a result, water innovation companies focused on municipal wastewater treatment have difficulty breaking into this beachhead market and commercializing their technologies.

The New England area, being home to one of the most diversified and innovative water technology industries in the world, is well-equipped to address the challenges of its aging and capital-intensive water infrastructure. And the Massachusetts Clean Energy Center (MassCEC)—a state economic development agency focused on supporting the growth of the Commonwealth's clean energy industry—is at the center of growing the regional water technology industry and helps cutting-edge technology providers gain access to both global partners and markets while also providing early funding support for promising water technologies.

That is why MassCEC is working to help de-risk critical demonstration projects, unlocking public and private investment. Reduction of risk is a goal of a wastewater technology pilot program aimed at incentivizing wastewater treatment technology innovations into the municipal market. By providing support for innovative wastewater technology pilots, MassCEC attracts water innovation companies

and technologies to the Commonwealth, while connecting wastewater authorities and districts to emerging water technologies to reduce energy and water costs, saving ratepayer dollars.

Launched in July 2016, the wastewater treatment technology pilot program provides grant funding for publicly-owned wastewater districts and authorities across the Commonwealth to demonstrate innovative wastewater technologies. Technologies supported by MassCEC include those that enhance the treatment process by reducing energy consumption and may also facilitate recovery of resources (e.g. heat, reclaimed water, electricity) and/or remediation of nutrients such as nitrogen and phosphorus. This program provides a pathway for municipal wastewater districts and authorities to conduct innovative technology pilots that address specific challenges identified by wastewater treatment plant operators. Awarded projects create opportunities for wastewater technology providers to demonstrate technologies and accelerate toward commercial deployment.

While this grant program at MassCEC is relatively young, it has seen strong participation, leveraged funds, and early results. The program has made 10 awards, totaling \$1.1M while leveraging an additional \$1.6M in project funds. Five of these projects are still ongoing, three are just getting started, and two are complete – one at the Town of Amherst Public Works Department and the Upper Blackstone Water Pollution Abatement District in Millbury, MA.

The Town of Amherst, Massachusetts partnered with Clean Membranes (CM), a Massachusetts-based water treatment equipment company, to evaluate the benefits of using an advanced ultrafiltration (UF) technology for the town's



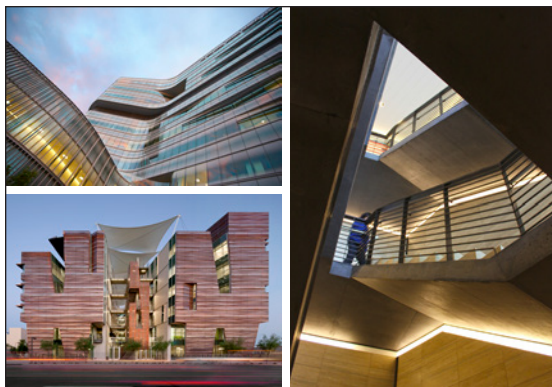
Ultrafiltration polymer bundles within the Gigamem module (left) and upright Gigamem modules (right)



Photobioreactor consisting of the control reactor with bottled CO2 on the left and flue gas CO2 on the right

wastewater treatment facility and its water reuse program. The goals of this pilot project were to demonstrate that this UF technology could 1) meet Massachusetts' requirements for Class A Reclaimed Water, and 2) be a cost-effective alternative to meeting non-potable municipal needs with public water supplies. CM's UF technology is a compact and packaged system which uses the integrated, highly innovative Gigamem® module from Polymem. The key functional component inside the module is the advanced, fouling-resistant Neophil™ PVDF membrane.

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MassCEC Wastewater Technology Program

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There are two competitively unique features to the Gigamem module. First, within each Gigamem module, each hollow-fibrous bundle can be independently installed, inspected, and repaired, thereby overcoming the complications that operators typically face when handling large filtration modules. Second, the Gigamem module has a considerably large surface area relative to other systems, which allows for a decrease in the number of modules that are required within a membrane system; thus, the overall footprint and complexity of the system can be significantly reduced.

Clean Membranes received a \$149,987.93 grant from MassCEC to pilot its innovative approach to reclaiming and cleaning wastewater on the UMass Amherst campus. Over a period of approximately eight months, Clean Membranes demonstrated that its UF membrane technology could cost-effectively treat wastewater from the Town of Amherst Public Works Department to produce Class A reuse water. This classification of water is not potable but is classified for reuse for applications such as irrigation, flushing toilets, and cooling water for electricity generation.

The program's second completed project, located in Millbury at the Upper Blackstone Water District, is one of New England's largest wastewater treatment facilities—serving roughly 250,000 people in the greater Worcester area and managing biosolids for an additional 14 communities. Upper Blackstone partnered with CLEARAS Water Recovery to pilot the CLEARAS Advanced Biological Nutrient Recovery (ABNR®) process to recover nutrients, primarily nitrogen and phosphorus. This pilot project was undertaken to evaluate 1) the impact of using the flue gas generated through the sludge incineration process at Upper Blackstone to support algae production, 2) the ABNR treatment process as a means to reduce conventional pollutants as well as nitrogen, phosphorus, and metals, and 3) the benefits of recycling CO₂ waste emissions.

The Upper Blackstone Water District received a \$129,476 grant from MassCEC to pilot CLEARAS's ABNR process. The ABNR process leverages algae's biological benefits to metabolize and capture dissolved nutrients in the effluent waste stream; it relies on the principles of photosynthesis applied in an Activated Sludge type process. CO₂ is used to provide the carbon

source to fuel photosynthesis and represents one of the largest consumables in the ABNR process. One of the benefits is the production of an algae biomass coproduct with value to potential downstream markets, thereby providing a potential cost recovery mechanism. During the pilot period at Upper Blackstone, numerous samples of the biomass resulting from the ABNR process were characterized for potential market application. The results confirmed that the biomass coproduct has potential market applications in several key markets including specialty chemicals, soil enhancement, and bioplastics. The pilot data suggested that flue gas of quality consistent with that observed at Upper Blackstone can be a viable source of CO₂ to support algal production. The results of the pilot were rather inconclusive and warrant a longer pilot duration for further consideration to more fully understand the potential costs and benefits associated with the integration of flue gas as a CO₂ source.

