

## Blue Plains Tunnel Progress: Deep Shafts and Tunneling in Soft Ground

Presentation by James Wonneberg, PE, CCM and Ryan Payne, PE

Two to three billion gallons of untreated combined sewer overflow (CSO) containing bacteria and trash that are harmful to the environment is discharged into Washington, DC's waterways annually. CSOs occur during heavy rain when the mixture of sewage and stormwater cannot be contained in the sewer pipes and overflows to the nearest water body. To solve this century-old extensive problem, DC needed an engineering solution on a massive scale. Enter the *DC Clean Rivers Project*; DC Water's ambitious \$2.6B undertaking driven by Federal Consent Decree to construct a deep tunnel system to reduce CSOs by 96% and transport the captured flow to the Blue Plains Advanced Wastewater Treatment Plant.

The Blue Plains Tunnel is the first phase of this mega-project. Currently underway, the project features construction of five deep shafts ranging in diameter from 50 to 132 feet and Lady Bird, a 26-foot diameter tunnel boring machine (TBM), currently carving out 4.5 miles of tunnel that will dramatically improve water quality in the Anacostia River. As the largest underground construction project since Metro, the Blue Plains Tunnel marks the beginning of a new era of tunneling and underground construction in the District. DC Water is employing modern TBM technology and innovative shaft construction techniques.



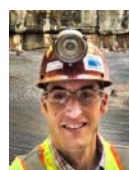
DC Clean Rivers Project Locations

Join us Tuesday, February 17 and learn how

- Deep slurry walls were used to construct conjoined 132-foot and 76-foot diameter shafts;
- Industrial divers assisted with construction of deep drop shafts;
- The TBM was assembled and launched 100 feet below the ground surface;
- The TBM maintains face pressure in soft soils;
- The tunnel liner is built using 4,000 "rings" of precast concrete, six feet at a time; and much more!

### About the presenters

**James Wonneberg, PE, CCM**, is the Resident Engineer responsible for construction management of the Blue Plains Tunnel since 2011. James is known for creating intuitive graphics that help the entire project team execute projects with the big picture in mind.



Join us **Tuesday, February 17, 2015**, at the Hilton Arlington, 950 North Stafford Street, Arlington, VA, on the second floor in the Gallery Ballrooms. Parking is available at the hotel (\$8), 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.

Please click [HERE](#) to register by **February 12**. 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 [Christian Manalo](#).

*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.*

**Ryan Payne, PE**, is a Field Engineer on the Blue Plains Tunnel construction management team. He is responsible for geotechnical and tunneling aspects of the project, including analyzing TBM performance; construction oversight of the tunnel and shafts; and the deployment of DC Water's real-time TBM data monitoring and reporting software. Ryan specializes in the design and construction of tunnels, slurry walls, shafts, and deep foundations. ■



## President's Corner

### **Engineering the Nation's Capital!**

This past month, the National Capital Section (NCS) has been very busy organizing and hosting many activities for our membership. We held dinner meetings and luncheons on various outstanding topics, including the Panama Canal, Northern Virginia Transportation Authority, the Port of Baltimore, and the Arlington Memorial Bridge. We also supported the Potomac Piranhas pitch competition and hosted a happy hour. This has certainly been a great start to the New Year!

In February, DC Water presents DC Clean Rivers Project; we host a tour of the Seneca Quarry; hear a presentation on the National Corvette Museum; and yes, host another happy hour. In addition, we will support Engineers Week (February 22–28), including volunteering for Family Day at the National Building Museum and joining the DC Council of Engineering and Architectural



Societies in an Annual Proclamation Meeting and Awards Banquet. Behind the scenes, our committees are actively advancing their activities, including preparing for our own Annual Awards Banquet scheduled for March 24, when we will award up to \$15,000 in scholarships,

identify Projects of the Year, and recognize many of our outstanding members.

Planning for our Centennial is also well underway. This past month, we developed our new ASCE-NCS Centennial Commemorative logo and adopted the theme, *Engineering the Nation's Capital*. I am particularly excited about this theme, which recognizes the importance of the Section to our nation as a whole. Our members' unique contributions locally, nationally and globally are without equal. This will become more apparent when we publish our Centennial Commemorative Book later this year, recognizing many of members' achievements.

