

April 2018 Volume 64, Number 7

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April Section Meeting: Alexandria's Clean Waterways Program for its Combined Sewer System

The City of Alexandria's sewer system covers 15.4 square miles, of which less than 6% (540 acres) is served by a combined sewer system dating back to the early 1800s. During wet weather after the capacity of the sewer system is reached, combined sewer flows (mixture of sanitary sewage and stormwater) discharge to the surrounding waterbodies through four outfalls located in the Old Town area of the City. These discharges, or combined sewer overflows (CSOs), typically occur 60–70 times per year. There are over 800 combined sewer systems nationwide.

The City has developed a Long Term Control Plan that proposes approximately \$360 million of infrastructure to comply with a 2017 CSO State Law. This law requires the City to significantly reduce the number and volume of CSOs to comply with the Environmental Protection Agency (EPA's) CSO Policy and local total maximum daily load (TMDL) for bacteria. Additionally, this law mandates the City to complete construction by July 1, 2025.

Please join the American Society of Civil Engineers-National Capital Section (ASCE-NCS) and Environmental Water Resources

Institute (EWRI) National Capital Chapter at the Hilton Arlington on Tuesday, April 17, 2018, as Erin Bevis-Carver presents on:

- The history of the City's combined sewer system
- City's existing program for reducing impacts of CSO discharges
- Overview of the City's Long Term Control Plan and Clean Waterways Program

About the Speaker

Ms. Erin Bevis-Carver, PE, is a Civil Engineer in the Sanitary Infrastructure Division of the City's Department of Transportation and Environmental Services. In her role, she is responsible for the planning of capital projects for both the City's separate sanitary and combined sewer system, compliance with the City's Combined Sewer System Virginia Pollutant Discharge Elimination System (VPDES) Permit, and plan review for development and redevelopment projects. Erin is a Professional Civil Engineer with twenty years of experience. She has been with the City of Alexandria's Department of Transportation and Environmental Services since 2010. ■

Please join us on **Tuesday, April 17**, 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 \$55 for those preregistering, \$20 for students and \$65 for walk-ins, as space allows. One Professional Development Hour is available to attendees. For questions, please contact [Brian Barna](#). Please click [here](#) to register by **April 12**.

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.



President's Corner

In the early afternoon of Thursday, March 15th, a 950-ton concrete bridge span under construction near the campus of Florida International University suddenly collapsed onto the road below, killing 6 people. At ASCE's annual Outstanding Projects and Leaders (OPAL) Awards



a few hours later, ASCE President Kristina Swallow opened the evening by offering a moment of silence for the victims of the bridge collapse. Coincidentally, the first award of the night went to an FIU professor. It was evident that he was shaken by the bridge collapse and he asked for quiet reflection of the disaster in lieu of giving a celebratory speech. It was a touching and appropriate tribute.

It would be unethical for me to speculate in this venue what could have caused this collapse, so I will refrain from doing so. The structural failure will certainly be investigated for several months, and ultimately, the conclusions will be made public. I will instead use this space to offer my opinions on the state of our civil engineering profession in general: what we're doing well, and things that we need to keep in mind to prevent tragedies like the FIU bridge collapse from occurring.

First, let's talk about what we're doing well. In a country with hundreds of thousands of buildings and bridges, a structural collapse of this significance is fortunately a relatively rare event. We can thank several factors for this including robust and conservative building codes, quality construction materials with consistent and predictable properties, diligent inspections for projects in construction and in-service, and our talented

engineers. The first Canon of the *ASCE Code of Ethics* states, "Engineers shall hold paramount the safety, health and welfare of the public and shall strive to comply with the principles of sustainable development in the performance of their professional duties." The number-one responsibility of all engineers is to produce designs that are safe, and this is a responsibility that most engineers take seriously and strive to achieve.

There are some factors within the industry that potentially can pose a threat to our ability to uphold this most important canon if we do not have the courage to hold public safety as a priority over everything else. First, computers have become indispensable tools for all engineering disciplines. It can be tempting to trust whatever results the software spits out (the dreaded "black box" approach), but the computer output can only be as good as the input. The results must be analyzed by experienced engineers and compared to expected results based on preliminary calculations and rules of thumb to confirm the results are reasonable. Computers allow us to analyze structures of ever-increasing complexity much faster than we could using conventional pencil-and-paper calculations. The project's decision makers know this, so in turn they propose increasingly complex projects, and often allow less time in the schedule to design them. We absolutely should continue to design projects that are bigger, taller, longer, more complex, more sustainable and not shy away from a challenge. But there are limits to what can be done. No one likes to turn down work, but that is what you must do if you know that your firm lacks the technical ability

and/or the manpower to completely engineer a safe design within the time allotted in the schedule.

At my first employer, every year in our annual performance reviews, my boss would automatically give every engineer in the structural engineering department a 3 out of 5 for "creativity," explaining that he did not want his structural engineers to get too creative. While I disagree with this premise and think there is a lot of room for creativity in civil engineering (it's what sets us apart from the robots), the overarching lesson was not lost on me. Start with the basics, the tried-and-true methods and designs that we know from experience will work. Then, adapt that design to address whatever makes a specific project a little different from the standard design.

We must also continue to advocate for funding to address the crumbling infrastructure that is already in place. ASCE's *2017 Infrastructure Report Card* reports that 56,000 bridges in the U.S. are structurally deficient – and it would cost an estimated \$123 billion to fix them all. Become a Key Contact and reach out to Congress regularly and tell them that this is an important issue. Also, if you see an issue that endangers the safety, health, or welfare of the public, you must have the courage to blow the whistle and, if necessary, insist that the resource be shut down until the problem is resolved. It may be an unpopular decision if it causes inconvenience to customers or costs the owner money, but when it involves protecting the public, it is the only option to take.



Brian Barna, P.E.
ASCE-NCS President

Newsletter

Jim Palmer, Editor

Sumon Chatterjee, Editor-in-Training

May 2018 Issue Deadline: April 20, 2018

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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Lisa Anderson, Reston Branch President

Committee Chairs

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

2018 NCS Award Winners

The NCS Annual Awards Banquet is an opportunity for the Section to recognize individuals and teams for outstanding achievement. Despite an impending snow storm, nearly 100 members, guests, and students attended the 2018 Awards Banquet on March 20 at the Hilton Arlington. *A special thank-you to our photographer Dr Z!*

Civil Engineering Student Awards

The NCS awarded \$14,000 in scholarships to deserving Civil Engineering students from all five of our area schools: The Catholic University of America (CUA), George Mason University (GMU), The George Washington University (GWU), Howard University (HU) and University of the District of Columbia (UDC). We also honored the faculty's selection for Outstanding Graduating Senior from those schools.

