

April 2020 Volume 66, Number 7

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President's Corner

Every March, we celebrate the amazing people and projects within our section at the Annual NCS Awards Banquet. Unfortunately, this year we made the difficult decision to cancel the in-person event due to concern around the COVID-19 virus. Schools in our section have closed, universities have switched to online classes, and many employers are encouraging staff to work from home. Governments in Virginia, Maryland, and DC have encouraged their residents to avoid non-essential gatherings. The coronavirus has created a situation that is unprecedented in our lifetime. It will undoubtedly present challenges that none of us have faced before.

Although this newsletter is published in April, articles are prepared in mid-March for editing and formatting. As such, at the time that I am writing this,



I don't know how this pandemic will play out – and we still may not know for several weeks. I am hoping that by practicing “social distancing” by avoiding public places and limiting interaction with others, we will truly “flatten the curve” and help slow the spread of this virus down. This is critical to ensure our health system does not become overwhelmed. Even so, in the podcasts I've listened to and the articles I've read, this virus has the potential to impact our lives for many more weeks and even months to come.

I want all our members to know that your well-being is our biggest priority. While we regret the cancellation of the Awards Banquet event and many others we had planned for the upcoming weeks, we must be responsible stewards in our community and do what is right to protect our members' health.

As we continue to navigate through the coming weeks and months, NCS may have to continue to cancel or reschedule section meetings, tours, networking events, etc. Anticipate that national ASCE and other engineering organizations will do the same. The USA Science and Engineering Festival originally scheduled for April has been postponed. Please visit <https://www.asce.org/covid-19/> for updates on any scheduled ASCE programs. NCS will be updating our members on the status of upcoming section meetings on our website <https://asce-ncs.org/>.

If you have any questions or concerns, please do not hesitate to email me: president@asce-ncs.org. Stay safe!

Best,



Kelly Cronin, PE
ASCE NCS President 2019–2020

Membership Survey: We Value Your Opinion

The Board's Member Survey has been sent out three times now with limited response. We think there may be company-installed screens for spam, that the word “survey” may be raising red flags, or the message was caught in junk folders, so we are providing a link for you to access it: <https://forms.gle/Q6Wf9ZBFF3w5xJqg9>

We will close the survey at the end of the month, so please take a few minutes to respond. This is your opportunity to evaluate current activities of the National Capital Section and get involved in shaping the future activities of the Section.

Thank you for your help!
Norine Walker

ASCE NCS Member Survey



Please help us check in with our members by providing responses to a 2-3 minute (12 question) survey for the purpose of improving the Section.

Thank you for helping to improve your Section!

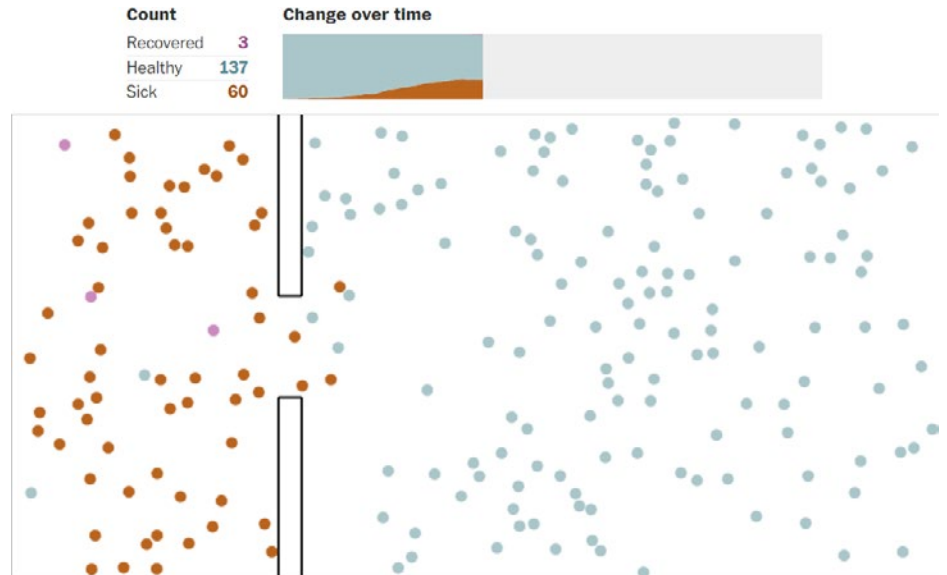
[SURVEY](#)

A Note from the Editor

To echo the sentiments of President Cronin, at the time you are reading this, it is likely the daily routine of our communities have been disrupted. Although gatherings and events must be cancelled or postponed to uphold the intent of Canon 1 of the ASCE Code of Ethics (Engineers shall hold paramount the safety, health, and welfare of the public...), I'd like to remind our members to use virtual tools which can be leveraged during times like these to conduct business, distribute content, and engage our membership.