There are two solicitations for volunteers that I would like to point out in this column. Most recently we put a call out for Centennial Delegates, individuals who would represent their organizations, participate in our planning, and promote our Section's activities. Delegates will be key to making our Centennial a success, just as their organizations have been key to our Section's success. Secondly, I would like to make a call for ASCE Life Members to more fully engage with the Section, including development of a Life Members Forum. The NCS has nearly 850 Life Members in our ranks, individuals with tremendous experience, knowledge, and wisdom to share. It would be a deep loss for us to not tap into such a valuable resource. Our upcoming Centennial offers a prime opportunity to initiate this Forum. If you are interested in either of these volunteer opportunities, to serve as a Centennial Delegate or Life Member Forum volunteer, please reach out to me or any NCS Board member for more information.

*Christian Manalo*  
President, ASCE-NCS 2014–15

## Volunteers Needed for Discover Engineering Family Day

Help ASCE NCS teach budding engineers about earthquake effects on tall buildings on Saturday, February 28 at



the [National Building Museum](#). Contact [Dean Westman](#) or [Emily Dean](#). No earthquake engineering experience required! **Volunteers are needed** from 9:00 – 4:30 pm. Stop by anytime and spend a few minutes or all day with fellow NCS members and friends and the next generation of civil engineers. Coffee and donuts will be provided by the National Building Museum in the morning and a pizza lunch and other refreshments will be served. Join NCS members for Happy Hour after the event closes. ■



## Newsletter

**Rachel Schneider**, Editor

**March 2015 Issue Deadline:** February 15, 2015

**To Submit Articles:** [newsletter@asce-ncs.org](mailto:newsletter@asce-ncs.org)

**NCS eNewsletter Archives:** go to [www.asce-ncs.org](http://www.asce-ncs.org) and click on the Newsletters tab.

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

## National Capital Section

### **Officers (2014–2015)**

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**Qamar A.O. Kazmi**, Previous Past President

### **Committee Chairs**

Please refer to the [NCS website](#) for a current list of NCS committees and chairs.

# The ASCE-NCS Annual Awards Banquet

Celebrate Our Region's Outstanding Projects and People

Join us at the Hilton Arlington on the evening of Tuesday, March 24th for the NCS signature event of the year. The Annual Awards Banquet gives us an opportunity to recognize and celebrate local excellence in projects, engineers, and students who have contributed to our profession and our community. Recognized parties include the ASCE-NCS Outstanding Civil Engineering Project, the Sustainability Committee's Award Winning Project, Meritorious Service and Community Service Award winners, NCS Student Scholarship Award recipients, Outstanding Graduating Seniors from local civil engineering universities, and members of the NCS who have achieved Life Member or Distinguished Member status during the past year.

The finalists for the ASCE-NCS 2015 Outstanding Civil Engineering Project are the Quadrangle Development Corporation's **Marriott Marquis Convention Center Hotel** in Washington, DC and Macerich-Master Developer's **Tyson's Corner Center – Office Tower and Residential, Phase I** in McLean, Virginia.

The Marriott Marquis is the first project in Washington, DC to utilize top-down construction, a method selected due to local zoning height requirements coupled with the need to provide the square footage the market needed. This resulted in the building going 100 feet underground. Because the building perimeter was set directly on the property line, use of this method made for a very challenging project. Constructing the building foundations, excavating,



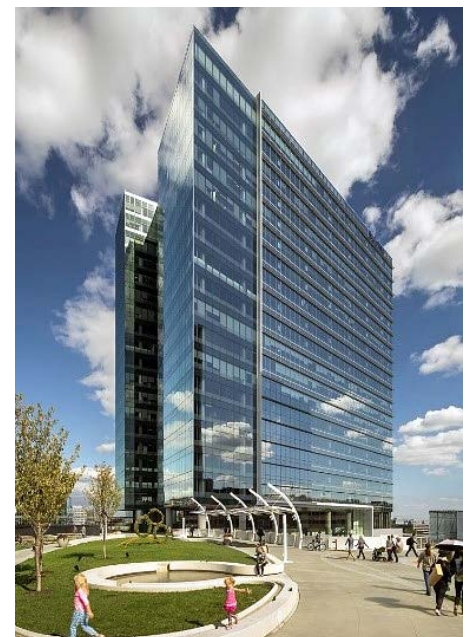
and removing the soil, placing the structural slab system and repeating for each floor from the street elevation to the lowest level demanded the highest level of focus and planning. The innovative use of structural steel wide flange members and plates as reinforcement for the concrete slabs below grade allowed for seven stories of construction below grade, and the deepest excavation in Washington, DC.