Student Scholarship Awards	
The Catholic University of America	
Marykate Selgrath	ASCE-NCS Scholarship
George Mason University	
Omar Azizi	ASCE-NCS Scholarship
Andres Izquierdo	ASCE-NCS Scholarship
Sarah Shay	Williams Memorial
The George Washington University	
Yoon Sil Choi	Hathaway Memorial
Kelsey Donoghue	Hummel Memorial
Howard University	
Laxman Dahal	ASCE-NCS Scholarship
Sigmund Skinner	ASCE-NCS Scholarship
Camille Wallace	Harland Memorial
University of the District of Columbia	
Victoria Church	ASCE-NCS Scholarship
Mawaki Bidjada	ASCE-NCS Scholarship
Sandae Tait	ASCE-NCS Scholarship



CUA scholarship recipient Marykate Selgrath (C) accepts an ASCE-NCS Scholarship from Scholarship Trust Fund Chairman Bernie Dennis (L) and NCS President Brian Barna (R)



GMU scholarship recipient Omar Azizi (C) accepts an ASCE-NCS Scholarship



GMU scholarship recipient Andres Izquierdo (C) accepts an ASCE-NCS Scholarship



GMU scholarship recipient Sarah Shay (C) accepts the Williams Memorial Scholarship



GWU scholarship recipient Yoon Sil Choi (C) accepts the Hathaway Memorial Scholarship



GWU scholarship recipient Kelsey Donoghue (C) accepts an ASCE-NCS Scholarship



HU scholarship recipient Laxman Dahal (C) accepts an ASCE-NCS Scholarship



HU scholarship recipient Sigmund Skinner (C) accepts an ASCE-NCS Scholarship



HU scholarship recipient Camille Wallace (C) accepts the Harland Memorial Scholarship



UDC scholarship recipient Victoria Church (C) accepts an ASCE-NCS Scholarship



UDC scholarship recipient Mawaki Bidjada (C) accepts an ASCE-NCS Scholarship



UDC scholarship recipient Sandae Tait (C) accepts an ASCE-NCS Scholarship

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Outstanding Graduating Seniors

The Catholic University of America

Matthew Holtschneider

George Mason University

Rebecca Haataja

The George Washington University

Edna Aguilar

Howard University

Babin Manandhar

University of the District of Columbia

Stacey Lockerman



CUA Outstanding Senior Matthew Holtschneider accepts his award, presented by NCS President Brian Barna (R) and CUA Faculty Advisor Jason Davidson (L)



GMU Outstanding Senior Rebecca Haataja (C) accepts her award, presented by GMU Faculty Advisor Liza Durant (L) and NCS President Brian Barna (R)



GWU Outstanding Senior Edna Aguilar (C) accepts her award, presented by GWU Faculty Advisor Samer Hamdar (CL)



HU Outstanding Senior Babin Manandhar (C) accepts his award, presented by HU Faculty Advisor Robert Efimba (L)



UDC Outstanding Senior Stacey Lockerman (C) accepts her award, presented by UDC Faculty Advisor Bryan Higgs (L)

Keynote Address: Robin Kemper, ASCE President-elect, PE, LEED AP, F.SEI, F.ASCE

This year's banquet featured a keynote address by ASCE National President Elect Robin Kemper. Ms. Kemper inspired the students and challenged the professionals in the audience to work towards ASCE's Grand Challenge.

ASCE's Grand Challenge is an initiative to encourage new solutions for improving our nation's infrastructure. The Challenge has four major parts including implementing performance based standards, resilience, innovation, and life cycle costs analysis.

ASCE President-elect Robin Kemper (L) accepts her speaker gift, *Engineering the Nation's Capital*, from NCS President Brian Barna



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Ethan Grossman
Engineering

National Capital Section Service and President's Appreciation Awards

Community Service Award – Rachel Boots, LEED AP BD+C, M. ASCE and Gillian C. Love, P.E., M. ASCE

The Community Service Award recognizes outstanding contributions by an individual toward community improvement in the Washington metropolitan area. The National Capital Section Board of Directors determines that the awardee must have made, in the opinion of community leaders, an outstanding, selfless contribution of time and talent toward a civil engineering-related activity that has furthered the welfare of the community within a three-year period preceding the award. The winner of the Community Service Award is presented with a plaque to commemorate the accomplishment.

Rachel Boots, LEED AP BD+C, M. ASCE serves as the National Capital Section Communications Chair and was the Volunteer Coordinator for this year's Discover Family Engineering Day. She is a design engineer at Bohler DC, a civil-site development firm in down-



Congratulations to Community Service Award Winner Rachel Boots!

town DC, and will be sitting for the PE exam within the next year. She graduated from University of Virginia with a Bachelor's Degree in Civil & Environmental Engineering.

Rachel is receiving the Community Service Award for

her contributions to the Section as the Communications Chair and organizer of Discover Engineering Family Day.

Gillian C. Love, PE, M. ASCE, is an active member of the ASCE National Capital Section. She is the Chair of the NCS Dream Big Committee, where she represents ASCE in promoting the Dream Big film to the local engineering, education, and non-profit communities, and a previous member of the NCS Centennial Committee where she helped to plan the NCS Centennial Conference.

Gillian received her Bachelor of Science in Civil Engineering from University of Maryland, College Park, and her Master of Science in Structural Engineering



Gillian Love (C) accepts her Community Service Award from NCS President Brian Barna (R) and NCS Vice President Emily Dean (C)

from University of California, San Diego. She is a Structural Engineer for Simpson Gumpertz and Heger (SGH), working in the Washington, DC building design and renovation group.

Gillian is receiving the Community Service Award for her leadership in the Dream Big Committee.

