

September 2017 Volume 64, Number 1

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September Section Meeting: WMATA's SafeTrack

By Stephen Powers, PE, Boundary Stones Committee Chair

The SafeTrack program is an accelerated track work plan to address safety recommendations and rehabilitate the Metrorail system to improve safety and reliability. The program began in June 2016 with a goal of achieving three years' worth of maintenance work in a single year. The program provided expanded maintenance windows on weeknights, weekends, midday hours and through a series of 16 "Safety Surges" – long duration track outages for major projects in key parts of the system. Through the conclusion of the SafeTrack program, WMATA was able to renew over 1/3 of the Track and Structures infrastructure significantly reducing rail defects and providing a noticeably smoother and quieter ride for customers. Through the coordination of the program WMATA was also able to provide access for the accelerated improvements of other critical components such as its tunnel lighting, signaling systems and power cable upgrades. WMATA has already seen the benefits of the program result in reductions in smoke/fire incidents and Rail Service Interruptions. Using many of the lessons learned from the SafeTrack program WMATA has begun the work to institutionalize the improvements made in work planning and execution through

the generation of its six (6) new preventative maintenance programs and the annual maintenance and construction planning processes.

About the Speaker:

Tiffani Jenkins is a degreed Electrical Engineer with a focus on operational maintenance coordination and planning. She joined WMATA in 2005 as a Power Engineer working with the Metro Matters traction power upgrade program. She has since worked throughout WMATA's organization holding such positions as Safety Operations Manager, Maintenance Control Center Superintendent and most recently as the Project Manager for the Safe Track Program. Ms. Jenkins has provided oversight for a variety of programs throughout the course of her career at WMATA ranging from Dulles Phase 1 extension safety certification program to the management of the Maintenance Operations Control Center and Track Access groups. She currently oversees the new Maintenance of Way Engineering Work Planning group as the Acting Deputy Director. ■



Please join us on **Tuesday, September 19**, at the Hilton Arlington, 950 North Stafford Street, Arlington, VA, on the second floor in the Gallery Ballrooms. Parking is available at the hotel (\$10), at the Ballston Mall garage (\$1 after 6 pm), and on the street (free after 6 pm). The Hilton is on the same block as the Ballston Station on Metro's orange and silver lines. Registration and networking will be from 6–6:45 pm, followed by dinner. The program will end by 8:30 pm. The cost is \$45 for those preregistering, \$10 for students and \$55 for walk-ins, as space allows. One Professional Development Hour is available to attendees. For questions, please contact [Jordan Pitt](#). Please click [here](#) to register by **September 14**.

Note that no-shows will be charged the full registration fee. We welcome walk-ins, including any registrations made after the guaranteed number of guests is provided to the hotel. However, the cost for walk-ins is higher because the Section is charged accordingly by the hotel for late registrations.

Supercharging Your Career

By Ranjit Sahai, PE, F.ASCE

ASCE hosted the two-day 2017 Younger Member Leadership Symposium (YMLS) in Reston on August 5–6. One of the highlights of the event was an introduction to ASCE's new *Supercharging Your Career* program developed by the Committee on Leadership and Management (CLM). The program is now available to all ASCE Sections and Branches for use in delivering to younger members. The

program's focus is on helping engineers develop "soft skills" required to plan their careers, successfully lead teams, communicate clearly, ensure their projects succeed, and facilitate initiatives for incorporating change and innovation within their organizations. The program has been years in the making and the first two of five modules in this program were officially unveiled. For details about the program,

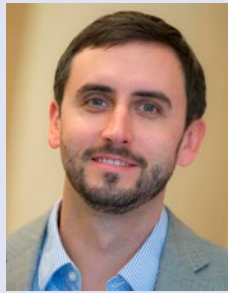
navigate to <http://asce.org/supercharge-your-career/> and to have program modules taught to NCS younger members, contact [Ranjit Sahai](#), PE, F.ASCE, who delivered the introduction to the program at YMLS. You may also contact [Robert Wolff](#), PE, a member of CLM and the program's promoter. The National Capital Section provides PDH credits to attendees of *Supercharging Your Career*. ■

President's Corner

As summer winds to a close, the ASCE National Capital Section is back in full swing as we gear up for another year of great events for our members. If you're a fan of the summer, like me, then let us take a moment to mourn the passing of those long, sunny days and balmy nights. But not to worry! We have a multitude of exciting things planned for the coming months to keep you distracted from those daydreams of lazy, hot summer days by the pool, with drink in hand (but I digress...).

First let me say that it has been such a pleasure to serve as your Section's President over the past year. Through my role as President, I've had the opportunity to meet some amazing civil engineers, both in our local community and across the nation. I would like to thank you all for your support and for sharing your thoughts and insight about how we can continue to make the ASCE-NCS a leading professional organization in our nation's capital. I would especially like to thank our Board of Directors and the many active members that have helped make our events a success over the past year. Thank you all (you know who you are!).