Tysons Corner Center is an outstanding example of the principles of Live, Work, and Play that is transforming Tysons Corner into a true urban community with a direct link to Metro's new Silver Line. Along the main facade of the office tower is a glass cable wall system, one of the largest of its type in the country and the first in the DC metro area. The 52-foot-high unitized glass wall is supported by vertical tensioned cables that are anchored by post-tensioned beams at the street level and second floor and custom extrusions designed specifically

for this project. A stainless steel portal incorporated within the glass cable wall provides access to the lobby. Also located along the main facade are eight 56-foot-tall exposed architectural concrete columns with a remarkably smooth finish. Each column contains almost three full truckloads of concrete.

**Attend the Banquet on March 24 to learn which outstanding project is selected as this year's winner.**

Check your email and [our website](#) for additional event details and registration information. Sponsorship opportunities are also available to support the banquet and other NCS activities. For additional information, please contact [Emily Dean](#) or [Scott Wolf](#). ■



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**BUILD ON US**

# ASCE NCS Call for Sponsors

As the volunteer-run, local Section of the ASCE, your sponsorships allow NCS to reward deserving civil engineering students with scholarships, promote our profession with public outreach efforts, and support the professional and personal growth of our members. The Section is committed to assisting civil engineering students with scholarships through its Scholarship Trust. Surplus funds from the Section add to the Scholarship Trust, subsidize the fees we charge our members for educational Section meetings, and help us nurture leadership opportunities for your employees through their participation in our committees.

In short, your contributions assist us in our quest to support the needs of civil engineering students and professionals in our region. Visible recognition for your support is a key part of the program. To assist you in selecting the level of support appropriate for your firm, we have outlined our specific sponsorship opportunities below.

**e-Newsletter Sponsor/Website Recognition:** Exposure to more than 3,200 members eight times per year through a business card posting in the NCS e-Newsletter. Silver, Gold, and Platinum sponsors receive recognition as Partners by having their logos posted year-round on our [website's](#) footer.

**Annual Awards Banquet Passes:** The NCS Annual Awards Banquet will be **Tuesday, March 24, 2015** at the Arlington Hilton. With attendance at the banquet typically exceeding 100, we must rely on the generosity of others to support a quality event to honor deserving individuals. As a part of your sponsorship, your firm will be recognized in the event program, on a display board located within the banquet hall, on our [website](#), and twice in our eNewsletter. If you wish to be a Sponsor, please let us know by **February 28** to allow sufficient time to include your company's information in the Awards Banquet program.

**Monthly Meeting Benefit:** Your sponsorship entitles your organization

the opportunity to exhibit promotional materials on a display table at regular monthly Section meeting. Platinum sponsors also receive an opportunity to present their firm from the lectern before the meeting's keynote speaker. We hold eight Section meetings every year. As the number of meetings is limited, please confirm your meeting choice early. Platinum sponsors also receive a "Platinum Section Meeting Pass" that allows them to send one attendee at no cost to any or all regular Section meetings (Annual Banquet is excluded).

**Scholarship Fund, Direct Contribution:** The NCS awards scholarships each year to outstanding students from five local universities. As in previous years, several thousand dollars in scholarships will be announced at the Annual Awards Banquet.

Please contact [sponsors@asce-ncs.com](mailto:sponsors@asce-ncs.com) for additional information. Thank you in advance for your continued support of the NCS. ■

Benefits	Sponsorship Levels			
	Item Sponsor	Silver Sponsor	Gold Sponsor	Platinum Sponsor
<b>eNewsletter/Website Recognition</b>				
Business card recognition in 8 issues	\$350	✓	✓	✓
Partner recognition on Website		✓	✓	✓
<b>Annual Awards Banquet Passes</b>				
1 complimentary pass	\$300	✓		
2 complimentary passes	\$500		✓	✓
<b>Monthly Meeting Benefit</b>				
Exhibit and table display	\$150		✓	✓
5-minute presentation				✓
Pass for attending regular Section meetings				✓
<b>Scholarship Fund, Direct Contribution</b>	<b>\$100</b>			✓
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## NCS Committee News and Updates

**New!** Did you know that the NCS has fifteen [technical committees](#) that members can join? Every issue we will highlight a technical committee to help you learn more about each one. All of the committees can be found on our website under the Technical Committees tab.