Meritorious Service Award – Lisa M Anderson, PE, LEED AP, M. ASCE and Jameelah Ingram, PE, M. ASCE

The Meritorious Service Award recognizes individual members of the National Capital Section who have made outstanding contributions to the work of the Section. Awardees must be active members who contributed significant time and talent to the Section and who set a high standard of professionalism through service.

Lisa M Anderson, PE, LEED AP, M. ASCE, is the President of the National Capital Section Reston Branch. She is currently a Senior Structural Engineer and Seismic Subject Matter Expert with Bechtel Corporation and has supported



Lisa Anderson (C) accepts her Meritorious Service Award

seismic soil-structure interaction analysis and structural analysis and design with Bechtel on multiple projects for the past 12 years. Lisa is a Registered Civil Engineer in the State of California and a LEED Accredited Professional. She is a graduate of the State University of New York at Buffalo, with a Bachelor of Science in Civil Engineering and Master of Engineering in Structural and Earthquake Engineering.

Her past ASCE service includes the following leadership roles: Secretary and Vice President of the Central Savannah River Valley Branch of the South Carolina Section, Treasurer and Vice President of the Structural Engineering Institute Maryland Chapter, and Vice President and President of the Catocin Branch of the Maryland Section. Lisa started her involvement with ASCE as a student member of the Buffalo Section. She is a voting member of the ASCE Dynamic Analysis of Nuclear Structures Working Group which publishes the following standards: ASCE 4 and ASCE 43 and an officer and voting member of the ACI 349 technical code committee.

Lisa is receiving the Meritorious Service Award for her role in the formation of the Reston Branch.

Jameelah Ingram, PE, M. ASCE, was inspired to study architecture and structural engineering by the soaring skyscrapers and beautiful bridges in her hometown of Chicago, Illinois. She earned a Bachelor of Science in Civil Engineering with a minor in Architecture from Princeton University and a Master of Science in Civil Engineering from the Georgia Institute of Technology. Currently, Mrs. Ingram is a Lead Structural Engineer in the Washington,

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Jameelah Ingram (C) accepts her Meritorious Service Award

D.C. office of WSP USA. She has over a decade of experience in bridge inspection, rehabilitation, and design. She currently works on behalf of the Maryland Transit Administration for the Purple Line Light Rail Transit project. As a Project Engineer and consultant, she assists the Real Estate team to acquire right of way.

In Chicago, Illinois, Mrs. Ingram served as Chair of the ASCE Structural Engineering Institute Illinois Chapter (SEI-IL). The ASCE Illinois Section awarded the SEI-IL chapter with a "Public Involvement Award" for their engineering outreach efforts to students and professionals. In 2013, Mrs. Ingram was selected as one of ASCE's New Faces of Civil Engineering. Mrs. Ingram is currently a proud member of the ASCE National Capital Section. She serves as the lead for collegiate student outreach for the NCS Education Committee, and continues to promote STEM education. She is thankful to her husband, Jesse, and family for their continued support.

Jameelah is receiving the Meritorious Service Award for her contributions to college outreach as the Education Committee (College) Chair.

Lifetime Excellence in Service Award – LJ Sauter, Jr, M.ASCE and Norine M Walker, PE, F.ASCE

This award recognizes individual members of the National Capital Section who have made outstanding contributions to the work of the Section over their lifetime. The awardee must be an active member who has contributed significant time and talent to the Section over at least 10 years and who sets a high standard of professionalism through service.

LJ Sauter, Jr, M.ASCE, is a former member of the National Capital Section's (NCS) Board of Directors and served as the newsletter editor from May 2010 to September 2014. More recently, he was a member of the NCS Centennial Celebration Book Subcommittee, helping to produce our award-winning book, *Engineering the Nation's Capital*. He is currently a Senior Environmental Advisor for Burns & McDonnell, providing strategic guidance on the environmental impact review of major natural gas infrastructure. He previously worked as a Sanitary/Environmental Engineer for 38 years at the Federal Power Commission and the Federal Energy Regulatory Commission's Office of Energy Projects, performing environmental review and compliance activities for the construction of major natural gas transmission pipelines, gas storage projects, and liquefied natural gas import/export facilities. He is a graduate of the University of Maryland, College Park, with a Bachelor's Degree in Civil Engineering and a Master's Degree in Engineering.

Mr. Sauter has been actively involved in STEM events for the NCS including the recent Engineer's Night at Wakefield

High School in Arlington and several Discover Engineering Family Day volunteer events.

LJ is receiving the Lifetime Excellence in Service Award for his contributions to the Newsletter, the production of our Centennial book, and many other contributions.

Norine M Walker, PE, F.ASCE is a Project Manager for Design and Construction Projects at Virginia Railway Express. Ms. Walker spent 25 years as a consultant with firms in the Baltimore and Washington DC Metropolitan areas before joining VRE in 2014. Current projects in which she is involved include the Alexandria Station Pedestrian Tunnel design, the Lifecycle Overhaul and Upgrade Facility design and construction, the Manassas Park Garage design and the L'Enfant Station Storage Track Wayside Power design and construction.

Ms. Walker was a member of the NCS Centennial Celebration in 2016 and was the lead co-author of the Section's *Engineering the Nation's Capital* commemorative book. Ms. Walker and two

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LJ Sauter (C) accepts his Lifetime Excellence in Service Award



Norine Walker (C) accepts her Lifetime Excellence in Service Award

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other NCS volunteers collected data, photos and compiled each of the 26 stories about significant civil engineering projects in the Section area built, rebuilt or repaired over the last 100 years. Ms. Walker has taken an active role in marketing the book to others in the civil engineering community including her alma mater, the University of Maryland for which the book was presented to the Engineering Board of Visitors and the Civil Engineering Board of Visitors. Ms. Walker was also a founding member of the U of M's Women in Engineering program. Ms. Walker is interested in school outreach, as well, and has participated in the Future City program judging for 10 years and the Discover Engineering Family Day on many occasions, both as an NCS representative.

Norine is receiving this award for her contributions as an author of our Centennial Book, *Engineering the Nation's Capital* and many other contributions.

President's Appreciation Award – James Palmer, EIT, AM.ASCE, LEED Green Associate and Jeff Tan, PE, SM.ASCE

This award is selected by the NCS President to recognize members that have made significant contributions to the Section. Awardees are active members who contributed significant time and talent to the Section and who set a high standard of professionalism through service.