MassCEC will continue to focus on advancing the clean tech sector in Massachusetts. Water and energy are inextricably and forever linked and MassCEC recognizes that this region is one of the premier technology centers in the world.

Get your Nominations Ready for the 2019 BSCES Sustainability in Civil Engineering Award

by Melissa Carter, P.E., Director of Project Management, Stantec, and chair of the BSCES Committee on Sustainability

BSCES through its Committee on Sustainability will be seeking nominations in January for the 2019 BSCES Sustainability in Civil Engineering Award. The award recognizes civil engineering infrastructure projects that embody the principles of sustainability espoused by the BSCES Committee on Sustainability, ASCE, and the Institute for Sustainable Infrastructure (ISI). Such projects prominently and creatively incorporate the five sustainability indicators of quality of life, leadership, resource allocation, natural world, and climate risk.

In 2019, awards will be offered in two categories differentiating project scale. Small category projects are less than \$10M capital cost and large category projects are greater than \$10M capital cost.

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

Entries for the award will require:

- A completed Entry Form (2019 BSCES Sustainability Award Form to be posted on BSCES web site)—note that the committee has abbreviated this form to be shorter and more concise from prior versions.

- A printout of the Envision™ project assessment scoring table from the ISI website completed by an Envision Sustainable Professional (ENV SP).

The winner will be announced at the BSCES Annual Awards Dinner event in June 2019!

Previous award winning projects:

- 2017: Yentile Farm Recreation Facility (Town of Wilmington)
- 2016: Logan International Airport Consolidated Rental Car Facility (ConRAC) (Massachusetts Port Authority)
- 2015: Alewife Stormwater Wetland (City of Cambridge)

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Neighborhood of Affordable Housing. Stakeholders left their mark on the results of the project, both in terms of their preferences for specific types of resilience strategies and their broader visions for their neighborhoods.

Through an iterative design and stakeholder engagement process, feasible, multi-benefit strategies were developed and built into an implementation plan to mitigate coastal flooding risks for each flood pathway. The plan also established a set of evaluation criteria to guide future design and implementation.

Results

Coastal Resilience Solutions for East Boston and Charlestown proposed a mix of mutually-reinforcing design and policy interventions, providing the City and its partners with a flexible framework for action. On the design side, redundant layers of protective infrastructure were identified, including in-water, shoreline, and upland interventions utilizing parks, harborwalks, natural coastlines, and hardscaped improvements to provide multiple benefits. As

evaluated through the stakeholder engagement process, these measures have the potential to enhance the public realm, social equity, economic opportunity, and waterfront access.

In the year since the report was released, the City of Boston has advanced rapidly in implementing identified near-term actions which will protect many residents, businesses, and critical infrastructure assets.

- Boston Parks and Recreation Department completed construction of the recommended deployable flood wall on the East Boston Greenway, enabling them to block a critical flood pathway in advance of a storm.
- Boston Transportation Department is incorporating in its preliminary designs for the Rutherford Avenue improvements project the recommended elevation of a critical flood pathway through Main Street in Charlestown.
- Boston Planning and Development Agency is exploring funding and financing strategies for proposed resiliency recommendations along

the Border Street flood pathway in East Boston, developing zoning and design guidelines for a new resiliency overlay district, and incorporating resiliency in its upcoming PLAN East Boston land use plan.

- Boston Public Works Department is developing design guidelines for flood barrier typologies included in the plan, such as waterfront berms, elevated Harborwalks, and elevated roadways.

The project's impact can also be observed in actions being taken beyond East Boston and Charlestown. The planning process, stakeholder engagement methods, design concepts, and evaluation criteria are being applied in other City resiliency initiatives, including Climate Ready South Boston, the Moakley Park Vision Plan, Langone Park and Puopolo Playground improvements, and an initiative to illustrate a Harbor-wide resilient open space system concept as an onshore alternative to the Harbor Barrier concept.

President's Report

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Committee, Newsletter Editorial Board, and Fundraising Committee as well as serving as a volunteer for our Public Awareness & Outreach Committee.

The October *BSCESNews* theme is Sustainability. Please read the articles by the chair of the Committee on Sustainability Melissa Carter from Stantec. If you are interested in submitting an article, please contact our Newsletter Editorial Board chair, Bruce Jacobs, at sr.vp1@bsces.org.

Lastly, I wanted to thank all of the 2018–2019 Society Sponsors and Program Sponsors for your contributions to BSCES this year! Your sponsorship allows us to provide these training opportunities, provide scholarships, and allow us to operate our outreach programs. And for individuals who would like to contribute, I ask that you please consider making a tax deductible donation to support BSCES, please use the [Donate to BSCES link](#) on our website (www.bsces.org) where you can donate

any amount. Your individual donation is appreciated and, on behalf of the BSCES, I thank you for your support.

Please do not hesitate to reach out with comments, questions, and feedback, so that we may continue to serve you.

Respectfully submitted,
Geoffrey
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Achieving Sustainable Parking Solutions with PARKSMART Certification

by Teresa C. Vangeli, PE, LEED AP BD+C, Parksmart Advisor, ENV-SP, Technical Principal, WSP USA and Arianna Griffin, AIAS, graduate of the Massachusetts College of Art and Design

Parking structures now have a sustainability rating system that compliments the U.S. Green Building Council's (USGBC) Leadership in Energy and Environmental Design certification program. That system, known as Parksmart is quickly becoming the benchmark for sustainable design in parking structures. Parksmart was developed by parking professionals and the Green Parking Council (acquired by Green Business Certification, Inc. in 2016) specifically for design and management of parking structures. The credits are divided into three categories: Management, Programs, and Technology & Structure Design. This article is a brief description of strategies for using Parksmart on projects. The strategies were developed from experience with actual parking projects.

At the beginning of the project, the Parksmart Advisor and sustainability professionals on the design team will review the project's sustainability goals. With the established project sustainability goals at hand, as well as the parking structure project information, a review of the Parksmart Planning Worksheet will help determine the project's potential Parksmart level of achievement. Due to the inclusion of management and programing credits in the Parksmart certification, it is important that the garage owner and management team support the Parksmart effort. Using the Parksmart Planning Worksheet from the start is a great sustainability design tool for the design team for follow. At this point, the design team can identify suitable credits in Parksmart that meet the Project's sustainability goals.