### Younger Members Forum

The Younger Members Group (which is geared towards members who are 35 years old and under... but we don't ever turn anyone away who is interested in our events) tends to be a little less formal than the Section (most of our active "younger" members are in their late-20s to early-30s). We hold a happy hour every month, alternating between Arlington and DC, typically the first Wednesday of the month from 6–8 pm. We provide free appetizers and you don't have to RSVP.

In addition to our monthly happy hours, the Younger Members Group sponsors two to three professional development events throughout the year. For the past two summers we have organized a trip to Nationals Stadium for a game. We typically get anywhere from 20 to 40 people at each of our events.

The ASCE NCS Younger Members Group is always looking for new members! If you are interested in getting involved with more Younger Members activities, have ideas for social events or volunteering activities, or would you like to be a board member (we have a board with seven positions), contact the [YMF President](#).

You can usually find out about Younger Member events via our Facebook page at [www.facebook.com/ASCENationalCapitalYMF](http://www.facebook.com/ASCENationalCapitalYMF) or Twitter (@asce\_ncsYMF) at [https://twitter.com/asce\\_ncsYMF](https://twitter.com/asce_ncsYMF). If you would like to become more active with the YMF or would like more information on our events, please contact the [YMF President](#).

**Monthly Happy Hours.** The ASCE-NCS YMF held their January happy hour at *Hard Times* in Arlington, VA on



January 7. Approximately 20 members attended the event and after the YMF happy hour several Younger Members participated in trivia, where teams comprised of Younger Members placed 2nd and 3rd! The next monthly happy hour will take place in Washington, DC (location to be determined) at 6pm on Wednesday, February 4th. Our March happy hour will be held in Arlington at Four Courts in Courthouse. Look out for emails with specific locations for future monthly happy hours!

**Join Us! Walking Tour of Seneca Quarry, Saturday, February 7, Montgomery County, MD.** As a follow-up to the NCS Younger Members October professional development, we have arranged for a walking tour of the now abandoned Seneca Quarry site to be led by local author and historian, Garrett Peck. Mr. Peck previously presented on the history of the Seneca Quarry and its influence on construction and architecture in the Metro DC area. The walking tour is scheduled for February 7, 2015, look for email announcements with additional details.

### Centennial Committee Engineering the Nation's Capital... and Beyond.

As shown by our new Section Centennial logo, the ASCE NCS has represented and promoted the civil engineering profession in the Washington, DC area since 1916. Our Centennial Celebration will honor civil engineers from our area that have played key roles in our past, not only in the DC area, but around the world. Our engineers helped build the Panama Canal, Hoover Dam, the interstate highway system, the Pentagon, the major airports, transit systems, and



waterworks of our region, and this just scratches the surface!

In the near term, Centennial Committee members will be contacting Federal, state and local government organizations in our region to request delegates that can assist us in promoting civil engineering accomplishments. Local engineering firms will also be contacted to solicit their involvement in our promotional activities as part of our Centennial Celebration. We will also be working with local schools and universities to obtain delegates to work with us in promoting the benefits of a civil engineering education.

Our Centennial Celebration provides an excellent opportunity for promoting our profession, steering students into civil engineering, and recognizing our members' accomplishments. Among our activities, we need your help researching projects for our Centennial Commemorative Book, participating on tours of select engineering achievements, supporting our outreach to students and the public, and assisting with our Centennial Gala Celebration. So, whether you are a Young Member, a Life Member, or somewhere in between, please join us by contacting the [Centennial Committee's Secretary](#).

### Water Resources and Sustainability Committee

**Joint Dinner and Presentation.** On March 10, 2015 the Sustainability and Water Resources Committees will host a joint dinner and presentation featuring Mr. Kent R. Hansen, P.E., Director of Engineering at the National Asphalt Pavement Association on the *Benefits and Design Considerations of Porous Pavement*. Mr. Hansen has over three decades of experience on sustainable methods for reducing surface runoff through increased pavement water infiltration. The event will be hosted at [Ragtime Restaurant](#) in Arlington VA, within walking distance of the Courthouse Metro. The evening will begin with registration and networking at 6:00 pm, dinner from 6:30 to 7:00 pm, and the presentation from 7–8:00 pm. For additional information, please contact [Alex Rosenheim](#) or [Piers Causton](#) or (202) 210-1103. ■

## NCS at the ASCE Multi-Regional Leadership Training Conference for Regions 1, 2, 4 & 5

By Julia Devine, A.M.ASCE

ASCE's Training Conference for incoming leaders of Sections and Branches of Regions 1, 2, 4 & 5 was held on January 9 and 10 in Miami, Florida. The NCS sent six members (Ranjit S. Sahai, Julia Devine, John Casana, Shri Ymijala, Sonja Hinnish, and Sara DeGroot), the largest contingent to this annual conference in recent memory. Being able to attend the conference was very beneficial to those who do not have access to training through their employers.