James Palmer, EIT, AM.ASCE, LEED Green Associate, is a current member of the National Capital Section Board of Directors and serves as the Newsletter



James Palmer (C) accepts his President's Appreciation Award

Editor for the National Capital Section. He has worked as a project engineer for SK&A Structural Engineers, PLLC since 2015. He is a graduate of the Pennsylvania State University and holds a Master of Engineering in Civil Engineering (2015), Bachelor of Science in Civil Engineering (2013) and English Minor (2013).

Mr. Palmer's involvement in the National Capital Section began after relocating to the District of Columbia in 2015 as Newsletter Editor-in-Training and then as Director and Newsletter Editor beginning in 2016. He is active in the NCS' Younger Member Forum, having organized several joint events between the YMF and the Structural Engineer's Association of Metropolitan Washington Young Members Group, the latter of which he serves as a board member. Mr. Palmer hopes to sit for the Principles and Practice of Engineering exam (Civil) in Pennsylvania in April 2018.

James is receiving the President's Appreciation Award for his role as the Newsletter Editor.

Jeff Tan, PE, SM.ASCE, is a current member of the National Capital Section Board of Directors. Mr. Tan is a construction manager working as a consultant for District Department of Transportation and was graduated from University at Buffalo with a Master Degree in Civil Engineering.

Mr. Tan established the NCS Construction Committee and successfully held ten (10) professional development events during the past two years. Mr. Tan also developed the committee mail-list which currently has more than 300 members sharing local construction news/job opportunity. In addition to his work for the National Capital Section, Mr. Tan also participated to found the Chinese American Civil Engineers Society and D.C. Code Officials Association.

Jeff is receiving the President's Appreciation Award for his role in rebooting the Construction Committee and his contributions as Director on the NCS Board of Directors.



Jeff Tan (C) accepts his President's Appreciation Award

National Capital Section Project Awards



Representatives of the Sustainable DC Program (CL, CR) accept the Sustainability Project Award from Sustainability Committee Chair Alex Rosenheim (L) and NCS President Brian Barna (R)

Sustainability Project Award – Sustainable DC Program

The Sustainable DC Program was initially launched in July 2011 by the Washington, DC Office of the Mayor. Sustainable DC is the District of Columbia's major planning effort to make DC the most sustainable city in the nation. Led by the Department of Energy & Environment and the Office of Planning, it is a collaborative effort involving the input and participation of thousands of members of the District community. The Sustainable DC implementation plan lays out the challenges Washington, DC is facing: creating jobs and economic growth, improving

health and wellness, increasing equity and opportunity, and preserving and protecting our environment in the face of a changing climate. This plan also provides solutions in the areas of built environment, energy, food, nature, transportation, waste, and water. Based on broad public input, forward-thinking agencies, and best practices from around the globe, this plan offers more than 100 specific actions to deliver results for Washington, DC.

Since its launch, more than 300 LEED certified projects have been completed

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in Washington, DC with another 700 in the planning and design stage. The City Government has announced plans to adopt a new green building code that will dramatically reduce the future environmental footprint of our built environment. Across the city, residents and businesses have installed more than 750 solar energy systems and the District government now purchases 100% green electric power. With more capital investment in park land per capita than any other city in the country, the District has nearly 7,500 acres of parks and open space. The city is connected by a robust 56 miles of bike lanes and 55 additional miles of trails. On Aug 31, 2017, largely due in part to the Sustainable DC Program, Washington, DC was named the first LEED for Cities Platinum city in the world by the U.S. Green Building Council (USGBC). Washington, DC's LEED Platinum certification recognizes the outcomes, rather than intent, of the city's leadership in creating a sustainable and resilient built environment, which includes: reducing greenhouse gas emissions, supporting clean energy innovation, and focusing on inclusive prosperity and livability in all eight wards.

Outstanding Civil Engineering Award of Merit – Capitol Crossing
 The Capitol Crossing Project completed the first phase of construction for an elevated deck above Interstate 395 in Washington, DC and has begun vertical construction on the buildings at Capitol Crossing, a three-block, seven-acre, 2.2 million square foot project that will consist of five mixed-use buildings. The completed work includes upgraded infrastructure such as a new high-voltage electrical line and new water mains. The second phase will consist of almost 30,000 square feet of ground-floor retail space with 11 stories of offices above, as well as completion of the highway deck over I-395 to E Street NW.

The District of Columbia has long encouraged the development of a platform over I-395. Following an extensive environmental assessment, outreach to the affected communities and approval of the necessary permits, construction commenced at the end of March 2014. DDOT and many other agencies have worked closely with the developer and contractor to create a viable maintenance of traffic plan for the project during all phases of construction.

Outstanding Civil Engineering Award of Excellence – The Wharf: Phase 1
 The Wharf is reestablishing Washington, DC, as a true waterfront city and destination. This remarkable mile-long neighborhood along the Washington Channel of the Potomac River brings dazzling water views, hot new restaurants, year-round entertainment, and waterside style all together in one inspiring location. The Wharf, situated along the District of Columbia's Southwest Waterfront just blocks south of the National Mall, is easily accessible to the region.

When complete, The Wharf will feature more than 3 million square feet of new residential, office, hotel, retail, cultural, marina, and public uses, including waterfront parks, promenades, piers, and docks, designed by one of the most impressive lineups of architects in the nation. The Grand Opening period for Phase 1 began in October 2017 and Phase 2 delivers in 2021. Development of The Wharf is led by PN Hoffman and Madison Marquette.

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Representatives of Capitol Crossing accept the Award of Merit



Representatives of the Wharf Phase One accept the Award of Excellence

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Special Recognition

The following ASCE-NCS members have been selected by ASCE Headquarters to receive prestigious national awards:

2018 Stephen D. Bechtel, Jr Energy Award

Presented to Sanjeev R. Malushte, PhD, PE, SE, F.ASCE for "significant contributions to practice, education, research, and codification activities for seismic and structural design of nuclear and industrial structures."



Sanjeev Malushte (R) is recognized by NCS President Brian Barna (L) for receiving the Stephen D Bechtel, Jr Energy Award

2018 Surveying and Mapping Award

Presented to Tomas Soler, PhD, M.ASCE "for his significant contributions in writing and research that have advanced the surveying profession's knowledge of geometric geodesy, positioning with global positioning systems, the online positioning user service (OPUS), continuously operating reference stations



Tomas Soler (R) is recognized for receiving the Surveying and Mapping Award

(CORS), coordinate transformations, and reference frames."