Boy, has it been a busy year! 2017 saw the emergence of the Dream Big IMAX film, and the NCS worked closely with ASCE Headquarters in Reston to promote the film to our local membership and other organizations. In fact, we partnered with a local volunteer



organization, RESET, to provide opportunities for elementary school students to see the film. The RESET program has an ongoing goal to partner with professional engineers and scientists with elementary school teachers in order to help children develop a passion for science and

STEM fields. Through that partnership and our financial and volunteer contributions, we were able to provide nearly 600 local elementary school students with the opportunity to visit the Smithsonian National Air & Space Museum to see the Dream Big IMAX film and take in the wonders of the museum. I can attest to their excitement by letting you know that I signed about 50 autographs as the "movie producer" (so the kids were told by their chaperone). The NCS also held outreach events with our five local Civil Engineering University ASCE Chapters to talk about civil engineering and to answer students' questions about life as a civil engineer after college. I am very proud of all the strides that our Section has made related to STEM outreach and I appreciate all the hard work by our members that have dedicated much of their personal time for those efforts.

Moving forward, we are excited to kick off the coming year at our September 19 dinner meeting with a feature presentation by WMATA about the results of the Metro SafeTrack program. I am also proud to say that we are making strides towards establishing our first Branch within the

National Capital Section – the Reston Branch. Under the leadership of Lisa Anderson, the Reston Committee has gained significant interest and attendance at its events. There has been a widespread interest in formation of a Reston Branch and it is currently being discussed at the Section and Regional level. Stay tuned for more information over the coming months as the Reston Committee continues to provide excellent professional development and networking opportunities for NCS members and our colleagues in the Reston and Fairfax County areas.

Finally, I would like to close by saying that it has been a great honor for me to represent and serve the members of the ASCE National Capital Section over the past year. I look forward to the year ahead. As always you can feel free to contact me at president@asce-ncs.org for any questions or comments. I encourage you to stay involved and help grow our Section over the coming year. See you soon!

Sincerely,



Jordan Pitt
President, ASCE National
Capital Section

Newsletter

Jim Palmer, Editor

October 2017 Issue Deadline: September 20, 2017

To Submit Articles: newsletter@asce-ncs.org

NCS eNewsletter Archives: go to www.asce-ncs.org and view along the sidebar.

Address Changes: Call 1-800-548-ASCE, e-mail member@asce.org, visit www.asce.org, or write: ASCE – Membership, 1801 Alexander Bell Drive, Reston, VA 20191. Include your membership number.

National Capital Section

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Ranjit S. Sahai, Previous Past President

Committee Chairs

Please refer to the [NCS website](http://www.asce-ncs.org) for a current list of NCS committees and chairs.

Strategic Planning Dominates Board Meeting in Baltimore

As your Region 2 Director it is my privilege to represent you on the ASCE Board of Direction. At the July 28–29 Board meeting in Baltimore, members rolled up their sleeves and did a deep dive into strategy planning in what proved to be a very productive week-end. We began the process in January, looking at ways to sharpen goals, strategies, and metrics for our work as a Board and for ASCE. We work-shopped six goal statements and prioritized a variety of strategies and programs to achieve each. It's exciting to see diverse perspectives combining to form a cohesive and focused strategy for our Society. Additional highlights were as follows:



- The Board voted to adopt a new canon to the Society's Code of Ethics that expresses a professional obligation to provide fair and equal treatment for all (see story in [ASCE News](#)).

- The Board received annual reports from several committees, which generated valuable debate and high-level conversation among Board members. The Member Communities Committee stressed the importance of student transition as we continue to develop new strategies for engaging and retaining our Younger Members.

- The Task Committee on Governance Structure reviewed Board feedback. The Board voted in a straw poll to allow the Committee to revise its final recommendations for the next Board meeting.

- The Committee on Sustainability presented the four priorities of its strategic roadmap – sustainable project development, standards and protocols, expanding technical capacity, and communication and advocacy.

- Several Department Heads and Chairs from around the country addressed the Board, calling for ways to collaborate with ASCE to attract students to civil engineering programs by fostering more innovation and creativity in college curricula. The Board agreed to work on this objective.

The next ASCE Board meeting is Oct. 7–8 in New Orleans, kicking off the ASCE 2017 Convention. **The 2017 ASCE Region 2 Assembly will be Saturday November 4 at the University of Pittsburgh.** Please [email John Casana](#) ideas on how ASCE can better serve you and our profession. Thanks.

Until then,

John Casana, PE, F ASCE, D WRE, LEED AP
ASCE Director, Region 2

Section's Scholarship Trust – Your Section Voluntary Contribution

By Bernie Dennis, M.ASCE

As you may know, our Section's Scholarship Trust annually awards scholarships to high academic civil engineering students at the 5 universities in our Section boundary: Howard University, Catholic University, George Washington University, University of District of Columbia, and George Mason University. We need your help with this effort.