Project Coordination Strategies:

• **Engagement of the Project Team:** Once the project is under way, the work has only just begun. Though the Sustainability team is responsible for the continued review of the project goals and the measure chosen for pursuit throughout the project, it is helpful to assign discipline champions to groups of credits. For example, the electrical discipline will be responsible for C5-Electric Vehicle Charging Stations, C8-Lighting Controls, C9-Energy Efficient Lighting System, and other electrical infrastructure measures (where C5, C8, and C9 above and similar in following text refer to the Parksmart measure identifier). Often the engineer/architect can develop the required Parksmart documentation at no additional cost to the project when the Parksmart pursuit begins prior to the design phase. The professional who is most familiar with the Parksmart Measure can best write the narrative as well.

• **Meetings:** During regular progress meetings, add sustainability to the agenda. This provides an opportunity for the sustainability team to check in with each group in a collaborative way, asking and answering questions and giving feedback on the different green measures of the project.

After each progress meeting, a member of the Sustainability Team updates the list of pursued measures. They also update any tracking files and records to catalog the progress of the project. This insures that the project is on track and pursued measures can still be met at all stages before completion.

Project Documentation Strategies:

Well organized documentation saves time and allows the team to see the overall sustainability status as well as track the documentation progress. Development of documentation is a collaborative process with the Project Team.

There are several different types of documentation required for the variety of Parksmart measure some of which are easy to gather from the product manufacturer. Some requirements can be easily added to construction documents and calculations at the start of a project. Some documentation can be used for more than one credit.

Here are some tips on pulling together the documents necessary for Parksmart certification:

- **Document Organization:** The Parksmart Planning Worksheet and credit document needs are kept in a project folder file system that is accessible to all team members. For ease of use, it is recommended to have a folder for each Parksmart Measure being pursued on the project. For example, the B11-Bicycle Parking folder, would hold a description of the measure requirements including point criteria and documentation meeting the criteria. During design, plans from the construction drawings, such as an architecture plan with the bicycle parking layout and an electrical plan with lighting would be saved in that folder and periodically updated. During construction, the product information for the bicycle racks would be included.
- **Start Early:** Register with Parksmart as early in the project as possible. Being able to upload completed documentation to the online platform saves time later.
- **Using Industry Standards:** The Precast Concrete Institute and National Parking Association have guidelines for operations and

maintenance, including recommendations for cleaning parking structures. Existing standards are useful to assist the parking management to develop procedures.

- **Construction Documents:** Some documentation can be used for more than one credit especially plans and specifications. For example, the same floor plan may have a layout of the Preferred Parking for B8-Low Emission, Fuel Efficient Vehicles and the C4-Tire Inflation Stations.
- **Highlight Relevant Data:** On a pdf of the construction documents, clearly highlight and label data. For example, Carbon Monoxide Sensors and Programmable Thermostats in the C6-HVAC Systems-Occupied Spaces Measure, are identifiable on the mechanical, electrical and plumbing (MEP) plan when highlighted and labeled.
- **Project Experience:** Where possible, build on project experience. Narratives for sustainable measures from other projects and other rating systems are useful in development of narratives required for Parksmart measures. For example, the Parksmart measure, C3-No/Low VOC Coatings, Paints and Sealants, has become a common sustainability practice. Most building specifications contain the appropriate language.

After all these documents are created they are saved to clearly labeled folders containing the measure summary and everything needed to meet that measure. These are saved under the same project folder as tracking records and goals so everyone on the team can add files, review data, and check the measure's completion status. The wide range of project knowledge needed by the Sustainability Team to create all this documentation is one of the reasons why there are multidisciplinary meetings frequently throughout the project.

These strategies are suggestion based on a method that has worked. These are lessons learned and recommendations for how to have a smooth Parksmart certification experience. The certification structure is still young and with the release of every updated version the bar will be raised and the measures updated. Having a base model to work from and shared advice from other projects will keep the industry moving forward. Parking structures come with their own set of needs and challenges Parksmart is tailored to those needs and challenges and highlights the hard work that parking professionals are putting into creating more sustainable, durable, and longer lasting parking structures.

Featured Group

BSCES Committee on Sustainability (COS)— 2018–2019 Sustainable Infrastructure News and Events Brief

by Melissa Carter, P.E., Director of Project Management, Stantec, and chair of the BSCES Committee on Sustainability

The BSCES COS was established to provide a sustainability resource to BSCES members, increase public awareness of sustainable engineering initiatives, and to take on a leadership role in developing BSCES policies related to sustainable development and engineering in Massachusetts. All BSCES members are invited to participate on the committee at any time. The COS is currently holding meetings the second Monday of every month from 4:00 – 5:00 pm. We typically meet by conference call.

If you'd like more information, please contact Melissa Carter at Sustain.Comm@BSCES.org.

In January 2019, the COS will be seeking nominations for the *2019 BSCES Sustainability in Civil Engineering Award*. This award will be presented at the annual BSCES Awards Dinner in June 2019. The award recognizes civil engineering infrastructure projects that embody the principles of sustainability espoused by the BSCES Committee on Sustainability, ASCE, and the Institute for Sustainable Infrastructure (ISI). More information is provided in the article "Get your Nominations Ready!"

The COS is co-hosting an event with the Younger Member Group (YMG) on November 7, 2018 that will include a site tour of the 2015 project award winner, the Alewife Stormwater Wetland (City of Cambridge), followed by a fall networking social. See the insert included at the end of this newsletter for additional information including how to register for this event.

We are also planning a learning event for early 2019, which will be announced once the details and topic is finalized.

ASCE Sustainability News

Sustainability is one of ASCE's four key programs (along with the Grand Challenge, Infrastructure, and Raise the Bar). The society defines sustainability as "a set of economic, environmental, and social conditions (aka "The Triple Bottom Line") in which all of society has the capacity and opportunity to maintain and improve its quality of life indefinitely without degrading the quantity, quality or the availability of economic, environmental and social resources." ASCE further defines sustainable development as "the application of these

resources to enhance the safety, welfare, and quality of life for all of society."