As engineers who consume and produce data regularly, I wanted to share with you an impactful interactive article by Harry Stevens from The Washington Post: [Why outbreaks like coronavirus spread exponentially, and how to "flatten the curve"](#). This article contains simulations of different mitigation efforts illustrated with moving dots, an example of which is shown (below to the right/left). These types of visual simulations communicate information efficiently and effectively, without laboring to use the "right" words.

But I digress; I'd like to leave you with a reminder that we all have the power to impact our surroundings – every individual's actions count. Although we may not be able to continue with our



Example simulation from The Washington Post article, see left.

usual routines and habits for the foreseeable future, the present crisis may be an opportunity to start new habits and behaviors: reaching out and supporting our community members in need, showing appreciation for the service industries which remain open to maintain our society, rallying behind those who provide healthcare, retail, delivery, and public transportation services, and recognizing all those whose presence we take for granted.

Organizations, businesses, and governing bodies will be scrutinized in the history books not for what they said, but for what they did. Let's make our community proud to be enriched by ASCE.

Sincerely,

Maria Raggousis
ASCE NCS Newsletter Editor, 2019–2020

Upcoming Events

Until further notice, all in-person ASCE NCS events have been cancelled. Opportunities for virtual events will be announced as they are planned.

Newsletter

Maria Raggousis, Editor

May 2020 Issue Deadline: April 15, 2020

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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Shainur Ahsan, Reston Branch President

Committee Chairs

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

ASCE NCS Award: 2020 Life Member Status

ASCE NCS congratulates the following people for their outstanding commitment as they are elevated to the status of "Life Member" within the ASCE community:

Mukhtar Ahmad	Jonathan Esslinger	William Lebegern	Robert Scott
James Biasco	Peter Florian	Paul Makowski	Mathini Sreetharan
J Michael Brame	William Gilman	John Person	Kelly Titensor
John Brynda	Brad Iarossi	Navaid Qureshi	Stephen Watkins
Peter Copplesstone	James Koch	Juan Reyes	Gerald Yakowenko
Christian Davies-Venn	Raymond Kovachik	W. M. Kim Roddis	
Richard DeiTos	Raymond Krammes	Gary Runco (Reston Branch)	

ASCE NCS Award: 2020 Outstanding Graduating Seniors

ASCE NCS congratulates the following graduating seniors for their outstanding commitment to their academics, community, and future profession:

Bryan Minarczyk , <i>Catholic University of America</i>	Sigmund A. Skinner , <i>Howard University</i>	Yoon Sil (Wendell) Choi , <i>George Washington University</i>	Jose Leon , <i>University of the District of Columbia</i>
Camille N. Wallace , <i>Howard University</i>	Kledi Mita , <i>George Mason University</i>		

ASCE NCS Award: 2020 Scholarship Recipients

ASCE NCS is proud to have awarded \$13,750 in scholarships this year. Please join us in congratulating the recipients hailing from all five schools within our jurisdiction:

Christina A. Brown , \$750, <i>Catholic University of America</i>	Andrea D. Sveinsson , \$750, <i>George Mason University</i>	Lobna Youssef , \$1,500, <i>George Washington University</i>	Malik J. Shingler , \$1,000, <i>University of the District of Columbia</i>
Anna M. Maupin , \$1,500, <i>Hathaway Memorial Award, Catholic University of America</i>	Brendan M. Wilkins , \$750, <i>George Mason University</i>	Jhanelle TPG Davy , \$1,500, <i>Harland Memorial Award, Howard University</i>	Kevin Turcios Lovato , \$1,000, <i>Williams Memorial Award, University of the District of Columbia</i>
Karla A. Pineda , \$1,000, <i>Hummel Memorial Award, George Mason University</i>	Mohammad R. Badeeb , \$750, <i>George Washington University</i>	Kammau KS Sykes , \$1,500, <i>Howard University</i>	
	Ryan Dunan , \$750, <i>George Washington University</i>	Carla Flores Benavides , \$1,000, <i>University of the District of Columbia</i>	

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ASCE NCS Award: 2020 Project of the Year

International Spy Museum Washington, DC

Construction Start Date: June 2016

Grand Opening: May 2019

Project Cost: \$162 million

Gross Area: 140,000 sq. ft

Owner & Developers: The International Spy Museum; The Malrite Co.; JBG Development Co.