2018 Harland Bartholomew Award

Presented to Geoffrey S. Baskir, M.ASCE "for leadership in urban planning, in particular large-scale airport



Geoffrey Baskir (R) is recognized for receiving the Harland Bartholomew Award

developments, through creative work, consultation, engagement, mentoring, communication, ethics and engineering acumen."

The following ASCE-NCS member has been selected by the ASCE Region 2 Board of Governors to receive a prestigious regional award:

2018 Region 2 Outstanding Faculty/Practitioner Advisor Award

Presented to Dr. Ahmet Zeytinci, PE, for his exemplary contributions as a Faculty Advisor and his continuous efforts and commitments to his students and students from other ASCE Chapters.



Ahmet Zeytinci (C) accepts the Outstanding Faculty/Practitioner Advisor Award from ASCE Region 2 Director John Casana (L) and NCS President Brian Barna (R)

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Life Member Awards

To achieve Life Member Status, a member must have reached their 65th birthday, have paid dues in any membership grade except Student member for at least 35 years, and have had at least ten years of continuous membership immediately preceding the attainment of Life Member. Congratulations to the following NCS members who were awarded Life Member Certificates:

ASCE-NCS 2018 Life Member Inductees

Mr. Brian Abel	Mr. Qamar Kazmi
Mr. John Abeles	Mr. David Lew
Mr. Ronald Adkins	Mr. Charles Liu
Mr. Stephen Benton	Mr. Harald Ludwig
Dr. Wayne Bergstrom	Mr. Joseph Martore
Dr. James Collin	Ms. Anne McConahy
Ms. Barbara Cook	Mr. John McCracken
Mr. John Durrant	Mr. James Pagenkopf
Mr. King Gee	Mr. John Rand
Mr. Brian Glenn	Mr. John Segna
Mr. Kent Hansen	Mr. Steven Stockton
Mr. Embree Hunnicutt Jr.	Mr. Christopher Triolo
Mr. William Joyce	Mr. Jim Yeates
Mr. Richard Kapuscinski	



James Collin (C) accepts his Life Member Certificate from ASCE President-elect Robin Kemper (CR), Region 2 Director John Casana (CL), NCS President Brian Barna (R) and Life Members Forum Chair Philip Melville (R)



Barbara Cook (C) accepts her Life Member Certificate



Brian Glenn (C) accepts his Life Member Certificate



Embree Hunnicutt, Jr (C) accepts his Life Member Certificate



Qamar Kazmi (C) accepts his Life Member Certificate

The National Capital Section wishes to extend its sincere congratulation to all the 2018 award recipients!

Ethics 101: Part 2 – What is Ethics?

By Ranjit S Sahai, PE, F.ASCE

We explored last month the question: Why be Moral? (Answer: To live well) However, philosophic theories differ as to what it means and how to live well.

Webster’s New World College Dictionary, Fifth Edition defines ethics as “the study of standards of conduct and moral judgment.” In other words, ethics serves two functions: it codifies virtues for living well, and it identifies their underlying standard, which also helps distinguish good from evil.

The concept of ethics applies only to man, a volitional living being; neither to inanimate matter, nor to non-volitional living entities such as plants and animals. Let’s explore why.

Ethics presupposes a causal existence. If your actions caused nothing, there would be nothing to evaluate. Ethics also presupposes a volitional consciousness. If your actions were not volitional, ie you had no volitional role in them, no blame or praise could be ascribed to you. Consequently, an ethical principle necessarily rests upon its view of existence and of human consciousness.

Foundations of Ethics

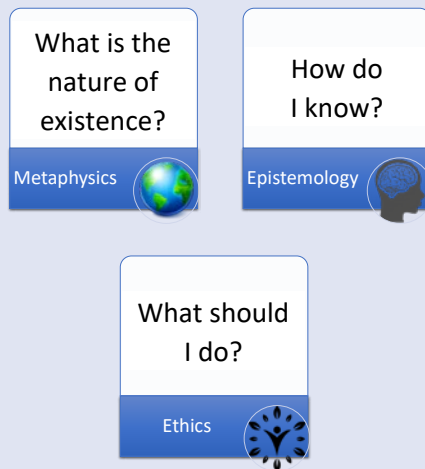
There are two fundamental concepts that underlie the study of ethics: view of existence and view of consciousness.

The branch of philosophy that studies the nature of existence is called metaphysics. Plato believes existence is imperfect and perfection is embodied in concepts (world of Forms). In other words, Plato regards existence as otherworldly. Aristotle believes existence is what we can observe and that we create concepts to express its understanding, ie existence is governed by immutable laws. To put it another way, for Aristotle, existence is worldly.

The branch of philosophy that studies the nature of human consciousness is called epistemology. Plato views human consciousness incapable

of understanding existence except through contemplation of the world of Forms. Aristotle views human consciousness capable of understanding existence through logical reasoning.

The source of ethics and the standard for good, according to Plato, are learned through contemplation of the world of Forms. According to Aristotle, they are learned by observing this world and the conduct of the rational and wise. These are methods but not the standard for good. The lack of identification in ethical theories of an objective ultimate standard for good has hounded philosophers for millennia.



The historic contribution to philosophic thought that identified and placed the ultimate standard for good on an objective footing was developed in her philosophy of Objectivism by Ayn Rand. My understanding of the [Objectivist](#) statement of that standard follows.

Ayn Rand agrees with Aristotelian metaphysics and epistemology but argues that the standard for good requires objectivity because reason is volitional and therefore fallible. So, all knowledge, not only in the sciences, but also in the humanities, must be validated by logical reasoning. She views “life” as the standard of value because life is the ultimate value for

living organisms; ie without life, they cease to exist. She identifies “rationality” (orientation to existence, not to others nor to the supernatural) as the ultimate virtue from which emerge the other virtues: honesty, integrity, justice, independence, productiveness, and pride. She goes on to identify the initiation of force (and fraud, its corollary) as the embodiment of evil.