ASCE's Sustainability website includes the "Sustainability Roadmap" designed to guide members in transforming the profession, searchable resources such as manuals and case studies, links to the Envision® guidance and rating system for sustainable infrastructure, and information on the new "Sustainable Infrastructure Certificate Program." To create and compile these resources, ASCE has a national Committee on Sustainability with several subcommittees focused on sustainability policy statements, white papers, social media, training and outreach, advocacy, and case studies. The ASCE national committee also coordinates with local section committees to advocate and communicate sustainability initiatives.

Also at ASCE's Sustainability website, you can find several ASCE Policy Statements that focus on sustainable infrastructure, including:

- #360 Impact of Climate Change supports research, collaboration, updating design standards, and creating requirements to address climate change.
- #418 The Role of Civil Engineers in Sustainable Development states that civil engineers should be committed to the principles of sustainable development.
- #451 Life-Cycle Cost Analysis (LCCA) supports the use of LCCA principles in the complete design process to wholly and completely evaluate the total cost of projects.
- #488 Greenhouse Gases (GHG) supports strategies to reduce GHG emissions in all lifecycle phases of infrastructure systems.
- #517 United Nations Sustainable Development Goals (SDGs) supports the implementation of the UN SDGs and consideration of affordable financing practices.
- #543 Performance-Based Ownership of Infrastructure recommends that the owners of all civil infrastructure, public and private, become performance-based owners.

Just this summer, ASCE approved a new Policy Statement: #556 Owners Commitment to Sustainability that recommends that public and

private owners incorporate sustainability principles and practices in the development of infrastructure projects.

ASCE is on LinkedIn, Twitter, and Facebook. You'll find local, state, regional, national, and topic focuses groups. If you would like to get connected to ASCE's sustainability network through social media, several handles and hashtags are listed below.

@ASCETweets, @ISIEnvision, @RobinKemperASCE, @ASCEKristina, @blaineASCE, @S_Afeworki, @DeniseNelsonPE, @mikhailchester, @TomBatrone, @JeremyChrzan, @ECzerniejewski, #sustainability4CE, #sustainability, #sustainable, #sustainable infrastructure, #ISIEnvision, #greenengineering, #greeninfrastructure, #resilient, #resilience, #TripleBottomLine, #SDGs

BSCES' Committee on Sustainability engages with ASCE's national committee and provides a sustainability resource to BSCES members. The committee also works with BSCES technical groups to increase public awareness of sustainable engineering initiatives, and to take on a leadership role in developing BSCES policies related to sustainable development and engineering in Massachusetts.

2019 International Conference on Sustainable Infrastructure

Save the Date: The next International Conference on Sustainable Infrastructure (ICSI) is scheduled for November 7–9, 2019 at the Millennium Biltmore Hotel in Los Angeles, CA. This will be the fourth ICSI, sponsored by the American Society of Civil Engineers (ASCE) with support from many cooperating organizations and companies.

The focus of last year's ICSI was "Sustainable Cities for an Uncertain Future 2017" with topics related to the uncertainty regarding the maintenance, redesign, and replacement of necessary urban infrastructure. The 2019 conference builds on that theme with a focus on "Leading Resilient Communities Through the 21st Century". Abstract submissions were due on October 4, 2018. Final manuscripts are due

continued on page 10

BSCES Committee on Sustainability (COS)

continued from page 9

on April 1, 2019. Conference themes include Society and Urbanization, the Los Angeles Olympics, Finance and Management, Practice, and Policy. Other cross-cutting themes include Resiliency and Disaster Recovery; Disruptive Technologies and Practices; Education, Workforce Development, Outreach and Diversity; and Climate Change and Extreme Events. More information on the conference may be found at www.icsiconference.org.

ISI News

In April, the Institute for Sustainable Infrastructure (ISI) announced the launch of Envision® v3. According to ISI, the highlights of Envision v3 are:

- Reorganization/revision of credits: Some credits have been revised, while others have been rewritten or moved to a different category; a few credits were merged.
- Expanded scope credits: New credits on life-cycle economic evaluation, equity and social justice, and sustainable community planning.
- New construction-focused credits: Improve Construction Safety, Minimize Construction Impacts, Reduce Construction Waste, Reduce Construction Energy Use, Reduce Construction Water Use.
- Improved manual format: New section specifically explains what performance improvement looks like for each credit.
- Verification process pathways: Under Envision v3, projects may choose to pursue verification either after the design phase (at or after 95% design completion) or after the construction phase (at or after 95% construction completion).

Read more in Alexis Holmdal's article "Envision v3—What You Need to Know" or [click here](#) for more information.

Massachusetts Municipal Vulnerability Preparedness (MVP) Program

In May, the Commonwealth awarded over \$2 million in grant funding to 82 towns and cities across the Commonwealth to complete climate change vulnerability assessments and develop resiliency plans through the Municipal Vulnerability Preparedness (MVP) program. The MVP program provides support for cities and towns in Massachusetts to plan for resiliency and implement key climate change adaptation actions for resiliency. The program empowers communities to identify hazards and impacts, assess vulnerabilities, and develop and prioritize actions. The program framework is structured around these key aspects:

- Community-led process
- Accessibility
- Partnerships and leverage in the form of coordinated state-wide efforts

Communities who complete the MVP program become certified as an MVP community and are eligible for MVP Action grant funding and other opportunities.

Read more about the MVP program and the State Hazard Mitigation and Climate Adaptation Plan (SHMCAP) in Peter Richardson's article "Massachusetts Releases First of its Kind, Hazard Mitigation and Climate Adaptation Plan."