Lead Design Firms: Rogers Stirk Harbour + Partners; Hickok Cole Architects

General Contractor: Clark Construction Group LLC

Structural Engineer: Thornton Tomasetti; SK&A Structural Engineering

Civil Engineer: Wiles Mensch Corp.

MEP Engineer: Vanderweil Engineers

Facade Engineer: Eckersley O'Callaghan



Building Enclosures: WSP USA

Structural Glass Veil: Roschmann Steel & Glass Constructions Inc.

The International Spy Museum established a goal to create a world class museum with Smithsonian-level thermal and humidity controls in an architecturally impactful building. Creativity, innovation, and collaboration were critical to the success of the project. The final design concept is a play on the tradecraft of espionage: hidden in plain sight. The mystery and intrigue of the exhibits are obscured behind a dark metal black box sitting above a transparent base. With its evocative form, powerful sloped columns, corrugated



metal panel skin, and pleated glass veil, the museum makes a vibrant architectural and urban statement in the existing concrete canyon of 10th Street. The design positions the new Museum as a catalyst to revitalize the L'Enfant Plaza Promenade, reinforcing the intentions of the SW Eco-District Plan by connecting the National Mall to The Wharf and future developments south of the site.

ASCE NCS Award: 2020 Sustainable Project of the Year

Unisphere Net Zero Project Silver Spring, MD

Year Project Developed/Implemented: 2018

Project Cost: \$107 Million

Gross Area: 210,000 sq. ft

Owner: United Therapeutics

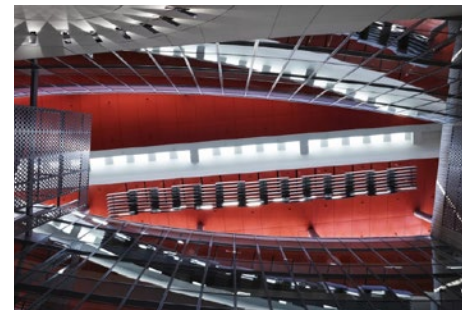
Lead Design Firms: Ewing Cole

General Contractor: Whiting-Turner

The Unisphere Project is the United Therapeutics Corporation's world headquarters, located in downtown Silver Spring, Maryland. The groundbreaking facility consists of several



multi-story buildings housing a mix of Class-A office space, biotech laboratories and retail. The largest net-zero commercial building in the nation, the Unisphere project sets a new standard of energy performance for commercial office development and environmentally conscious design. Architecturally, the design is informed by the gateway



potential of the site and the overall composition of the project takes cues from the massing, forms, and materials of adjacent campus buildings, resulting in a series of curving and rectilinear surfaces with varying scales and capped with a sweeping solar canopy which creates a complete visual entity that spans two city blocks.

Congratulations to all award recipients, certificates will be sent in the mail. Ensure that contact information and addresses are up-to-date in your account information on the ASCE National website.

Spy on Spy: Secrets of the International Spy Museum Building Enclosure Revealed

By Paul Totten, PE, LEED AP

Erin McNamara of Hickok Cole (Architect of Record) and Paul Totten of WSP (Building Enclosure Consultant) presented some revealing facts and the building science of the enclosure systems at the new International Spy Museum at L'Enfant Plaza. From a secret message on the back of the building on the metal panel system in binary code, to the play on what is in the light and what is hidden on spy craft woven throughout the façade, this architectural masterpiece houses some of the most fascinating exhibits of any museum in Washington, DC. They discussed the cladding design and the process of using a white fluid applied air and weather barrier. Since the cladding is also used for backlighting, the air and weather barrier had to be finished to a smoother consistency behind the metal panel system. The challenges of installing these systems were discussed as well.



The speakers also discussed the atrium space. People movement combined with HVAC distribution, and separation from the museum space helps reduce condensation risk, which can be tricky to accomplish in an atrium. They covered material considerations, material

compatibility and working through the process of detailing a well performing building that also meets LEED requirements. The talk was well attended, and the audience had several detailed questions on the museum and the systems used. ■

WSSC Announcements

Maryland Board of Public Works Approves \$5.6 Million Grant to WSSC Water to Help Protect the Chesapeake Bay

Laurel, Md. – March 4, 2020 – The Maryland Board of Public Works (BPW) today approved a \$5.595 million Bay Restoration Fund Grant to help fund WSSC Water's share of major upgrades to the Blue Plains Wastewater Treatment Plant (WWTP) in Washington, D.C. The upgrades significantly reduce the amount of nitrogen and phosphorous, nutrients that contribute to poor water quality, from entering the Potomac River and Chesapeake Bay.