ASCE’s Code of Ethics

ASCE’s [code of ethics](#) is a professional code of conduct and not a theory of ethics. It is a [framework](#) for the “accreditation of initial and continuing education, for registration and certification, for any possible disciplinary sanction, as well as for the periodic evaluation of performance.” Its purpose includes the assessment of a member’s reported conduct for possible disciplinary sanction, such as suspension of membership. The standard for ethical conduct embodied in ASCE’s document is the “public good” from which emerge the virtues it lists: public safety, competent public service, truthfulness in public communication, faithfulness to others, meritorious public service, honor for profession, skill-building in profession, fair treatment for all.

The concept that ties together ASCE’s principles of ethics is “public good.” The concept is vague, at best, and destructive in malicious and/or inexperienced hands. In a November 2014 [case study](#), ASCE notes: “But while even a remote and trivial financial consequence could be described as public harm, it is not the intent in canon 1’s clarion call...” The statement implies the lack of an objective standard.

What’s Next

Next month’s installment of this article series is titled “Applications of Ethics.” In keeping with the role of ethics in living well, that installment focuses on tools to live well. It also highlights case studies from ASCE’s “A Question of Ethics” that show what to avoid.

ASCE Steel Bridge Competition 2018

It's always fun to have an event to look forward to, but it can be hard to stay patient when you have to wait for something you're excited about. The more you focus on the event, the more you want it to happen right away.

On March 23, 2018 the regional steel bridge competition for the Virginias, which includes the District of Columbia, was held at Catholic University in Washington, DC.

The AISC National Student Steel Bridge Competition is an annual competition where student groups from all over the globe design and construct a bridge within strict guidelines. Winners and first runners-up from most conferences are invited to compete at the national level. However, invitations are extended only to the winner from a conference with two, three or four participating universities, and to the top three teams from a conference with eleven or more participating universities. A university may enter more than one bridge in conference competition but only the best one may qualify for national competition.

At the national level, AISC assists with travel funds for teams from North American schools invited to compete. Each qualifying team from each conference from North American schools receives \$500 from AISC.

I asked my young colleague Dr. Bryan Higgs from UDC, who is also the ASCE Faculty advisor and coach of Team-UDC, give us the full report about this exciting event and here is what Bryan sent wrote:

The AISC National Student Steel Bridge Competition begins at the regional level and only the best bridges from a region qualify for the national competition. Each bridge must be 17 feet long and be constructed from steel members that are a maximum of 3 feet long, 4 inches wide, and 6 inches deep.

Scoring: Scoring of the bridges is based on minimizing the total cost across four main categories: (1) timed build, (2) weight, (3) lateral load test, and (4) vertical load test.

Timing: The timed build consists of a build team carrying each member of the bridge, one by one, from a staging area across a transportation zone to the construction site. There, the members of the bridge are bolted together forming the bridge.

Major Challenge: The major difficulty is that there is a **river** in the middle of the construction zone which means that the bridge must be built from both sides of the river at the same time. The overall weight of the bridge is factored into the score as a cost per pound, so it is very beneficial to keep the bridge very light.

The lateral load test: The lateral load test places a 50-pound lateral load to the middle of the bridge and if the sway exceeds one inch, the bridge fails. The vertical load test is the most menacing where 2500 pounds of weight is loaded onto the bridge and if the deflection exceeds 3 inches, the bridge fails. Given all the scoring categories, a good bridge must be fast, light, and strong.

Competing Teams: The competition consisted of Virginia Tech, University of Virginia, Old Dominion University, West Virginia University, George Mason University, George Washington University, Virginia Military Institute, West Virginia Tech, Bluefield State College, Howard University, Catholic University, and Marshall.

The bridges produced by the students of each of these universities covered a wide array of different designs each with a unique identity. The fastest build time of the competition belonged to the first-place holder, **Bluefield State College**, at a mere 17 minutes and 34 seconds. **UDC Firebirds**

were't far behind with a build time of 18 minutes and 3 seconds.

The vertical load test: The vertical load test was the most feared test as it eliminated most of the competing teams. UDC bridge stood strong and held all 2500 pounds with only a 0.97" deflection.

The UDC bridge received second place at the competition thus earning UDC the right to compete at the national level at the University of Illinois at Urbana-Champaign. Catholic University was the third and George Mason received the fourth place.

Here, it is important to remember these three key words: being **fast**, keeping it **light**, and making it **strong**.

We were proud to be representing the UDC Firebirds in this momentous occasion and are looking to not only survive the competition but thrive.

UDC's bridge team feels the hopes and support of all UDC students, faculty, staff, and alumni behind them propelling them to greatness.

But we have to give credit to all the schools from the Washington, D.C. metro area for their participation and hard work and wish them good luck for future competitions!

Again, the National Competitions will be held at the University of Illinois, Urbana-Champaign on May 25th and 26th. Until then, challenge yourself with this month's practice problems [here](#).

Until next time,
Ahmet Zeytinci (Dr.Z.)
az@akfen.com



ASCE-NCS Committee News and Updates



Younger Member's Forum

By Haley Carpenter, EIT

The ASCE-NCS Younger Members Forum (YMF) holds monthly happy hours in Arlington, VA or Washington, D.C. Happy hours are typically held the first Wednesday of each month unless a holiday falls during that week.

The ASCE-NCS YMF held our March Happy Hour at Ireland's Four Courts in Arlington, VA to celebrate St. Patrick's Day. Approximately 20 members attended the event.

Join us for the next upcoming monthly happy hour, taking place on Wednesday, May 2nd at Courthouse Social in Clarendon, Arlington, VA. Network with local engineers from the area while enjoying free appetizers and happy hour drink specials, meet new friends and make new connections.

Stay Connected! Check out photos and stay up-to-date with YMF events by visiting the new YMF Facebook page: <http://www.facebook.com/ASCENationalCapitalYMF>. Also, follow us on Twitter (@asce_ncsYMF) at https://twitter.com/asce_ncsYMF.

Sustainability Committee

ASCE Five-Year Roadmap to Sustainable Development

(continued from January and March 2018 Newsletter entries)

The ASCE Five-Year Roadmap takes a two-pronged, "bottom-up/top-down" approach comprising (1) four strategic priorities and (2) key requests for Board action. This month, we will focus on **Strategic Priority 2: Standards and Protocols** (or put more concisely: Do the Project Right).