You will be receiving your annual ASCE membership dues request soon. On the

form, the block for Section Voluntary Contribution allows you to contribute directly to our NCS Scholarship Trust. Life Members are encouraged to consider giving at a higher level with their annual renewal since they no longer pay the full dues. Your contribution will have a direct impact on the future of the Civil Engineering profession.

Please be generous in your contribution – no contribution is considered too small.

Other sources of funding for our Trust include the Past Presidents Annual Contributions, Memorial Contributions, and Corporate Contributions.

If you would like additional information on the Scholarship Trust or contributions, please contact Bernie Dennis, Chairman of the ASCE-NCS Scholarship Trust at berniedennis@mindspring.com. ■

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Contaminated Needle Incinerator Earns Case Western Students 2017 ASCE Sustainable Development Award

By Ben Walpole, Associate Editor for ASCE News

The ASCE National Committee on Sustainability recognized the innovative humanitarian work of a Case Western Reserve University student team with the 2017 ASCE Sustainable Development Award at the EPA's P3 National Sustainable Design Expo. This year's EPA P3 Expo was held at the TechConnect World Innovation Conference and Expo from May 14–17, 2017 in Washington, DC.

The P3 – people, prosperity, and the planet – program features a college competition in two parts. A select group of student teams earn \$15,000 grants during the school year to develop their potential solutions for a sustainable

future. They then bring their designs to the Expo in Washington, DC, to compete for the P3 Award and a grant of \$90,000.

The ASCE Committee on Sustainability sponsors the ASCE Sustainable Development Award of \$1,000, recognizing the student team whose project solves a pressing need in a developing country based on the project's simplicity of design, its use of local raw materials, and its widespread effect on quality of life for the developing region.

Case Western won for its electrical incinerator for hazardous medical waste disposal, specifically designed for use in Uganda. The device collects syringes

and segregates the steel needles for disposal in a separate, electrically powered incinerator.

The project has also strengthened the collaboration between engineering and social science students at Case Western and Makerere University in Kampala, Uganda.

The panel of ASCE judges included Venisri Nagulapati, PE, M.ASCE, Satish Soni, PE, M.ASCE, and Richard Cramond, PhD, PE, F.ASCE.

Cramond was particularly impressed by the prototype designed by the Case Western team.



"They had made a mockup of their system, which in essence let you clip off needles without handling them, and transfer them into an induction heater," Cramond said. "It's a unique solution for destroying the contaminated needles, which is a problem all over the world.

"For the students it gives them the opportunity to go solve real problems. A lot of it is theoretical, but it is all aimed at a real problem." ■

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Robert A. Pronier

Senior Vice President / Regional Manager
Robert.Pronier@cardno.com
1881 Campus Commons Drive, Suite 103
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The Emerging Revolution

By Ranjit S. Sahai, P.E., F.ASCE

The first revolution in surface transportation saw a shift in motive power from muscle to motor, i.e. from bicycle to automobile. The revolution cut down time five-fold to travel non-stop from the West to the East coast: 10-days for a bike vs 2-days for an automobile.

The tools we use to create design documentation, i.e. engineering drawing, also saw a revolutionary shift from paper drafting to computer-aided design and drafting. The revolution made it possible to extract engineering drawings automatically from 3D design models – an utterly new way to document engineering design.

Another revolution is emerging that is transforming how you model engineering design and how you use the model to construct the design. Think point-clouds and mixed reality.

Point-clouds are 3D photographs. A photograph is light recorded on a flat

surface, i.e. X and Y axes. A point-cloud is light recorded in 3D, i.e. X, Y, and Z axes. A photograph is flat, a point-cloud has depth.

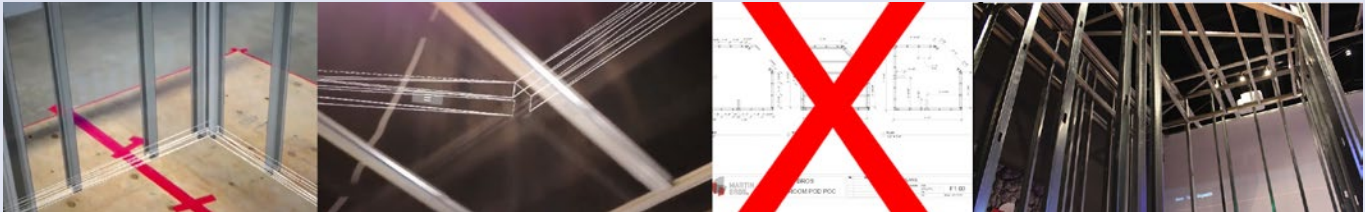
Point clouds are used to capture the existing environment in 3D. Imagine turning on and pointing your smartphone camera toward your home and walking along the perimeter of its boundary. With depth sensing camera, such as Intel's RealSense camera, and specialized software, you can capture your home's existing environment in 3D in a point-cloud.