The last time I had been to Miami was when I was about 18 years old on a 24-hour layover to what would be my new home in South America. At the time I knew nothing about the iconic pastel architecture, nor the joys of a Peruvian chicken sandwich. Didn't know much Spanish either, for that matter. This time around was a totally different story. And a most welcome one, as the weather was a good 60 or so degrees above what it was in Washington, DC! As I was on assignment for the ASCE Multi-Region Leadership Conference, I attempted to filter my experiences through the eyes



NCS Past President Ranjit Sahai accepts the 2014 Outstanding Section and Branch Web Site Award from ASCE President Bob Stevens. Photo by Julia Devine.



John Casana, ASCE Governor, Region 2, moderates Leading Others session. Photo by Julia Devine.

of a general civil engineer (though this was a little difficult due to my strictly structures background).

I arrived at Miami-Dade airport and noticed they had achieved LEED Gold status. High five, MIA! Now normally I would sashay myself on out to the cabstand and do my best Carrie Bradshaw casual-but-elegant taxi hail. However, as civil engineer, I decided to check out Miami's public transportation system. I was all in. Getting from the airport to downtown Miami entailed catching the MIA Mover to a bright and shiny Metro Rail then on to the Metro Mover. A bit of a shuffle, but it put me within one block of my hotel. I got a little bit of a skyline view of the city, however total trip, covering 7.5 miles, cost only \$2.25 but took 1 hour and 20 minutes. By comparison, the return trip by shuttle van cost \$13.50 and took 20 minutes. I'm all for green and sustainable and everything, but I'd gladly pay the \$11.25 for an hour of my life back.

Friday morning the conference jumped into full swing with entertaining presentations on *Leading Others*. Blaine Leonard, former ASCE President, and Jim O'Brien, M.ASCE, delivered high energy and inspiring keynotes. Through personality tests and role playing we learned that leadership is the art, science, and craft of influencing other people to achieve a common goal and improve an organization. Personally I still can't decide if I'm an introvert or an extrovert, but I enjoyed this portion of the conference in that it illustrated that we all work in and respond to our environments in different manners.

That afternoon included a question and answer session in which the ASCE President, President – Elect, and Executive Director were on hand to respond to inquiries regarding such matters as speaking with "one voice" so as to not dilute efforts on the Hill; the

*continued on page 7*

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## NCS at the ASCE Multi-Regional Leadership Training Conference for Regions 1, 2, 4 & 5

Raise the Bar initiative; international pilot programs such as that in India; new (and old) technologies being used to spread ASCE's influence and message. Time was also given to break out into regional groups and get to know the members in attendance from our own area. Team-building/icebreaker activities included interviewing and presenting fellow members as well as a mini-competition to build the most efficient, strongest dome of straws and pipe cleaners. Bully for the structural people!

The day concluded with a mock board meeting illustrating all the things

NOT to do and a discussion of how to deal with confrontational and difficult leaders.

Saturday morning's session on *Generational Differences* was another of my favorite presentations. The way we each were brought up and the state of the world we were born into has an influence in how we prefer to work with and interact with others. Understanding these differences can help in providing a management style tailored to getting the best out of each other's strengths. At lunch there was the presentation on *What Makes a Leader* from a former

military leader who sought to give those he led the tools to succeed. After a discussion of professional ethics, section and branch awards were given out, including to our own section for website awesomeness.