UMass Center for Rebuilding Sustainable Communities after Disasters

The Center is hosting a 2018 Conference on Thursday, November 8, 2018 at the University

of Massachusetts Boston Campus. The sold-out conference will include presentations related to the topic of Disaster Risk Reduction, Response and Sustainable Reconstruction: Capacity Building for Equitable Planning and Development. Conference themes most likely of interest to BSCES members include:

- Capacity building and investment in public health care systems around the world -- with a focus on Management Capacity in Ebola-Impacted Region
- Local and National Programs for Capacity Building of Architects, Engineers, Planners and Scientists in Natural Disaster Risk Management
- The roles of various agencies (multilateral, national, public, private, local government and communities, non-governmental) in capacity building for disaster management
- Capacity Building to Support Post-disaster Recovery and Reconstruction
- Planning, Policies and Practical Programs Which Propel Change Toward Energy Efficiency Projects
- Innovative Research and Development to Abate Greenhouse Gases and Global Warming.

Papers will be published after the conference. [Click here](#) for more information.

MIT Sustainability Summit

In 2019, MIT is hosting the eleventh annual Sustainability Summit where the theme will focus on sustainable mobility and access. The summit will be held Friday, April 26, 2019 from 8:00 AM – 6:00 PM at MIT's Samberg Conference Center. Tickets to the summit may be purchased by [clicking here](#).

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 December 2018 issue of the newsletter for example, will highlight the Geo-Institute Boston Chapter and feature one or more articles on the theme of Geotechnical.

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 Newsletter Editorial Board Chair Bruce Jacobs at sr.vp1@bsces.org or BSCES Association Manager Rich Keenan at rkeen@engineers.org or at 617/305-4110.

Recent News and Updates

Renew Your 2019 ASCE and BSCES Membership Today!

By acting now to ensure your ASCE membership continues through 2019, you will be able to enjoy all your Society benefits and resources uninterrupted. Early renewal will enter you into drawings for Amazon.com gift cards. The earlier you renew, the more chances to win. Visit asce.org/drawing to renew and enter now. 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.

BSCES Seeks 2019–2020 Legislative Fellow

The Legislative Fellow is a professional engineer and BSCES member who serves as a technical resource at the Massachusetts State House. The Legislative Fellow generally works with the staff of the Joint Committee on Transportation on current issues that can benefit from the input of an engineering professional. Most efforts focus on transportation or environmental initiatives can vary. BSCES is currently seeking applicants for the 2019–2020 Legislative Fellowship. The application deadline is October 31, 2018 for the Fellowship year beginning in January 2019 and ending July 31, 2020. For more information visit the [BSCES Legislative Fellow page](http://BSCES.org/Legislative-Fellow) on the BSCES website and see the application process. You may also contact Rich Keenan with further questions at 617/305-4110 or rkeenan@engineers.org.

See How Your Pay Stacks Up with Free Uses of the ASCE Salary Calculator

The 2018 ASCE Salary Report provides an industry snapshot of civil engineers' compensation—both salary and benefits—by location, discipline, experience level, and other metrics. The report's Salary Calculator allows civil engineers to sort and compare the results to their individual pay and benefits. ASCE members get five free uses of the calculator. The report and calculator are available at asce.org/civil-engineering-salaries.

Join the Discussions at the Updated ASCE Collaborate

ASCE Collaborate is a great way to get help with technical and career-oriented questions, network with members, and offer your advice. The lively discussion groups include professionals and students of every specialty and experience level. ASCE Collaborate was updated recently and is now easier and more enjoyable to engage in. Be sure to visit and engage in the exclusive [Society forum](http://Societyforum.org).

ASCE is in Search of the Next New Faces of Civil Engineering

Do you know a promising Student and/or Younger Member 30 and under? ASCE is now welcoming applications to the New Faces of Civil Engineering collegiate and professional recognition programs for 2019. Since 2003, New Faces has celebrated budding civil engineering leaders. By showcasing young, diverse, and talented engineers, the program shows that civil engineering is an exciting profession open to everyone. [Click here](#) to see the qualifications and how to apply.

Help Develop a New ASCE Standard for Sustainability

You could be part of the creation of a new ASCE standard that will offer guidance on how to make every type of infrastructure sustainable. Applications for the new standards committee are now being accepted. Interested members can complete an [online form](#). Questions? Contact ASCE standards administrator James Neckel at jneckel@asce.org or 703-295-6176.

MALSCE Education Trust Memorial Scholarship

The MALSCE Education Trust was founded to enhance the profession of land surveying and civil engineering in Massachusetts by providing scholarship and education grants for the students of land surveying and civil engineering who are Massachusetts residents. The Trust is currently accepting applications for three scholarships including its Memorial Scholarships, which are awarded to students presently enrolled full time (days) as an undergraduate in an accredited college, university, junior college, technical institute or community college and majoring in land surveying, civil engineering, or environmental

engineering. Applications for these scholarships are due October 31, 2018. [Click here](#) to learn more about the Memorial Scholarship requirements and application process.

BETA Group, Inc. Acquires Nover-Armstrong Associates, Inc.

New England-based engineering and landscape architecture firm, BETA Group, Inc., has acquired Nover-Armstrong Associates, Inc. (Nover-Armstrong), an environmental services firm based in Carver, MA. The merger of these two firms further expands BETA's environmental services expertise and resources. Nover-Armstrong's staff will complement BETA's existing services, while bringing further in-house expertise to the group including hazardous material building surveys, ecological services, and expert environmental permitting. These services will continue to be provided to municipal, private, and state agency clients throughout the region.

Hayden Consultants, Inc. Joins GEI Consultants, Inc.

GEI Consultants, Inc. (GEI), one of the nation's leading engineering and science consulting firms recently announced that Hayden Consultants, Inc. (Hayden), a Dallas-based civil engineering consulting firm has joined the company. The merger of the two firms will strengthen GEI's operations in Texas by bringing significant depth in the transportation, infrastructure, and water resources market sectors to GEI. The new combined operations will provide the opportunity to serve new and existing clients in the rapidly growing Texas market.

GPI and S3E Engineers of Virginia Join Forces

S3E Engineers, Inc. located in Springfield, VA has joined Greenman-Pedersen, Inc. (GPI), a multi-discipline engineering firm that has provided professional engineering services throughout the United States for over 50 years. S3E has provided mechanical, electrical, plumbing, and structural engineering services for private and public clients for over 30 years. Their experience allows GPI to diversify into additional market sectors such as Assisted Living, Laboratories, Libraries, and Medical Facilities.

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.