While "doing the right project," engineers must still "do the project right." Clearly, however, previously reliable standards and protocols no longer suffice. Current prescriptive standards may apply in conditions of stationarity. However, where nonstationarity (a condition where statistical properties, such as mean or variance, of a data set are not constant over time) is prevalent, we must develop new standards and

protocols that are needs – and process-based rather than prescriptive. Those standards must address resiliency to develop infrastructure that ensures society's safety and its ability to recover from disturbances, thereby allowing resources to be applied to innovation and advancement, rather than to defense and reactivity. Adopting sustainability standards and, perhaps more important, protocols appropriate for this new climate can address impacts and nonstationarity in the built and natural environment.

Priority 2 Strategic Goal:

To address the problem of standards and protocols that fail to address nonstationarity, the strategic goal is to establish, adopt, and implement methodologies that produce sustainable infrastructure.

Methodologies meet this goal by

- Meeting the project owner's objectives, requirements, and specifications;
- Significantly improving the project's environmental, economic, and social performance;
- Accommodating a changing operating environment (nonstationarity);
- Developing standards that integrate risk and probability (forecasting) into engineering design; and
- Accounting for operations, maintenance, and end-of-life disposition.

Priority 2 Outcomes:

The outcomes identified to meet this goal include

- A new standard for transformational infrastructure planning, design, construction, operations and maintenance, decommissioning, and overall management that (1) meets the project owner's needs, requirements, and specifications; (2) meaningfully reduces the net ecological footprint; and (3) accounts for changing environmental operating conditions;
- A new higher-level standard for sustainable infrastructure and engineering, including, for example, the use of tools like Envision; and
- An inventory of all ASCE standards that affect sustainability, with plans to update current standards and incorporate sustainability into all future standards.

Over the coming months the ASCE Five-Year Roadmap for Sustainable Development will continue to be explored along with the COS goals, guidelines and ASCE's Case for Sustainability. The first article of this series appeared in the ASCE-NCS Newsletter for January 2018 and can be found at <http://asce-ncs.org/images/newsletters/ncs-nl-201801.pdf>. For more information contact Alex Rosenheim, Chairman NCS-ASCE Sustainability Committee at tcc-sus@asce-ncs.org or for more information on the ASCE Committee on Sustainability, please visit: <http://www.asce.org/sustainability/>.

Education Committee: K-12

By Vic Crawford, PE, M. ASCE, Education Committee Co-Lead

Thank you to all our members that volunteered for our biggest STEM event being held on April 6–8, 2018. The USA Science and Engineering Festival provides us with an opportunity to reach out to thousands of student, parents, and teachers. I hope as volunteers you have a lot of fun and take advantage of the opportunity to bring your next generation of engineers to tour the exhibits and displays before or after your shift at our booth. Stay tuned for the May Newsletter for pictures of this excellent event.

The Section has received a request from the Wakefield Forest Elementary School, to once again participate in their STEAM Fair. This STEM Event, with the added A for Art, will be on Thursday 4/12 from 5–8pm. If you are interested in influencing our next generation of engineers, while having a lot of fun working with these students excited about our profession, please contact victor.crawford51@gmail.com.

As always, we continue to work with the American Association for the Advancement of Science (AAAS) program for STEM, which has been bring engineers and scientists into classrooms for over eleven years (<http://www.aaas.org/senior-scientists-and-engineers/programs-dc>). If you go to the Science and Engineering Festival, look for the AAAS booth which includes the STEM program recruitment area. But even if you do not make it to the Festival, please consider becoming a

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AAAS volunteer in supporting STEM in the school districts in the DC metro area, including surrounding counties in both Virginia and Maryland.

Education Committee: Collegiate

By Jameelah M. Ingram, PE, M. ASCE, Education Committee Co-Lead

March was a busy month for the Student Chapters of the ASCE National Capital Section. Amid gearing up for the 2018 Virginias' Section Regional Student Conference held from March 22nd to March 24th, the students prepared to attend the ASCE-NCS Awards Banquet on March 20th as well. Dressed in their best attire and winning smiles, students accepted well-deserved awards from ASCE NCS Officers and College Faculty Members. These exceptional

students were honored in front of their peers, professional members of ASCE NCS, and even ASCE President-Elect, Robin A. Kemper, PE, LEED AP, F.SEI, F.ASCE. Read the Featured Article in this Newsletter for more information about our student superstar awardees.

The ASCE NCS Education Committee looks forward to sharing results and photos of the 2018 Virginias' Section Regional Student Conference in an upcoming newsletter!

Editor's Note: Congratulations to Jameelah for having an article featured on ASCE News! Read it online at the following link: <http://news.asce.org/the-essence-of-engineering-via-stand-up-comedy/>

Reston Branch

By Lisa Anderson, PE, LEED AP, M. ASCE, Reston Branch Interim President

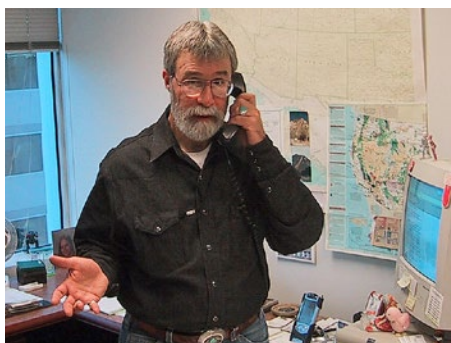
On March 15th, Michael J. Drerup, PE LEED AP, F. ASCE, Drerup Building Performance Engineering, PLLC, presented "Pathology of the Built Environment: Forensic Engineering – An Overview." The next meeting of the Reston Branch will be held on April 10th at ASCE Headquarters in Reston, VA starting at 11:45am. Jill Hubbard, PE, PSP, EVP, Jughan Kwak, PE, CCM, PSP, Maria Nieves-Melendez, PhD, and Claudia Orozco-Solano, CCM, PMP, of MBP, will present "The Silver Line Metrorail: Overview of a Megaproject." One PDH will be awarded to attendees. ■

Life Member Forum: Reflections

By LJ Sauter, Jr, M.ASCE, NCS Newsletter Editor, 2010–2014

I studied civil engineering because I always liked to build things. As a child, I loved building models, mostly rockets and missiles, and playing with a [Gilbert Erector set](#) ("The world's greatest toy") which taught me many things (like which way to turn to tighten a screw). With it, I threw away the instructions and built stuff from scratch. There was also a [Hydro Dynamic Building Set](#) made by Kenner (of girder and panel construction set fame) that further kindled my interest in engineering. Water was pumped around through various vessels and devices; the inverted siphon was a favorite. My father, an industrial engineer, always said I could do *anything* with an engineering degree. I've come to see he was right.