"These state-of-the-art treatment upgrades underscore our commitment to protecting our beloved Chesapeake Bay," said WSSC Water General Manager and CEO Carla A. Reid. "We thank BPW members for approving this important grant and appreciate the Maryland Department of the Environment's ongoing support of our clean-water mission."



The multi-phased project consists of planning, design and construction of Biological Nutrient Removal (BNR) and Enhanced Nutrient Removal (ENR) upgrades at the treatment plant. WSSC Water is responsible for funding approximately half of the project – nearly \$400 million of the total \$850 million. To date, the state has committed nearly \$172 million in grants and nearly \$100 million in low-interest loans to help cover WSSC Water's share.

Construction on the multi-year program to upgrade the plant began in 2007 and should be completed within the next few years. On average, Blue Plains WWTP treats approximately

60 percent of wastewater flows generated by Montgomery and Prince George's County residents.

Water Quality Test Results for Per- and Polyfluoroalkyl Substances (PFAS)

Laurel, Md. – March 10, 2020 – WSSC Water today announced water quality test results for the presence of Per- and Polyfluoroalkyl (PFAS) substances in its drinking water. Test results, which are posted on [WSSC Water's website](http://www.wsscwater.com), confirm that the drinking water serving Montgomery and Prince George's County homes and businesses is safe from PFAS contamination and no additional treatment is necessary.

Using advanced analytical testing methods developed and approved by the U.S. Environmental Protection Agency (EPA), WSSC Water tested for 18 different PFAS compounds at its Potomac and Patuxent Water Filtration Plants and

continued on page 8

Do You Know Who Your True Ally is During the Fundamentals of Engineering (FE) Exam?

Almost all engineering students know the Fundamentals of Engineering (FE) exam is a computer-based test (CBT), and the *NCEES FE Reference Handbook* (version 9.5) is the only resource material that will be displayed on your exam monitor as a searchable PDF file. In this month's article we will talk about this important "ally" and even create a practical case study.

By now, our readers, students and practicing engineers who are preparing to take their FE exam for the first time know that the most important advice they is to review the *FE Reference Handbook* (v. 9.5) as often as possible before the exam day and becoming familiar with the formulas, tables, charts, and other information in the reference book.

As we have indicated in earlier newsletters, you will not be allowed to bring your personal hard copy of the Handbook into the exam room. You must rely on the electronic PDF version of the FE Reference Handbook, which will be very similar to the printed hard-copy version. Quite often students ask us about the best strategy to find a formula or specific information in the searchable PDF file as quickly as possible. For this, the keyboard shortcut "CTRL-F" comes to the rescue. Below, we will create an actual case study to decipher the whole search process.

When you use the keyboard shortcut "CTRL-F", you will be prompted with a dialogue search box to enter the keywords you would like to search for. Once your keywords have been entered, the keywords will show up highlighted in the reference manual and you can skip from one result to the other until you find exactly what you are looking for.

Case Study: Searching for the numerical value of the Modulus of Elasticity of Steel in the *FE Reference Handbook* (v. 9.5):

Most of us who regularly use values for the Modulus of Elasticity know that the modulus of elasticity of steel is $E = 29 \times 10^6$ psi (29.0 Mpsi) in the U.S. Customary Unit System or $E = 200$ GPa in the SI unit system. These values are found on page 89 of the *FE Reference Handbook*.

As a case study, let us try to find these values in the PDF version of the *FE Reference Handbook*. Here are the possible steps for the search:

1. First you open the PDF file and once you see the cover of the Reference Handbook on your monitor, enter the keyboard shortcut "CTRL-F". You will be prompted with a dialog search box with PREVIOUS and NEXT keys.

2. Type "Modulus of Elasticity of Steel" and hit the ENTER key. Surprisingly you will get the following message: "Acrobat has finished searching the document. No matches were found." Then what do you do?

3. One possible next step would be to remove the word "steel" and leave the "Modulus of Elasticity" part and hit the ENTER or NEXT key again. Immediately Page 67 of the Reference Handbook will open, and you'll see the following highlighted definition: *The elastic modulus (also called modulus of elasticity, Young's modulus) describes the relationship between engineering stress and engineering strain during elastic loading.*

But this definition is not what we are searching for. We are searching for the numerical values of the modulus of elasticity of steel, not its definition. Then what do you do?