Lunchtime Transportation Webinar Series: Complete Streets

Sponsored by the Program Committee

Thursday, October 25, 2018

MassDOT Mezzanine Conference Room
Boston, MA

12:00 PM – 1:30 PM

Webinar Moderator:

Marshall Elizer, PE, PTOE, Senior Principal,
Gresham, Smith and Partners

With Local Guest Speakers:

Peter Furth, PhD, Professor of Civil Engineering,
Northeastern University

Eileen Gunn, Municipal Grant Programs

Administrator, MassDOT Highway Division

Bill Scully, PE, Vice President, Green
International Affiliates

Complete Streets can benefit all communities, regardless if they are rural, suburban or urban. Complete Streets are intended to be safe, comfortable, and convenient for all users regardless of age or ability—motorists, pedestrians, bicyclists, and public transportation riders. Join us as BSCES Program Committee offers the opportunity to watch an ASCE webinar at a fraction of the cost, earn PDH/CEU's, meet colleagues, as well as listen to local experts discuss the webinar topic.

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

Alewife Wetland Tour & Networking Social

Sponsored by the Committee on Sustainability and the Younger Member Group

Wednesday, November 7, 2018

Alewife Reservation Education Amphitheater
Cambridge, MA

4:00 PM Site Tour

5:30 PM Fall Social Networking Event

Join the Committee on Sustainability and the Younger Member Group for a tour of the Alewife Stormwater Wetland Project in Cambridge, MA. The tour will be led by a representative of Stantec, one of the lead firms for the planning, design and construction phases. Following the site tour, join us for a networking event at Bertucci's on Alewife Brook Parkway in Cambridge.

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

Plan to Attend!

Thursday, November 15, 2018

TECET Career Fair

Wyndham Boston Beacon Hill, Boston, MA

3:00 PM – 6:00 PM

The Engineering Center Education Trust (TECET) would like to invite juniors and seniors who are majoring in engineering or land surveying to attend the TECET Career Fair. This event has attracted dozens of employers with engineering and land surveying-related job openings and internships. The Career Fair also attracts several institutions of higher education offering graduate programs of interest to students with engineering degrees.

The Career Fair is free for all students! Light refreshments will be provided.

[Click here](#) for more information.

Arthur Casagrande Lecture

Sponsored by the Program Committee

Thursday, November 8, 2018

Hyatt Regency Cambridge, Cambridge, MA

5:30 PM Social Hour and Dinner

7:30 PM Presentation

Speaker: Bengt H. Fellenius, Dr. Tech, P.Eng

Available case histories reporting observations on full-scale piled rafts show that the settlement response to applied load can be modeled as that for an equivalent flexible pier due to compression of the piles and the soil matrix plus that of an equivalent raft for compression of soil layers below the pile toe level. Piles and soil, combined as a pier, have strain compatibility, which requirement determines the distribution of load between the piles, the contact stress, and the load-transfer movement of the piles. The presentation will be illustrated by examples of case histories and analyses results with emphasis on how to include settlement analysis in the design of piled foundations.

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

Presentation Workshop

Sponsored by the Younger Members Group

Thursday, November 29, 2018

CDM Smith, Boston, MA

5:30 PM Registration & Dinner

6:00 PM Workshop

Speaker: Joanne Linowes, Founding Principal,
Linowes Executive Development Institute

Whether you are presenting to a client, at a public hearing, or energizing a team, the power of your presentation skills can make the difference. Join the BSCES Younger Member Group for a presentation workshop and gain valuable training on public speaking and effective presenting.

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

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2018–2019 BSCES Program Sponsors

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Wentworth Institute of Technology B.S. and M. Eng. in Civil Engineering Programs | Weston & Sampson | WSP

Upcoming Events *(continued from page 12)*

Boston Day-Summit

*Sponsored by the Construction Institute
Boston Chapter*

Friday, November 30, 2018

Revere Hotel Boston Common, Boston, MA

7:30 AM – 5:00 PM

Speakers include:

*Luciana Burdi, Deputy Director of Capital
Programs and Environmental Affairs, Massport*
*Anne Gorczyca, Director of Design Build Project
Management, MassDOT*

This encompassing summit should be attended by anyone with an interest in construction and construction engineering; including structural engineers, geotechnical engineers, civil engineers, architects, planners, contractors, real estate developers, construction law and facility managers, both public and private.

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

Unmanned Aerial Vehicles—Another Tool for Assessing Structures

*Sponsored by the Structural Engineering Institute
Boston Chapter*

Monday, December 3, 2018

VHB Office, Watertown, MA

6:00 PM Registration, Social & Dinner

7:00 PM Presentation

Speakers:

*Robert Blunt, PE, Project Manager-Chief
Inspector, VHB*

*Anthony Darlington, Technology Specialist-
Drone Operator, VHB*

During this presentation, the speakers will discuss the highlights of drone-based bridge inspection projects completed around New England, including the planning and preparation that preceded the flights, the methods used to obtain the inspection findings, and lessons learned. They will also show short videos from inspections; highlight upcoming capabilities of drone-based inspection; and provide examples for other uses for drones in engineering projects beyond inspection.

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

YMG Holiday Meal Drive

**Deadline to donate is
November 21, 2018**

The goal of the Holiday Meal Drive is to provide Thanksgiving meals to families in need in the Greater Boston area. One in three people served by the Greater Boston Food Bank's hunger relief efforts are children and 72% of families served rely on food pantries to have enough food to eat. YMG is asking all BSCES members to consider donating a minimum of \$20 to the YMG team page on the GBFB website. The YMG fundraising goal is \$2,500 which will provide over 500 nutritious Thanksgiving meals!

Click here to donate.

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

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 rkeen@engineers.org.

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

Civil PE, PLS, & EIT Wanted—Engineer-in-training (civil), professional land surveyor, and registered professional civil engineer wanted for growing site design company based in Winchester. Three (3) positions to be filled. Ideal candidate is someone with accredited degree in civil engineering or land surveying. Experience with site design including grading and drainage design, site layout, and the preparation of stormwater reports is needed. Position requires a minimum of 3 years of professional experience. Salary is commensurate with experience and qualifications. Waterfield Design Group is a full service site design company.