Mixed reality is a visual environment with two attributes. First, it is an environment in which a 3D design model overlays a point-cloud. For example, the proposed design of a sun-room addition overlays the existing environment around the home. Second, the design model senses and accommodates the existing environment. For example, the sunroom model senses

the home's point-cloud and flashes to highlight a conflict.

Imagine a construction worker wearing a mixed reality headset. He has no construction plans. He has no tape measure. Just his construction skill and building materials. His task is to build a complex steel frame bathroom pod. He inserts a chip in the headset. The chip contains a 3D model of the design. His headset projects the design in front of his eyes. He places the columns, beams, and braces exactly where he sees them. Construction done.

This pilot project was undertaken by Martins Brothers, a construction firm in California. Experience the revolution in this 80-second video clip online: <https://www.bing.com/videos/search?q=martin+brothers+hololens&&view=detail&mid=CF46C7DE6E1B9D2777A0CF46C7DE6E1B9D2777A0&FORM=VRDGAR>



Construction of a complex steel frame with no tape measure or construction plans

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**Ethan Grossman
Engineering**

Please Welcome Our New Contributors: Dr. Bryan Higgs & Dr. Lei Wang

I am very excited to welcome our readers to the beginning of a new school year.

Quite often we get emails from our readers, students, educators and engineers about Dr. Z's Corner and learn what they think about our articles and problems. We are pleased to report that our readers are benefitting from our work and it feels great to make a difference.

I would also like to remind our readers that Dr. Z's Corner is a public service and everything we do is pro-bono! We are proud to be part of ASCE-NCS and to provide free help to the engineering community not only in the Washington metro area, but also around the nation and the globe.

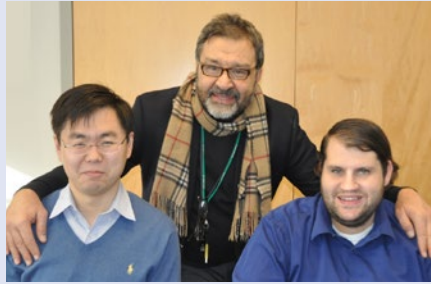
Again I would like to take this opportunity to thank my great editor James Palmer, President Jordan Pitt and board of directors of the ASCE-NCS for their dedication to the engineering community. We appreciate all their hard work.

For us, September 1st is a new start with the opportunity to focus, refresh, and rethink the priorities and work hard to get ready for licensure. And remember, standards matter, character counts, and now more than ever, your PE can be the competitive edge you need.

Let me remind our readers one more time: to conquer the FE and PE exams, you definitely need good time management skills that can make all the difference in keeping track and staying on top of things. You may be ambitious, but being realistic will definitely help you achieve your goals and allow you to be not only successful but also happy, and less stressed out about your achievements.

I consider myself very fortunate to have great team members that are extremely passionate, enthusiastic, and very knowledgeable in their areas of expertise.

For the last three years, my colleague and good friend Dr Vagelis Plevis from Oslo, Norway, has been tirelessly helping me on everything, including preparing and solving problems using his software BEAM-2D. And now are we ready for the big announcement:



From Left: Dr Lei Wang, Dr Z, Dr Bryan Higgs

I'm delighted to announce that effective September 2017; Dr. Z's Corner will have two new world-class engineers and contributors joining our team and helping us in the Transportation and Geotechnical areas. Please join me to welcome Dr. Lei Wang from Clemson University and Dr. Bryan Higgs from Virginia Tech. Currently both of them are full-time faculty members at UDC Civil Engineering Department. Please review their problems and here are their brief bios:

Dr Bryan Higgs

Dr Bryan Higgs recently moved to Washington, DC area to join UDC. All his degrees are from Virginia Tech, including his PhD in Transportation Engineering. Prior to this position, he was an Intelligence Community Postdoctoral Research Fellow at the University of Memphis.

Bryan's research and teaching interests range from network design to human factors in transportation including: multi-level multi-objective game theory, network vulnerability, network optimization, psychophysiological driver behavior, driving simulators, road rage, aggressive driving behavior, and traffic flow theory

Dr. Higgs has published in top-tier journals, and is a member of several national professional organizations. In addition to his national and international service, he enjoys participating in outreach activities for fostering interest in transportation in middle and high school students.

Please read Dr. Higg's "Career Highlights" and solve his transportation problems in this month's Dr. Z's Corner, problems section (Editor's Note: All Dr Z's Corner Problem sets are available on the ASCE-NCS Website: [Dr Z's Corner](#)).