4. The easiest way would be clicking the ENTER key or NEXT key on the dialog box again, then you'll see another reference on page 67.

5. Clicking the ENTER/NEXT key again, will open the page 88 of the reference handbook.

6. If you keep clicking the ENTER/NEXT key several more times, you'll see references on other pages as well and finally the unpleasant message "Acrobat has finished searching the document. No matches were found."

Now let us try to use another term as the search word in the dialog box for the Modulus of Elasticity, that is: Young's Modulus. Once you enter "Young's Modulus" and hit the ENTER key repeatedly, you'll see references on Pages 246 and 248 of the Mechanical Engineering section of the handbook. Still we are not getting the numerical values. If you keep clicking the ENTER/NEXT key repeatedly, you'll see references on several pages of the handbook and finally, BINGO! You'll see the page that you're looking for, the "Typical Materials Properties Table" on Page 89.

And lastly, we remind our readers that the F.E. and P.E. are very fast-paced exams and you will have little time to look up information. Therefore, make sure you are familiar with the electronic and hard-copy versions of the FE Reference Handbook. This will help you to build your confidence and conquer the exam on your first attempt!

Good Luck,
Ahmet Zeytinci (Dr.Z.)
az@akfen.com



Literature, or art, and its role in human life

by Ranjit S. Sahai, PE, F.ASCE

This month we continue our exploration of the value of art, specifically literature, to human life, and our careers too.

Literature and its importance

The earliest surviving work on the theory of literature is Aristotle's *Poetics*, written in 335 BC, in which he said, "fiction is of greater philosophic importance than history, because history represents things as they are, but fiction represents them as they might be and ought to be."

William J. Long, in his book *English Literature*, published in 1909 writes: "Literature is the expression of life in words of truth and beauty; it is the written record of man's spirit, of his thoughts, emotions, aspirations; it is the history, and the only history, of the human soul. It is characterized by its artistic, its suggestive, its permanent qualities. Its two tests are its universal interest and its personal style. Its object, aside from the delight it gives us, is to know man, that is, the soul of man rather than his actions; and since it preserves to the race the ideals upon which all our civilization is founded, it is one of the most important and delightful subjects that can occupy the human mind."

Ayn Rand, in her book *The Romantic Manifesto*, revised edition, published in 1975, writes: "Man's profound need of art lies in the fact that his cognitive faculty is conceptual, i.e. he acquires knowledge by means of abstractions, and needs the power to bring his widest metaphysical abstractions into his immediate, perceptual awareness. Art fulfills this need: by means of a selective re-creation [of reality], it concretizes man's fundamental view of himself and of existence. It tells man, in effect, which aspects of his experience are to be regarded as essential, significant, important. In this sense, art teaches man how to use his consciousness. It conditions or stylizes man's consciousness by conveying to him a certain way of looking at existence."

The key elements of fiction

Aristotle writes that the plot, i.e. sequence of events, is the soul of a story. The portrayal of character takes second place, as it illuminates a character's motivation underlying their actions over the course of a story's plot.

William J. Long, in his definition of literature, identifies its qualities as: artistic (the beauty of expression of content), suggestive (its appeal to our emotions and imagination), permanent (combination of universal interest and author's personal style that lead to its permanence).

Ayn Rand in *The Art of Fiction* identifies the key elements of fiction as: plot (a purposeful progression of events), characterization (presentation of the nature and motives of people through action and dialog), and style (how thoughts are conveyed through the selection of content, and of the words by their connotation and denotation). She goes on to add that a novel's theme is the abstraction that connects all its events – and the wider a novel's theme, the better it is as a work of art.

Evaluating great literature

In his book *Discovering Great Plays*, Leonard Peikoff explains that great literature is characterized by not only its brilliant plot and heroic characters, but also its wide scale of vision, versus the mundane or trivial, and its ability to invoke a sense of uplift and exhilaration.

Art, he says, is the creation of a world: enter it, live in it, get to know the events and the characters. Only then can you come back to evaluate it.

To objectively evaluate art is, he goes on, to be able to prove your analysis of it. The author does this by evaluating nine great plays, which include *Antigone* by Sophocles produced in 442 BC; *Othello* by Shakespeare written in 1602, *Le Cid* by Pierre Corneille first performed in 1637, *Don Carols*

by Frederich Schiller written in 1787, *Cyrano de Bergerac* by Edmond Rostand written in 1897, among others.

His method of evaluation consists of a discussion of each play under six headings: Introduction, Plot-theme, Plot development, Characterization, Theme, and Philosophy.