Besides our extensive US portfolio, **join our team and contribute to the life changing work we do in emerging and developing nations**—make a difference in the world using your civil engineering skills and abilities.

Send inquiries to Craig at cmiller@wdgrp.com.

WDG | Waterfield Design Group



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M. Eng. in Civil
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Weston & Sampson
WSP

Lunchtime Transportation Webinar Series

Complete Streets Design

Marshall Elizer, P.E., PTOE

With Local Guest Speakers

Michelle Danila, P.E., PTOE, Complete Streets Engineer, MassDOT Highway Division
Peter Furth, PhD, Professor of Civil Engineering, Northeastern University
Eileen Gunn, Municipal Grant Programs Administrator, MassDOT Highway Division
Bill Scully, P.E., Vice President, Green International Affiliates

Date: Thursday, October 25, 2018

MassDOT Mezzanine Conference Room, 10 Park Plaza, Boston, MA

12:00 PM – 1:30 PM Presentation (webinar presentation & open forum with guest speakers) & Brown-Bag Lunch

Complete Streets can benefit all communities, regardless if they are rural, suburban or urban. Complete Streets are intended to be safe, comfortable, and convenient for all users regardless of age or ability—motorists, pedestrians, bicyclists, and public transportation riders. This webinar provides guidance on current and evolving design practice for Complete Streets. The material covered will define the typical goals of Complete Streets projects followed by review of the leading design guidance that can be used to achieve those project goals.

Join us as BSCES offers the opportunity to watch ASCE webinars at a fraction of ASCE cost, earn PDH/CEU's, meet colleagues, as well as listen from local "experts" speak briefly on the webinar topic.

The official ASCE course description can be found [here](#).

Registration deadline extended until Wednesday, October 24, 2018

Registration Fees - Members/Public Sector \$25, Non-Members \$35, Students \$5

Information/Registration:

Register to attend this meeting and pay by credit card online at <https://bit.ly/2BVfPCS>. 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.

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Wednesday, November 7, 2018

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4:00 PM Site Tour; 5:30 PM Fall Social Networking Event

Join the Committee on Sustainability and the Younger Member Group (YMG) for a tour of the Alewife Stormwater Wetland Project in Cambridge, MA. The tour will be led by Stantec, one of the lead firms for the planning, design and construction phases. Following the site tour, join us for a YMG networking event at the Bertucci's on Alewife Brook Parkway in Cambridge.

The City of Cambridge received the 2015 BSCES Sustainability in Civil Engineering Award for this project. The project began in 2001 as a revised element of the MWRA's plan to control combined sewer overflows to the Alewife Brook. The City worked closely with DCR and MWRA to create a wetland system that achieved the goals of sewer separation and met the ecological and recreational objectives of the DCR Master Plan for the Alewife Brook. A multi-use pathway constructed by Massachusetts Department of Transportation adjacent to the wetland also provides an important transportation connection to the Alewife MBTA Station and Minuteman Bikeway.

Registration Deadline: Monday, November 5, 2018

\$15 Members, \$20 Non-Members

\$10 Public Sector Members, \$15 Public Sector Non-Members)

\$5 Senior Members (65+), Students

Information/Registration:

Register to attend this meeting and pay by credit card online at <http://bit.ly/2A4NNDD>. To register online for an event at the BSCES member rate you must login using your BSCES assigned username and password. If you do not know your BSCES member login information call 617/227-5551. You can also register for this event by mail or email. To do so, download and complete a [BSCES Event Registration Form](#) and follow the submission instructions. Cancellations received after November 5, 2018 and no-shows will be billed.

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Arthur Casagrande Memorial Lecture

Bengt H. Fellenius Dr. Tech, P.Eng

Thursday, November 8, 2018

Hyatt Regency Cambridge
575 Memorial Drive Cambridge, MA 02139
Social Hour: 5:30 PM to 6:30 PM
Dinner: 6:30 PM
Presentation: 7:30 PM

Presentation description:

Available case histories reporting observations on full-scale piled rafts show that the settlement response to applied load can be modeled as that for an equivalent flexible pier due to compression of the piles and the soil matrix plus that of an equivalent raft for compression of soil layers below the pile toe level. Piles and soil, combined as a pier, have strain compatibility, which requirement determines the distribution of load between the piles, the contact stress, and the load-transfer movement of the piles. Interior piles engage the soil from the pile toe level upward in contrast to a single pile, which engages it from the ground downward. The response between the interior and perimeter piles differ. Particularly so in non-subsiding and subsiding environment, because perimeter piles can be subjected to downdrag and drag forces, while downdrag or drag force will have minimal effect on the interior piles. In non-subsiding environment, it is advantageous to make perimeter piles shorter than interior piles, while, in subsiding environment, perimeter piles best be longer. The load distribution across the raft is also governed by the degree of rigidity of the raft and by the difference in dishing at the pile toe level and in the dishing of the actual raft. "Bearing capacity" of pile and raft has little relevance, if any, to a rational design.

The presentation is illustrated by examples of case histories and analyses results with emphasis on how to include settlement analysis in the design of piled foundations.

Registration Deadline: Thursday, November 1, 2018

Registration Fees (Members \$130, Non-Members \$160)
(Public Sector Members \$110, Public Sector Non-Members \$130)
(Senior Members (65+), Students \$50)

Information/Registration:

Register to attend this meeting and pay by credit card online at bit.ly/2zJ5AzW. To register online for an event at the BSCES member rate you must login using your BSCES assigned username and password. If you do not know your BSCES member login information call 617/227-5551. You can also register for this event by mail or email. To do so, download and complete a [BSCES Event Registration Form](#) and follow the submission instructions. Cancellations received after November 1, 2018 and no-shows will be billed.



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YOUNGER MEMBER GROUP



Presentation Workshop

Thursday, November 29, 2018

5:30 PM Registration & Dinner

6:00 PM Workshop

Featuring:

Joanne Linowes

Founding Principal, Linowes Executive Development Institute

Whether you are presenting to a client, at a public hearing, or energizing a team, the power of your presentation skills can make the difference. Join the BSCES Younger Member Group for a presentation workshop featuring Joanne Linowes, Founding Principal, Linowes Executive Development Institute (LXDi) and gain valuable training on public speaking and effective presenting. Joanne will be touching on concepts from last years presentation workshop but will mainly be introducing new material and methods at this years workshop to help you succeed in your professional endeavors!