Dr Lei Wang, PE

Dr Wang has recently moved to Washington, DC area to join UDC. He received his PhD degree in Civil Engineering with a geotechnical emphasis from Clemson University in 2013. His BS degree is also in Civil Engineering from China University of Geosciences conferred in 2008 and his MS degree in Geotechnical Engineering from Tongji University completed in 2010. Prior to his current position, he worked as a Post-Doctoral Fellow at Clemson University as a Geotechnical Engineer at Geotechnical and Tunneling Technical Excellence Center of WSP/ Parsons Brinckerhoff and as an Assistant Professor of Civil Engineering at Montana Tech of the University of Montana.

Dr Wang has an extensive research and practical experience in geotechnical engineering, including underground excavation and tunneling, soil/rock-structure interaction, numerical and centrifuge modeling, earth dams and levees, foundation engineering, and geotechnical earthquake engineering. He has published over 40 refereed journal and conference papers with a Google Scholar Citation of over 400. He was a recipient of many honors and awards, including the Best Paper Award by Taiwan Geotechnical Society (2013) and the Outstanding Graduate Researcher Award at Clemson University (2013). He is a Professional Engineer registered in California.

Finally we have to remind our readers that FE and PE are very fast-paced exams and you will have little time to look up information. Therefore, make sure you are familiar with your reference material and begin with the subject areas you know best. This will give you more time and build your confidence.

And most importantly, stay relaxed and confident. Always keep a good attitude and remind yourself that you are going to do your best!

Until next time,

Ahmet Zeytinci, P.E.
Dr. Z. (az@akfen.com)



ASCE-NCS Committee News and Updates



Younger Member's Forum

By Jim Palmer, ASCE-NCS Newsletter Editor

On Wednesday, July 26, the ASCE-NCS Younger Members Forum joint-hosted an SE review prep course with the Structural Engineers Association of Metropolitan Washington (SEA-MW) Young Member Group. Christopher



Curtis, PE, Senior Project Engineer (Bridge Design) of Whitman, Requardt & Associates presented to approximately fifteen aspiring SEs important aspects of the AASHTO code, including its differences from other design codes, bridge loading and design considerations, and he explained the bridge design process through working examples. Attendees were treated to pizza and wings and PDHs were made available.

Transportation Committee

By Stuart Crooks, ASCE-NCS Transportation Committee Chair, and Ranjit Sahai, PE, F.ASCE

The ASCE-NCS Transportation Committee is soliciting volunteers for Membership and Vice Chair of the Committee. This is an excellent opportunity for potential candidates to build relationships and network with civil engineers and students in the Washington, DC area who are enthusiastic about transportation engineering. The Transportation Committee organizes meetings (both technical and non-technical) every other month during the regular ASCE-NCS calendar year. Meetings are typically held during lunch time at the George Washington University campus. Venue may change depending upon availability. Attendance varies from 15–30 participants depending on various factors such as interest

in topic, ease of access, weather etc. If you're interested in joining the committee, please email the chair at scrooks@HNTB.com.

NHI Course 130055: Safety Inspection of In-Service Bridges.

NCS is pleased to announce that the 10-day course from FHWA's National Highway Institute (NHI) will be coming to our area in the fourth quarter of 2017 (the date is being coordinated with NHI). If you inspect bridges or traffic sign structures, State DOTs require the completion of this instructor-led training before you can lead an inspection team. Only 30-seats are available. If you are interested in learning more about the course, please contact Ranjit Sahai by emailing rsahai@asce-ncs.org. As the training date is finalized, Ranjit will reach out with location and pricing details. For details about the content covered in the course and the needed pre-requisites, navigate to this link: https://www.nhi.fhwa.dot.gov/course-search?tab=0&key=130055&sf=0&course_no=130055

Sustainability Committee

By Alex Rosenheim

The ASCE-NCS Sustainability Committee is proud to announce that the October 2017 ASCE-NCS Section Dinner Meeting will highlight the topic of *Off-Shore Wind Production Platforms: Maryland, Virginia and Beyond*.

Representatives from the Bureau of Ocean Energy Management will discuss the engineering design challenges, energy production technologies and ongoing and planned projects in Maryland, Virginia and beyond throughout all the shorelines of the United States. They will be discussing their agency's mission to manage development of U.S. Outer Continental Shelf energy and mineral resources in an environmentally and economically responsible way.



BOEM is led by a Director appointed by the Secretary of the Interior.

As an emerging part of the nation's all-of-the-above energy portfolio, BOEM's OCS renewable energy program provides a new source of domestic energy supply with less carbon emissions, and offers the prospect of more domestic jobs and wages, and increased revenues from lease bonuses, rentals on acreage leased, and production operating fees. In the future, BOEM anticipates development of offshore renewable energy from three sources: wind energy, ocean wave energy and ocean current energy.