Joining the Cooperative Engineering Education Program was perhaps the



Sauter explains the nuances of Commission regulations and requirements to a gas company representative, circa 2008.

most significant event in my college career. This enabled me to work one semester and attend classes the next. I was placed with the Potomac Electric Power Company (PEPCO) in Washington, DC. Every other semester, I worked in a different department. After starting in the field building electrical substations and overseeing construction projects from the office, I discovered that PEPCO was planning to build a nuclear power plant south of DC on the Potomac River and... PEPCO had an Environmental Department! My final assignment was working there. It was largely fieldwork; planning and overseeing environmental studies and writing the application needed for Federal approval to begin construction. Best job ever! Unfortunately, the project was shelved during the recession of 1975. But this combination of engineering, energy matters, and environmental concerns became my life's work.

After getting my BS in Civil Engineering, I took a job with the Federal Power Commission's (FPC) Environmental Assessment and Compliance Branch, and subsequently a similar group with the FPC's successor, the Federal Energy Regulatory Commission (FERC). Here, I reviewed applications to construct



Sauter conducting a public meeting on the Navajo Reservation at the Kayanta Chapter House in 1999. This project involved converting an existing crude oil pipeline extending between Long Beach, CA and Blanco, NM, to natural gas service.

and operate interstate natural facilities (pipelines, compressor stations, gas storage facilities, and liquefied natural gas import/export terminals) and wrote the environmental analysis used by the Commission when it considered whether to approve the projects. How strange to now be the Federal reviewer for energy projects submitted by the industry; sort of the other side of the fence from what I did at PEPCO. Over my 38 years of Federal service with the FPC/FERC, I worked on many major energy projects that continue to make a difference in the lives of people and industries all over the country. The initial route/site investigations and subsequent compliance/as-built inspections involved fieldwork in some of the most unique, challenging, and beautiful areas of the contiguous 48 states and Alaska.

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

April 4

YMF Happy Hour, 6:00–8:00 pm, Penn Social, Washington DC.

Celebrate our monthly happy hour and network with fellow engineers. Look for an email announcement with more details.

April 6 to 8

5th USA Engineering Science and Engineering Fair, Washington DC.

The 5th USA Science & Engineering Festival will be held at the Walter E. Washington Convention Center in Washington, D.C. on April 7–8. The two-day STEM Expo anticipates 350,000 attendees and 3,000 hands-on exhibits.

April 9 to 11

GeoVirginia Conference, Williamsburg VA.

We invite you to join us, and take advantage of learning from the experiences of the leaders in our field. This is our fifth conference, and we are more excited than ever to have such a prestigious set of speakers. All of our presenters are speaking

on their lessons learned in geotechnical engineering. While you will receive 11 Professional Development Hours (PDH's), the real value comes from implementing their insights into your practice. Further info: <http://www.viriniageoinstitute.org/>

April 10

ASCE Reston Branch Meeting.

The Silver Line Metrorail: Overview of a Megaproject by Jill Hubbard, PE, PSP, EVP, Jughan Kwak, PE, CCM, PSP, Maria Nieves-Melendez, PhD, and Claudia Orozco-Solano, CCM, PMP of MBP

April 12

Wakefield Forest Elementary School STEAM Fair, 5:00–

8:00 pm. If you are interested in influencing our next generation of engineers, while having a lot of fun working with these students excited about our profession, please contact victor.crawford51@gmail.com.

April 17

ASCE-NCS Section Meeting,

6:00 pm, Arlington Hilton. Join ASCE-NCS and the local EWRI chapter as we present Ms. Erin Bevis-Carver, PE, civil engineer with the City of Alexandria to discuss Alexandria's combined sewer systems and long-term control plan.

April 18

Geotechnical Executive Committee Symposium, Tysons Corner, VA.

A one – day symposium on Engineering Geology will be held in Tysons Corner. Please contact Kellie Owens (kowens@geostructures.com) or Ed O'Malley (eomalley@geostructures.com) for information or to sign up.

June 3 to 7

World EWRI Congress,

Minneapolis MN. Register here: <https://www.ewricongress.org/>

Life Member Forum: Reflections

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I used to tell folks interviewing to work in my group at FERC: We do three things – we consult (with on-staff specialists, outside authorities, and other Federal, state, and local agencies), we write (environmental assessments and impact statements), and we solve problems. I also believe these talents are integral to most engineering careers.

By “consulting,” I mean asking questions and looking for good ideas everywhere. ASK for help when you need it and start with your professional colleagues. An additional source of help is available by simply picking up the telephone. There are lots of folks with lots of expertise and they all have a phone on their desk. As Linda Ellerbee

used to say on Nick News, “If you want to know the answer, ask.”

Part of consulting is effective and convincing communication, whether the audience is your colleagues, your boss, your client, or the public. If you find yourself with a lump in your throat and butterflies in your stomach when called upon, find a Toastmasters group to join. There's simply no better way to improve your verbal communication and public speaking skills. They'll show you how to make those butterflies fly in formation!

If you don't like (or feel effective at) writing, take a class (or two), and practice; learn how to use this powerful communication skill. You can pretend

that maybe you'll get by, but why limit yourself? You've earned at least one engineering degree and perhaps your PE. Written communication is a skill that can be learned; you've already mastered much harder things. And writing will become more and more important to your career, and easier, as you move forward.

Finally, problem solving: I have found that collaboration and creative thinking are integral components of problem solving. My favorite approach has been to surround myself with sharp, intelligent people and brainstorm, all together in one room (over a team lunch or maybe with a six-pack). Focus on the best ideas (no matter where they come from) and build a plan!

As I transition from the work world to professional retirement, I still get excited when I see bridges, flood gates, canals, and pipeline rights-of-way as I travel the countryside. I'm always stopping to take photos. I've enjoyed my career as a civil engineering! ■

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](#).