Purpose of art

The purpose of contemplating great art is to simply experience pleasure, to see vividly the expression of its abstract theme, to understand the essentials that underlie the artist's vision.

Great art is inspiring. It can even help you think creatively when facing a problem you can't seem to solve. How?

Coming up next month

We'll answer the above question by entering the world of Charlie Bannon, the manager of construction, i.e. a civil engineer, and the protagonist in a novel that was published in 1901.

We'll live through the events in his life and get to know the characters he interacts with. You'll know why – over the course of the next several months – when faced with a seemingly insurmountable problem, by closing my eyes and thinking "What would Charlie Bannon do?" a creative thought process take shape to help me think through the problem from a perspective I hadn't considered before.

About the Author

Ranjit, a Past President (2013–14) of ASCE-NCS, is a principal and founder of RAM Corporation, a firm serving State DOTs with a focus on traffic engineering design, stormwater facility inspections, and IT solutions for engineering workflows. He is also an [author](#) and speaker.



WSSC Announcements

continued from page 5

found the vast majority of compounds were either not present or present at such extremely low concentration levels that they could not be accurately quantified. These two plants provide drinking water to 1.8 million residents in Montgomery and Prince George's counties.

Only two compounds, Perfluorohexanoic acid (PFHxA) and Perfluorooctanoic acid (PFOA), were detected at levels barely above the minimum reporting level of 1.8 parts per trillion (ppt), yet still well below EPA's PFOA health advisory level of 70 ppt. There is no known health standard for PFHxA. These levels are also well below any standard established by other states. One part per trillion is equivalent to one drop of water in 20 olympic-sized swimming pools.

"These results confirm that our drinking water is safe and WSSC Water customers should not think twice about filling up their glasses or water bottles with our clean and refreshing tap water," said WSSC Water Production Director J.C. Langley. "We will continue to test for these compounds on a quarterly basis and share results with customers and our state and federal partners."

On January 24, 2020, WSSC Water announced it will resume testing its drinking water for the presence of PFAS substances. This proactive measure goes above and beyond federal and state requirements. Drinking water samples will be collected and tested from both filtration plants on a quarterly basis, with the next round of results available in late spring 2020.

PFAS are a group of man-made chemicals that were developed in the 1940s to be fire, oil, grease, water and stain resistant. The chemicals are found in a wide array of consumer and industrial products, including non-stick cookware, stain repellent, dental floss, cleaning products and cosmetics. Because of their widespread use in everyday household products, these compounds are commonly found in the human body. The most common means of PFAS entering the environment are discharges from PFAS manufacturing and processing facilities, and from facilities that use the product in large quantities such as airports and military installations.

While there are no known PFAS-contaminated sites located upstream of WSSC Water drinking water sources, Langley strongly encouraged continued

federal and state action to clean up PFAS-contaminated sites nationwide to prevent these chemicals from entering drinking water supplies.

WSSC Water has an aggressive water quality testing program – performing 500,000 laboratory tests per year on samples collected at both water filtration plants and 90 different locations spread throughout its service area. If WSSC Water customers have questions or concerns about water quality, they can call 301-206-4002. More information on PFAS can be found at [EPA's website](#) or at www.wsscwater.com/pfas.

Contact

Chuck Brown
charles.brown@wsscwater.com
301-206-8100

About WSSC Water: WSSC Water is the proud provider of safe, seamless and satisfying water services, making the essential possible every day for our neighbors in Montgomery and Prince George's counties. We work to deliver our best because it's what our customers expect and deserve. ■

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](#).

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ASCE-NCS Committee and Branch News and Updates

Reston Branch

By Christopher J. Friend, P.E., Reston Branch Vice President

On March 10th, ASCE Structural Engineering Institute (SEI) President Glenn Bell provided an update on various important and exciting initiatives underway in SEI including advancements in performance-based design, case studies recently processed from Confidential Reporting on Structural Safety (CROSS) – US, young professionals initiatives, sustainability and resilience, consideration of leadership training programs for SE leaders of the future, and collaboration with other organizations such as NCSEA, CASE, and IStructE. Glenn particularly highlighted the plans and initiatives for CROSS, where additional information can be found at the following website: www.cross-us.org. Glenn also lead a town-hall type discussion with participants on advancing the profession from local and national perspectives. Overall, Glenn's presentation was a very informative and engaging experience for our Branch members!