The Outer Continental Shelf (OCS) Lands Act requires the BOEM to award leases competitively, unless BOEM determines there is no competitive interest. In November 2010, the Bureau of Ocean Energy Management (BOEM) initiated the leasing process offshore Maryland by issuing a Request for Interest (RFI) to gauge industry's interest in obtaining commercial wind leases in an area offshore of Maryland.

Videos (from US Department of Energy): [America's First Offshore Wind Farm](#); [Energy By The Numbers: Wind Power](#); [GoPro Tour \(Wind Turbine\)](#)

Reston Committee

By Lisa Anderson, PE, LEED AP, M. ASCE, Reston Committee Chair

The Reston Committee will hold a technical meeting at ASCE Headquarters in Reston, VA on Monday, September 11th starting at 11:45am. Wayne Bergstrom, PhD, PE, D.GE, F.ASCE of Bechtel will present on the mitigation and allocation of unusual design and construction risk. RSVP to Lisa Anderson by Wednesday, September 6th. One PDH will be awarded to attendees.

To be added to the Reston Committee distribution list, please contact Lisa Anderson: lmanders@bechtel.com or 703-429-6631.

EWRI Chapter

By Sara DeGroot, PE, CFM, ENV SP, EWRI-NCS Chapter Chair

The EWRI chapter will be participating in the 32nd annual International Coastal Clean-Up on September 16 to clean our waterways and collect valuable data about trash and litter. We will

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be cleaning Oronoco Bay Park – rain or shine. Volunteers should RSVP to Wisdom.Gbediame@AlexandriaVA.gov by September 13.

Where: Oronoco Bay Park, 100 Madison Street, Alexandria, Virginia.
When: Saturday, September 16 from 9 am to 11 am. For any questions please contact Sara DeGroot (Sara.DeGroot@gmail.com)

History and Heritage Committee

By Bernie Dennis, M.ASCE

The History & Heritage Committee (HHC) is planning several activities this coming season. On September 9th & 10th, several of our committee members will travel to Troy, NY for the HHC Erie Canal Symposium celebrating the canal's 200th Anniversary. Steve Pennington will present a biography of Benjamin Wright, the Father of American Civil Engineering during the symposium. Later in the autumn, when the foliage falls, we will have a field trip to the Government Island Park and Historic Quarry in Stafford, VA. Much of the stone work found in buildings throughout Washington, DC, namely Aquia Creek Sandstone, came from this quarry, including DC Boundary Stones. Stephen Powers, Chair of the Boundary Stones Committee, has agreed to lead the tour of the quarry, so attendees can see where these stones originated. In early spring of 2018 we will plan a field trip to the Benjamin Banneker Historical Park and Museum in Catonsville, MD (near Ellicott City). The Quarry and Museum field trips will provide insights into key individuals responsible for the DC Boundary Survey and the Boundary Stones. Further information will be provided in future newsletters. If you are interested in joining us, please email Bernie Dennis at berniedennis@mindspring.com.

Boundary Stones Committee

By Stephen Powers, PE, Boundary Stones Committee Chair

Over the last year ASCE-NCS's Boundary Stones Committee has been working with several partner stakeholders to ensure that 3 sites along the Southeast line are protected for future generations to appreciate the history, visit the origins of the Federal City, and preserve the original 10 mile square. ASCE-NCS is a member of NACABOSTCO, the NAtions CApiTal BOUNDary STones Committee, and serves as a leader in bringing the various parties and components together to

complete the work restoration project performed by the DC Office of Planning, DC Department of Transportation, and DC Surveyors Office to install replica stones at two sites, SE#4 and SE#8.

SE#4 sat adjacent to Naylor Road, formerly Walker Road, which was the route John Wilkes Booth traveled when he fled from Ford's Theater to escape the city. The original stone had long been exposed to traffic and time has worn the soft Aquia Creek sandstone down to half its original size. When a truck uprooted what was left of the stone and destroyed the fence in 1985, it was kept in storage until 2014 when it



Installation of Fence at SE#8

was put on display at the DC Surveyors Office on 4th Street SW. Given its size, it was deemed unfit to be put back in the ground, and a replica stone was made in 2015 and installed at the site in the spring of 2016.

SE#8 was removed from the ground in the early 1960's when DC Village was being constructed and the overall site elevation was raised. The stone was lost in storage, replaced by a replica stone, and then in 1970 both the replica stone and the original fence were buried under an additional 8 feet of fill. The stone remained hidden until 1991 when it was partially uncovered and exposed. In 2014, the replica stone was dug up, removed, and returned to the DC Daughters of the American Revolution (DCDAR). A second replica stone was made in 2015 and installed at the site in the spring of 2016.

On November 28, 2016, ASCE-NCS partnered with District Construction, Inc. to install two fences fabricated by the North Dakota Association of Land

Surveyors and donated by the DC Association of Land Surveyors (DCALS) to protect the replica stones at SE#4 and SE#8. Follow on volunteer efforts to paint the two fences were held by ASCE-NCS and the DC DAR on December 3, 2016 and on June 3, 2017.