Registration Information

Register and pay by credit card online at <https://bit.ly/2PbDJgY>. To register online at the member rate you must login using your BSCES assigned username and password. If you do not know your login information, call 617/227-5551. To register by mail or email, complete an [Event Registration Form](#) and follow the submission instructions.

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Where:

CDM Smith
75 State Street, #701
Boston, MA

Registration Fees:

\$60 Member

\$75 Non-Member

\$55 Public Sector
Member

\$60 Public Sector
Non-Member

\$30 Student Member

Registration

Deadline:

November 27, 2018

Online Registration:

<https://bit.ly/2PbDJgY>

Registration fee includes dinner. Space is limited, register today!

For more information, contact
YMGB@BSCES.org



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Boston Day-Summit

Construction Institute Boston Chapter

Sponsored by: **Robinson+Cole**

Friday, November 30, 2018

Revere Hotel Boston Common

200 Stuart Street, Boston, MA

7:30 AM Registration; 7:50 AM – 5:00 PM Speakers, Presentations, & Vendor Exhibits

This full-day seminar will take on the typical ASCE conference format. It will begin with an opening keynote breakfast presentation, a keynote lunch presentation and a series of technical sessions separated by networking breaks and exhibitor interaction. Breakfast and lunch will be provided. Each technical session will include thematically grouped presentations, including a mix of project case studies, technical review, legal issues in construction, technology and innovative planning and construction techniques, and specific construction projects and detailed challenges.

The event should be attended by anyone with an interest in all things construction and construction engineering (history through innovative techniques) including structural engineers, geotechnical engineers, civil engineers, architects, planners, contractors, real estate developers, construction law and facility managers, both public and private.

Registration Deadline: Tuesday, November 26, 2018

\$200 Members, \$250 Non-Members

\$170 Public Sector Members, \$200 Public Sector Non-Members

\$70 Student Members, \$70 Senior Members (65+),

\$2,000 Table of 10

Information/Registration:

Register to attend this meeting and pay by credit card online at <http://bit.ly/2QYVII3>. To register online for an event at the BSCES member rate, you must login using your BSCES assigned username and password. If you do not know your BSCES member login information, call 617/227-5551. You can also register for this event by mail or email. To do so, download and complete a [BSCES Event Registration Form](#) and follow the submission instructions. Cancellations received after November 15 and no-shows will be billed.

A list of confirmed presenters is attached. Presentation times and titles to follow.



This presentation provides Six Professional Development Hours (6 PDHs)

Supported by the staff of The Engineering Center Education Trust

Boston Day – Summit
Construction Institute Boston Chapter
Friday, November 30, 2018
Confirmed Presenters

Morning Keynote Speaker:

Luciana Burdi, Deputy Director of Capital Programs and Environmental Affairs, Massport

Afternoon Keynote Speaker:

Anne Gorczyca, Director of Design Build Project Management, MassDOT
Alex Murray, Project Manager Design Build, MassDOT

Featured Presenters:

Paul Pedini, Vice President of Operations, Skanska

Joe O'Farrell, Managing Director of Harvard Capital Projects, Harvard University

David Ponte, Principal Project Director, Construction Claims Manager, Arcadis

Joe Barra, Partner, Robinson Cole LLP

Brian Brenner, Principal, Stantec
Tim McLaughlin, Senior Vice President, SPS New England

Paul Schuman, Senior Project Manager, Simpson Gumpertz and Heger

Robbie Burgess, Associate Principal and Manager of Construction Services, Howard Stein Hudson

Seth Hamblin, Principal, Geosciences Testing and Research, Inc.
Les Chernauskas, President, Geosciences Testing and Research, Inc.



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Unmanned Aerial Vehicles – Another Tool for Assessing Structures

Robert Blunt, PE

Project Manager-Chief Inspector, VHB

Anthony Darlington

Technology Specialist-Drone Operator, VHB

Monday, December 3, 2018

VHB Office, 101 Walnut Street, Watertown, MA 02471 (plenty of parking available)

6:00 PM Registration, Social & Dinner; 7:00 PM Presentation

Recent advancements in unmanned aerial vehicle (UAV or “Drone”) technology can now provide owners with the capability and flexibility to obtain visual inspection and assessment data of their infrastructure quickly, accurately, at low cost, and with significantly reduced impacts to the public.

During this presentation, we will discuss the highlights of drone-based bridge inspection projects completed around New England, including the planning and preparation that preceded the flights, the methods used to obtain the inspection findings, and lessons learned. We will also show short videos from inspections; we will highlight upcoming capabilities of drone-based inspection; and we will show other uses for drones in engineering projects beyond inspection.

Registration Deadline: Thursday, November 29, 2018

\$30 Members, \$40 Non-Members

\$20 Public Sector Members, \$30 Public Sector Non-Members

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

Information/Registration:

Register to attend this meeting and pay by credit card online [here](#). To register online for an event at the BSCES member rate you must login using your BSCES assigned username and password. If you do not know your BSCES member login information call 617/227-5551. You can also register for this event by mail or email. To do so, download and complete a [BSCES Event Registration Form](#) and follow the submission instructions. Cancellations received after November 29th and no-shows will be billed.



This presentation provides 1.0 Professional Development Hours (PDH)

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Help the YMGB Fight Hunger this Thanksgiving Season!

BSCES YMGB Holiday Meal Drive

Deadline to donate is 11/21/2018



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

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

- The goal of the Holiday Meal Drive is to provide Thanksgiving meals to families in need in the Greater Boston area.
- According to the GBFB website, 1 in 3 people served by their hunger relief efforts are children and 72% of the families they serve rely on food pantries to have enough food to eat.
- YMGB is asking all BSCES members to consider donating a minimum of \$20 to the YMGB team page on the GBFB website.
- The YMGB fundraising goal is \$2,500 (which will provide over 500 nutritious Thanksgiving meals!).

[*YMGB team page*](#)

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