Thank you, ASCE, for this detailed and well-planned learning opportunity! And thanks also to the Miami chapter for being such lovely hosts. I wish to apologize to the water resource and environmental engineers as well as any other civil engineering specialists – your work isn't as visible but no less important for improving lives. ■

## NCS Members Advance in ASCE and Receive Awards at 2014 Global Engineering Conference

By L.J. Sauter, Jr., M.ASCE

The *Celebration of Leaders Presentation* at the 2014 Global Engineering Conference in Panama City, Panama formally introduced this year's class of ASCE Distinguished Members and presented each

with their medal. The *Celebration* included a video presentation of each Distinguished Member's career highlights and provided each Member with an opportunity to address the audience. This year the NCS had two members who were honored to join

this elite group, Dennis M. Kamber and Michael K. Loose. In addition, NCS member Kishor C. Mehta received the Jack E. Cermak Medal for his work in wind engineering during the *ASCE/ EWB-USA Leadership and Society Awards Ceremony*. ■



NCS member Dennis M. Kamber, P.E., Dist.M.ASCE, addresses the *Celebration of Leaders Presentation* as NCS member Michael Loose (right) watches. Dennis is one of two NCS members in the 2014 class of Distinguished Members. Photo by David Hathcox for ASCE.



NCS member Michael K. Loose, P.E., Dist.M.ASCE, receives his Distinguished Member medal from ASCE Past President Randy Over while Pat Natale (left), outgoing ASCE Executive Director looks on. Photo by David Hathcox for ASCE.



NCS member Kishor C. Mehta, Ph.D., P.E., Dist.M.ASCE, NA, formally receives the Jack E. Cermak Medal from ASCE Past President Randy Over (right) and outgoing ASCE Executive Director Pat Natale. Photo by David Hathcox for ASCE.

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## Civil Engineering and You

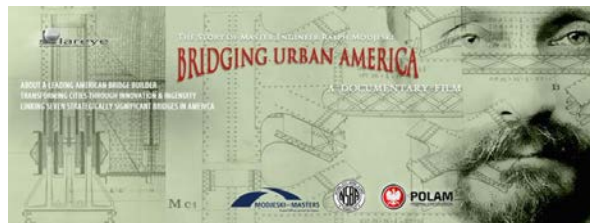
By Ranjit S. Sahai, P.E., F.ASCE

When you choose a profession, you select a medium through which to leave a legacy. Your choice focuses your senses to observe even the minutest details of that medium whenever you encounter it. This focus coupled with your mind's ability to integrate details into a logical abstraction increases your knowledge until you develop the confidence to express yourself through that medium.

As a civil engineer your medium is infrastructure, i.e. civil works.

Ralph Modjeski was born in January 1861 and died in June 1940. He chose

the bridge as his medium and left a legacy as a pre-eminent bridge designer. The bridge design practice he started in 1893 lives on to this day as the firm Modjeski & Masters. The documentary film *Bridging Urban America* is planned for release in spring 2015. The film highlights the importance of bridges during the growth of America's industry in the early 1900s; how they played a vital role in carrying people and goods across topographical barriers to distant and promising markets and ushering humans to great heights. The movie includes spectacular shots,



many captured with drones, of Ralph's bridges.

As a civil engineer your chosen medium offers splendor in expression while making human life on earth safer, more comfortable, and worth living. Ralph's life inspires us to: focus our senses, harness our minds, and dream up with our medium solutions to challenges that seem unsurmountable. ■

## January 2015 Section Meeting Recap

Monica Backmon of the Northern Virginia Transportation Authority

By Jordan Pitt, P.E., M.ASCE

The NCS was pleased to welcome Monica Backmon, the Executive Director of the Northern Virginia Transportation Authority (NVTA), to learn about NVTA's role in planning and allocating funding for regionally-significant projects.

Ms. Backmon's presentation began with background information on NVTA and its primary goals: to identify congestion-reducing, multi-modal projects and to work with agencies within the region to fund those projects. Ms. Backmon stated, "The NVTA is working to promote projects that enhance mobility for the region," and noted that these projects in turn help to grow the economy.

Since assuming her role in June 2014, Ms. Backmon has been working to adapt to various legislative actions by the Virginia General Assembly and implementing new procedures for determining how projects are prioritized for funding. Ms. Backmon shared

that in Fiscal Year 2014, the NVTA was responsible for \$285 million in revenues which come from tax sources across the nine local jurisdictions within the NVTA umbrella. Of those nine jurisdictions, most of the revenue came from Fairfax County (\$125 million), followed by Loudoun (\$48 million) and Prince William Counties (\$38 million).