As the situation regarding COVID-19 develops, we regret to note that the Reston Branch does not have scheduled events for the upcoming months. Our Branch will closely coordinate with the National Capital Section and ASCE as a whole to determine appropriate steps and measures for future events. In the meantime, please see ASCE's website of resources regarding COVID-19 at the following link: <https://collaborate.asce.org/covid-19/home>. Our Branch looks forward to the return to our regular events once these difficult times have passed.

The Reston Branch has launched a [group](#) on LinkedIn to provide regular updates for the branch as well as offer a place for branch members to connect. See the following link for additional information: <https://www.linkedin.com/groups/13759693/>

Transportation Committee

By Norelis M. Florentino, P.E., PMP, M.ASCE

Smart Cities are Here! The ASCE Transportation Committee was honored to have Neil J. Pedersen, Executive Director for the Transportation Research Board (TRB), speak at WSP USA Inc. in Washington D.C. during the February 18, 2020 lunch meeting. His topic was "Understanding and Harnessing Smarter Mobility for Smarter Cities." His talk focused on understanding the transformational technologies that are shaping the transportation industry to take advantage of their benefits and improve the future. These technologies include various types of automated vehicles, autonomous vehicles, and mobility services. Mr. Pedersen clarified that "an automated vehicle is one that takes control of some or all aspects of driving and an autonomous vehicle is one capable of performing all driving functions under all conditions." It was interesting to note that Waymo, an American autonomous driving technology development company, has begun an automated taxi service in Phoenix, AZ with no driver. The smarter cities of today provide smarter mobility for individuals, groups of people, cargo and package delivery, and technology services to choose the best transportation option.



Neil J. Pedersen, TRB Executive Director, discussing Smart Cities at WSP USA Inc. in Washington D.C.

Smarter cities are allowing people to use a variety of vehicles types and technology services to arrive at their desired destinations. These include Connected Vehicles (CV), Electric Vehicles (EV), Shared Mobility (SM) Services, Shared Connected Autonomous Electric Vehicles (SCAEV), and Mobility as a Service (MaaS). Connected Vehicles (CV) enable drivers to make better driving decisions and improve their safety. These vehicles use different

communication technologies to communicate with the driver, other cars, road infrastructure, and the "cloud." Some connected vehicles are being tested on many U.S. roadways and there are currently USDOT Pilots in New York, Tampa, and Wyoming. Electric Vehicles (EV) provide fuel cost savings and the potential to improve the environment. Currently, there are many autonomous vehicles being developed with an electric vehicle platform. Shared Mobility (SM) Services are playing a major role in most U.S. cities to the point that they are displacing many taxi companies. These services are offered by Transportation Network Companies such as Uber and Lyft, car sharing services such as Zipcar and Car2go, and Peer-to-Peer services such as Turo and Getaround. In addition, there are micro mobility services such as bike sharing, shared electric scooters, and micro-transit. To make it more interesting, Shared Connected Autonomous Electric Vehicles (SCAEV) will allow passengers to share a vehicle with no driver. To date, there are no pilots in the U.S., but auto manufacturers are planning to operate SCAEV fleets in the future. The convenience of Mobility as a Service (MaaS) is becoming more popular because it allows users to access and pay for a variety of multi-modal public and private travel options with a single account in real time considering travel time and cost. The different types of vehicles and technology services available are making it easier for people to travel, improving the environment, and helping to alleviate traffic congestion.

On the mass transportation side, Autonomous Transit Vehicles are also making a great impact in our smarter cities. These vehicles include low speed autonomous shuttles that carry 8–12 passengers and autonomous full-sized busses that can operate without a driver. The low speed shuttles usually operate with a safety attendant on board. They are currently operating on various types of campuses and private roads in various states. The low-speed fixed-route shuttles are operating with a safety supervisor on board on public streets in several cities. The autonomous large busses are not operating on public streets yet and all the pilots have included an attendant regardless of the

continued on page 10

cost savings from not having an attendant. While it seems thrilling, it is debatable whether passengers will be willing to ride without attendants. Autonomous Transit Vehicles are providing a viable option for mass transportation and they will continue to do so in the future.

Autonomous trucks and delivery vehicles are changing the way many companies deliver cargo and packages. The U.S. Postal service and UPS have pilot tested autonomous trucks on long distance routes in the Southwest U.S. These trucks have also been used for Truck Platooning where the lead truck is operated by a driver and the trucks that follow operate autonomously and connected to the lead truck. These connected truck platoons are operating on limited access roadways in several states. Autonomous delivery vehicles are being used by companies such as Amazon and Walgreens. These vehicles include small autonomous robots that operate on sidewalks, autonomous vehicles that operate on streets, and unmanned aerial systems or drones that deliver packages. Amazon is using Amazon Scout, a 6 wheeled robot, to deliver packages to their customers in [Irvine, California](#) and [Snohomish County, Washington](#). Walgreens is using drones to deliver 100+ products to customers in Christiansburg, VA. Nuro, an American robotics company, is piloting grocery deliveries in Scottsdale, AZ. As evidenced, autonomous trucks and delivery vehicles are helping companies become more efficient.