In addition, ASCE-NCS partnered with District Construction, Inc. to install the fully restored 101 year old fence at the East Cornerstone. Many ASCE members may recall that this was the fence the Boundary Stones Committee first raised the need for restoration on May 16, 2010 by stripping the layers of old peeling paint off the fence, priming and



Original East Cornerstone 1916 DCDAR Fence fully restored and reinstalled

painting it, and clearing the site of trash and debris. Since this kickoff effort in 2010, ASCE-NCS has lead restoration efforts at 20 sites with over 150 ASCE and partner volunteers. Those efforts lead to the DC Government securing an \$85,000 grant to assist with the protection of the stones in 2013. Under the grant, the DC Government was able to partner with the National Parks Historic Preservation Training Facility and perform crack repair and reset/re-level (when necessary) the stones at 26 sites along the DC/MD border. As part of that project, the DC DAR removed many fences in concert with the stone work. DCDAR worked with Anvil Works LLC to restore the 1916 Gichner Iron Works cornerstone fence, unique for its size and round shape, and was able to save and reuse most of the original fence. Once the restoration was complete, the actual installation took place on July 19, 2017 with ASCE-NCS coordinating the effort. On September 16th, from 9:00 am to 12:00 noon, the Boundary Stones

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Committee will be partnering with the DC DAR to perform site clean-up at the East Cornerstone located at the intersection of Eastern Ave & Southern Ave NE, Washington DC. Work will consist of cutting back vegetation, brush and limb pickup, clearing trash, some minor grading and dirt work, and spreading mulch. This effort is in support of the ribbon cutting ceremony planned for Saturday September 23, 2017 at 11:00 am to celebrate the restoration of the 100 year old fence. All ASCE-NCS Members are also welcome to attend the ribbon cutting ceremony given our participation with the installation of the fence. For those that are interested in either the volunteer event or the ribbon cutting ceremony, please contact Stephen Powers at stephen@designpowers.com for additional details as well as to compile a head count.

With the recent DC Government grant project completed, there remains much work to be done. The Virginia stones and fences were not part of the recent efforts. Many of the fences and sites in Virginia and in DC/MD need attention. The Boundary Stones Committee is looking for help to address these sites during the spring of 2018 and is looking for volunteers who want to take an active role in helping to organize the teams of volunteers, materials and supplies needed, and lead the efforts at multiple sites. For those interested, please contact Stephen Powers at stephen@designpowers.com. He is looking to perform the planning effort in the upcoming fall and winter months so the work can take place in Spring of 2018.

Dream Big Committee

By Gillian Love, PE, ASCE-NCS DreamBig Committee Chair

The DreamBig Committee and NCS Volunteers in conjunction with the RESET program had a busy spring and summer planning and supporting a series of elementary school field trips to see the DreamBig IMAX film at the National Air and Space Museum in Washington, DC and the Udvar Hazy Center in Chantilly, VA. Participation included nearly 600 students from 6 schools in the DC/MD/VA region as well as many teachers, chaperones, RESET staff, and NCS Volunteers. These trips help to support the ASCE-NCS mission of education and outreach to the local community and in particular our future generation of engineers. See below for a thank-you letter to the editor from a teacher and read more about the student (and educator) experiences at <https://resetonline.org/reset-students-dream-big-of-engineering-the-world/>

Note from the Editor: the following thank-you note was sent to our Dream Big volunteers by Schoolteacher Christa Weber after a Dream Big field trip event facilitated by the Dream Big Committee

Hi Ranjit [Sahai, PE, F.ASCE, Dream Big volunteer] and crew!

I wanted to thank you, *immensely*, again. [Early June is] an insane time of year to go on a field trip for both teachers and students, but I think I can safely speak for all, that it was worth every minute! The students had a great time seeing aircraft we

had discussed in class, all while looking for what creates lift, drag, and speed. The IMAX movie, for us adults was emotional, for the kids – as one student heard me say I felt emotional watching it, they said it wasn't emotional, it was *inspirational*.

Many of our students come from backgrounds where their socio-economic status would not afford the best colleges or the best resources. Many of them come from countries that they need to walk great distances, across sketchy terrain to go to schools or clinics. I loved how the film brought to light that you don't need to be rich to problem solve. For me, personally, the Peace Corps volunteer in me had my heart strings tugged on how much engineering can help solve problems for people around the world with the minimal resources.

Thank you again for this opportunity and the great book [*Engineering the Nation's Capital*]. I gave a copy to Ms. Shuma, as she will be our Advanced Academic Resource Teacher next year and will have lots of opportunity to use it across the grade levels. The second book, I will share with Mr. Villacrusis.

Gillian, I look forward to collaborating with you in the upcoming school year.