In 2014, the NVTA approved roughly \$200 million in funding for 33 multi-modal projects. Ms. Backmon noted, "My goal is to get all of the FY 2014 projects rolling," and humorously added,

"With our current staff of six, you can imagine we are keeping very busy!" The first construction project NVTA is funding will be the widening of Route 28 from Linton Hall Road to Fitzwater Drive in Prince William County for \$28 million. She added that the NVTA is working hard to be accountable and to ensure that these much-needed projects are completed as soon as possible, taking us one step closer to a better transportation system in Northern Virginia. ■

## Volunteer Opportunity with ASCE National!

ASCE National will have up to three openings on the Membership Application Review Committee (MARC) on September 30, 2015. Volunteers can apply to join the MARC by submitting a resume to the MARC liaison at [memapp@asce.org](mailto:memapp@asce.org).

**Who can apply?** Any ASCE member of Member grade or higher in good standing, with preference given to ASCE Fellows and Distinguished Members. MARC members are responsible for their own travel expenses to the meetings so they are usually from the National Capital area.

**What does the MARC do?** The MARC processes applications for the Fellow grade and any applications for admission or advancement whose qualifications do not exactly meet the stated criteria for a particular grade of Society membership. Most MARC members are partially or fully retired.

**How often does the Committee meet?** MARC volunteers attend monthly or bi-monthly meetings at ASCE Headquarters in Reston on the second Tuesday of the month for 2-3 hours.

**When are applications due?** The deadline is **March 15, 2015** and resumes are appreciated as soon as possible to the [MARC liaison](mailto:MARC liaison). ■

## Employment Clearinghouse

The ASCE-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](#).



## Conquering the FE & PE Exams

To answer some of our readers' questions, I would like to review the requirements for **licensing** again and the new Professional Engineering (PE) Exam Specifications for Civil Engineers that will be effective beginning with the April 2015 examinations.

The graduates of a four-year college or a university program with a bachelor of science in engineering, bachelor of engineering, master of science in engineering or master of engineering from an Accreditation Board for Engineering and Technology, Inc., (ABET) accredited institution are eligible to take the new computer based Fundamentals of Engineering (FE) examination. This exam is developed and administered by the National Council of Examiners for Engineering and Surveying (NCEES). To register for the FE exam, the engineering licensing board in the state in which licensure is desired must be contacted. Applicants need to apply to the state licensing board to determine if they meet the requirements to take the FE exam. These requirements vary by state.

The FE exam tests applicants on breadth of understanding of basic engineering principles. Passing the FE exam typically qualifies the candidates for certification as an engineer in training (EIT) or engineering intern (EI). After gaining some engineering experience, generally four years, also varies from state to state, applicants have to

take and pass a written Principles and Practice in Engineering, PE examination. The PE exam tests the applicant's knowledge and skills in their chosen civil engineering discipline (i.e., construction, geotechnical, structural, transportation, and water resources and environmental). The PE exam uses both the International System of Units (SI) and the US Customary System (USCS).

The degree requirements for licensure are evolving. For example, effective Jan. 1, 2020, the NCEES will require additional credits beyond a bachelor of science in engineering degree. Effective and beginning with the April 2015 examinations, the new PE exam for the Civil Engineering will have new specifications. The new PE exam will be an eight-hour open-book exam with two sections, **breadth** and **depth** sections. Each section is four hours long and consists of 40 multiple choice questions. Examinees are required to work on all the questions in the morning session and in the afternoon module they have chosen. The final score is a combination of both section results (the depth results and the breadth results).

### PE Exam – Morning Session Breakdown

The morning **breadth** section is 40 multiple-choice questions from the five discipline areas in civil engineering.

- **Project Planning:** 4 questions,
- **Means and Methods:** 3 questions,
- **Soils Mechanics:** 6 questions,
- **Structures:** 6 questions,
- **Hydraulics and Hydrology:** 7 questions,
- **Geometrics:** 3 questions,
- **Materials:** 6 questions, and
- **Site Development:** 5 questions.

### PE Exam – Afternoon Session Breakdown

The afternoon **depth** section is 40 multiple choice questions and focus on a single area of practice in civil engineering (e.g., only construction or only geotechnical). Each discipline will be covered separately in the future articles.

Remember, in both FE and PE exams timing is everything. To conquer these exams speed is very important and speed can only be attained through [practice and more practice!](#)

Until next time,  
– Dr. Z/  
[drz@alfam.com](mailto:drz@alfam.com)



## ASCE-NCS Newsletter Patrons



### **February 4, 2015**

The NCS Younger Members Group sponsors its monthly happy hour from 6–8 pm in Washington, DC. Join other younger members from the area for free appetizers and drink specials. (See newsletter brief.)