Automation for transportation by air, rail, and sea is also in the works. There are several U.S. companies developing Urban Air Mobility (UAM) technologies, but there are no demonstration or pilot projects to date. This type of technology provides an on-demand and automated passenger or cargo-carrying air transportation service that is typically flown without a pilot. Autonomous ships, and autonomous vehicles in ports, railyards, and intermodal facilities are also being contemplated for the future. There are many benefits and challenges with the transformational technologies. However, Mr. Pedersen described the top ten issues for automated vehicles and shared mobility to be as follows:

- 1) Infrastructure Issues,
- 2) Safety Issues During the Transition to Highly Automated Vehicles,
- 3) Policies to Ensure Safety Prior to Full Deployment,

- 4) Traveler Behavior Issues,
- 5) Data Issues,
- 6) Impacts on Transit,
- 7) Planning and Planning Models,
- 8) Land Use Issues,
- 9) Addressing Social Impacts, and
- 10) Social Inclusion and Equity.

Smarter mobility for individuals, groups of people, cargo and package delivery, and technology services available are making our cities smarter. The variety of vehicles types and services aid in better decision making and cost savings. The mass transportation automation will continue to help mitigate traffic congestion. Some businesses are becoming more efficient by taking advantage of autonomous trucks and delivery vehicles in several states. Automation is currently being developed for mobility by air, rail, and sea. While there are still many challenges with the new technologies, there is a positive outlook on the what the future has in store for the growing population. The key is to understand and harness Smarter Mobility to continue creating Smarter Cities!

To learn more, join a TRB Technical Committee at www.MyTRB.org and attend the following events: Automated Vehicle Symposium San Diego, California (July 27 – 30, 2020) and TRB Annual Meeting, Washington, DC (Jan. 24 – 28, 2021).

Education Committee (Collegiate)

By [Jameelah M. Ingram, P.E., M. ASCE](#)
Scholarship Awards. This month, ASCE NCS and the ASCE NCS Scholarship Board of Trustees granted monetary awards and special recognition to well-deserving undergraduate students at the Catholic University of America, George Mason University, George Washington University, Howard University, and the University of the District of Columbia. The ASCE NCS Education Committee offers its congratulations!

The Three C's of Networking for Students at Future Industry Events

- 1) **Current Events** – Prior to attending a networking event in the future, stay updated on current events relevant to the civil engineering industry. The topics may make for great conversation starters.
- 2) **Cards** – After engaging with a professional at an event, request a

business card. Better yet, exchange business cards. Students who maintain a business card are often memorable. Conduct a search online for custom business cards or speak with a career services representative from your campus for printing options.

3) **Connect** – After meeting a professional or student at an event, be sure to connect with them via email or social media. It is a great idea to reference a topic from the conversation. Engaging through comments and posts on LinkedIn is another way to follow-up. *Also, given the current state of events, social media in general is an excellent way to stay-in-touch until in-person gatherings resume.*



Younger Members Forum

By Sarah Shay, YMF Secretary/Newsletter
Monthly Happy Hour. The NCS Younger Members Forum (YMF) holds monthly happy hours, alternating between Arlington, VA and Washington, DC. Happy hours are usually the first Wednesday of each month unless a holiday falls during that week.

In March, the NCS YMF held its monthly networking happy hour at Ireland Four Courts in Arlington, VA. The group celebrated Saint Patrick's Day over fun conversation and appetizers. The group will be cancelling our next happy hour to comply with Washington D.C. coronavirus orders and to prevent the further spread of the disease. The YMF hopes that all ASCE-NCS members and their loved ones stay safe and healthy in the coming months!

Professional Development. If you have suggestions for professional development meeting topics, or would like to become more involved with the YMF in other areas, please contact the YMF President at ncsymfpresident@gmail.com.

Stay Connected! Check out photos and stay up-to-date with YMF events by visiting the new YMF Facebook page (ASCE National Capital Section Younger Members Forum), following us on Twitter (@asce_ncs_YMF), connecting with us on LinkedIn (ASCE National Capital YMF), and following us on Instagram (@asce_ncs_ymf). ■