Christa Weber
5th Grade AAP Teacher
Upper Science Lead
Crestwood E.S.



Photo credit: Crestwood Elementary School 4th grade teacher Raphael Villacrusis

Upcoming Events *(Also available on the NCS website under the Events tab.)*

September 9–10

History and Heritage Committee Erie Canal Symposium, Troy, NY. Refer to the Committee Update for further information.

September 11

Reston Committee Technical Meeting, 11:45 am, ASCE Headquarters, Reston, VA. Wayne Bergstrom presents “Case History – Mitigation and Allocation of Unusual Design/Construction Risk. One PDH will be awarded to attendees.

September 13

YMF Happy Hour, 6:00–8:00 pm, Location TBD. Join younger members from the area for free appetizers and drink specials. Find us on the outdoor patio. Look for an email announcement with more details.

September 16

DC Boundary Stones Committee East Cornerstone Cleanup, 9:00 am–12:00 pm, Eastern Ave & Southern Ave, NE DC. Refer to the Committee Update for further information

September 16

International Coastal Clean-up at Oronoco Bay Park, 9:00–11:00 am, 100 Madison St, Alexandria, Va. Refer

to the EWRI Chapter Update for RSVP and further information.

September 17–18

Presidents and Governors Forum (PGF), ASCE Headquarters, Reston, VA.

September 19

Section Meeting, 6:30–8:30 pm, Hilton Arlington. See this month’s featured article for more information.

September 23

DC Boundary Stones Committee East Cornerstone Ribbon Cutting, 11:00 am, Eastern Ave & Southern Ave, NE DC. Refer to the Committee Update for further information

October 8–11

New Orleans, LA. ASCE 2017 Convention, Visit www.asceconvention.org for more information on registration, speakers and technical session details.

October 17

Section Meeting, 6:30–8:30 pm, Hilton Arlington. The Dinner meeting will highlight the topic of ‘Off-Shore Wind Production Platforms – Maryland, Virginia and Beyond’ by the Bureau of Ocean Energy Management.

November 4

Region 2 Assembly, University of Pittsburgh, PA. All Sections, Branches, Younger Member Forums, Student Chapters, Faculty Advisors and Practitioners Advisors are encouraged to attend the 2017 Region 2 Assembly. There will be professional development opportunities through presentations on current engineering design practices, a chance for interaction between students, professors and practitioners.

November 5–8

Emerging Leaders Alliance Conference, Falls Church, VA. The Emerging Leaders Alliance is a partnership among leading engineering organizations that promotes interdisciplinary leadership training for select professionals.

February 9–10

Regions 1, 2, 4 and 5 Multi-Region Leadership Conference in Buffalo, NY. The conference includes Workshop for Section and Branch Leaders (WSBL), the Eastern Region Younger Member Council (ERYMC) and the Workshop for Student Chapter Leaders (WSCL). More information will be available in October.

May Section Meeting Recap

By Jim Palmer, ASCE-NCS Newsletter Editor

Attendees of the May Section meeting were lucky enough to hear three speakers present on two topics. First, Lynn Mayo, VP at AECOM, gave a short presentation on the initiatives taken up by [I Look Like a Civil Engineer](#), including increasing diversity in the profession and developing a computer application to that end which tells individual engineers’ diversity of stories to inspire future engineers. Anyone interested in volunteering their story is encouraged to contact Lynn at lynn@ilooklikeacivilengineer.com.

The main event, “The Wharf: Revitalizing Southwest Waterfront,” was co-presented by Gary Ball of Madison Marquette and Michael Bruce of Hoffman Madison. Mr Bruce presented a brief history of Southwest followed by a history of the work to develop the site, which included three acts of Congress to de-authorize 200 feet of army corps-controlled channel width to allow the marina to extend further into Washington Channel. Mr Ball explained the breakdown of the site into two phases: Phase One comprising of 2.1 million square feet of developed space currently under construction and delivering in October 2017, while Phase Two will comprise 1.1 million square feet. The total project footprint covers 27 acres of maritime space and 72 acres on land. Phase One has

650 apartments, 300 hotel rooms, 1,500 parking spaces, 115 condominiums and 500,000 square feet of office space. Phase Two will have an apartment, a condominium and two office buildings. The project is expected to produce 15 million dollars of tax revenue per year for the District and will meet LEED Gold for Neighborhood Development and LEED Silver for Building Design and Construction.

This was an exciting section meeting attended by approximately 85 ASCE-NCS members and closed out the 2016–17 season with success. ■

Employment Clearinghouse

The NCS provides the Employment Clearinghouse as a free service to its membership. The Clearinghouse allows members to post short notices for available positions or candidates seeking employment. All employers listed herein are equal opportunity employers. If you have questions, are seeking employment or would like to post a position please contact the [newsletter editor](#) and visit our [jobs page](#).