### **February 7**

Join ASCE-NCS Younger Members for a walking tour of the abandoned Seneca Quarry site in Montgomery County, MD. (See newsletter brief.)

### **February 17**

The NCS monthly dinner meeting at the Hilton Arlington hosted by NCS's Water Resources Committee presents DC Water's James Wonneberg and Ryan Payne who will update us on the progress of the Blue Plains Tunnel. (See newsletter lead article.)

### **February 17**

[Future City Competition National Finals](#), operating in 37 regions, Future City work with over 1,100 schools and reaches 33,000 students in a semester-long program. This program challenges middle school students to design a city 150 years into the future. Starting with just their imaginations and SimCity software, teams of three students, supported by a teacher and an engineer-mentor, come up with ingenious solutions to specific global challenges.

### **February 18**

**Investigation and Treatment of a Swallowhole\* (aka: Sinkhole Remediation at the National Corvette Museum).** Join the Geotechnical Executive Committee at Maggiano's in McLean, VA from 11:30–1:30 pm for a presentation by Mr. Michael J. Marasa, PE, BDM. Click [HERE](#) to reserve your spot today.

### **February 22–28**

[Engineers Week](#). Share your enthusiasm for engineering and make a difference in a young person's life. Visit the website for related events.

### **February 26**

[Introduce a Girl to Engineering Day](#) started in 2001 as a joint effort between the National Society of Professional Engineers, IBM, and National Engineers Week Foundation.

"Girl Day" 2015 marks the 14th year whereby women engineers, and their male colleagues, have the opportunity to introduce more than one million girls and young women to engineering. Introduce a Girl to Engineering is a national movement that shows girls how creative and collaborative engineering is and how engineers are changing our world.

### **February 28**

[Family Day in Washington, D.C.](#), the annual Discover Engineering Family Day is enjoyed by over six thousand visitors to the National Building Museum in Washington, D.C. For more information contact [Dean Westman](#) or [Emily Dean](#). (See newsletter brief.)

### **March 9–11**

[Global Marathon For, By, and About Women in Engineering and Technology](#) provides global and regional opportunities for women and provides a place to put forward ideas, solve common problems and come together. Designed to be an interactive event, the Global Marathon encourages women to engage and ask questions through live internet chat, webcasts, and phone calls. Join in a live worldwide forum on topics for, by, and about current and future generations of women in engineering and technology.

### **March 10**

Join the Sustainability and Water Resources Committees for a dinner and presentation by Mr. Kent R. Hansen, P.E., Director of Engineering at the National Asphalt Pavement Association, on the **Benefits and Design Considerations of Porous Pavement** at Ragtime Restaurant in Arlington VA. Registration will begin at 6:00 pm and the presentation from 7:00 to 8:00 pm. For additional detail, please email [Alex Rosenheim](#) or [Piers Causton](#) or (202) 210-1103. (See newsletter brief.)

### **March 24**

**Annual ASCE NCS Awards Banquet** at the Hilton Arlington is an opportunity to recognize and celebrate local excellence in projects, engineers, and students who have contributed to our society and our community. Join us as we celebrate

the accomplishments of NCS members who have achieved Life Member status this year, our Graduating Civil Engineering Undergraduate Students, Scholarship award recipients, local ASCE National Distinguished Member Awards recipients, Meritorious Service and Community Service award winners, and the Outstanding ASCE-NCS Civil Engineering Project. (See newsletter article.)

### **March 26**

ASCE hosts its **2015 Outstanding Projects and Leaders (OPAL) Awards Gala** in Arlington, VA. This is the Society's annual black-tie event to honor leadership, achievement, innovation, industry advancement of research, and journalism excellence. For nominations and Gala information, email [Jane Moran Alspach](#).

### **August 5–7**

**EWRI/ASCE Watershed Management Symposium** in Reston, VA. This will be the 50-year anniversary of this multidisciplinary event that unites engineers, hydrologists, soil scientists, foresters, environmentalists, and a variety of other disciplines for technical presentations and great networking opportunities in the midst of the Potomac and Chesapeake watersheds. Abstracts due by **February 2**. For more information, visit the [website](#).

### **August 23–26**

ASCE will sponsor **Pipelines Conference 2015** at the Baltimore Marriott Waterfront Hotel in Baltimore, MD. The conference will focus on recent advances in underground pipeline engineering and construction. Abstracts were due by November 13, 2014 and registration will open in March 2015. For more information, click [HERE](#).