**NC Society of Engineers Meeting February 14 and 15, 2019**

**NCSU Alumni Center (Park Alumni Center)  
2450 Alumni Dr, Raleigh, NC 27606  
NCSU Centennial Campus**

**Thursday, February 14:**

**1:00 pm - 2:00 pm: The Yellow Change Interval with Brian Ceccarelli of Talus Software (1 PDH)**

This presentation starts with William Potts, the Detroit police officer who invented the yellow traffic signal light in 1920, then moves on to Alexei Maradudin, the University of California physicist who invented the equation traffic engineers use today to set the duration of the yellow light. Traffic engineers have been using his equation since 1965, applying it universally to all types of traffic motion approaching an intersection. However, engineers have introduced a problem. Maradudin's equation works only for one special case of traffic movement. By applying the equation universally, engineers have introduced a systematic failure into every traffic signal, a failure causing reasonably-perceptive drivers to systematically and unintentionally run red lights. Drivers experience this failure when they step on the gas, slam on the brakes or consign themselves to run a red light. The problem is so pervasive that a handful of red-light cameras in a handful of years will entrap more drivers than a city's population. The problem causes crashes too. Literally by laws of physics, the equation puts conflicting traffic into the intersection at the same time. The presentation concludes with a word about the compatibility between engineering, physics and man-made laws.

**Brian Ceccarelli** is a licensed professional engineer in the State of North Carolina. Mr. Ceccarelli has a degree in physics from the University of Arizona. As principal software engineer for Talus Software PLLC, Mr. Ceccarelli has developed financial applications, computer-aided mining applications, CAD/CAM applications, and space exploration applications for Jet Propulsion Laboratory. Ceccarelli became interested in traffic engineering when the Town of Cary, North Carolina bestowed upon him a red-light camera ticket. Since then, Mr. Ceccarelli has been published in Traffic Technology International, has been an expert panelist in traffic signal timing for the Institute of Transportation Engineers, has spoken for the American Society of Civil Engineers, and has presented for the Autonomous Vehicles Symposiums in Stuttgart, Germany and Novi, Michigan. Ceccarelli is an expert witness in traffic signal timing and red light cameras in several states.

**2:15 pm - 3:15 pm: Solar Economics 101 with Bob Kingery (1 PDH)**

Learn how the investors and buyers of solar power evaluate it and drivers for their adoption from a financial perspective.

**Bob Kingery, Co-Founder & CEO** co-founded Southern Energy Management in 2001 with his wife Maria, where he served as CEO for 17 years. With 29 years of experience, contacts and expertise in sustainable energy, Bob is an industry veteran who understands what drives long-term success in this rapidly growing and constantly evolving field. Bob got his initial start in the solar energy industry while working as an solar installer and designer for Solar Consultants, and later as a solar designer and fabricator for Astron Energy between 1989 and 1994. Bob is an NCSU graduate with a degree in mechanical engineering and a focus on solar energy. As a multi term board member of the North Carolina Sustainable Energy Association and founding member of the DOC Home Builders Association’s Green Building Initiative program, he is a key member of the sustainable energy community in North Carolina and the Southeast.

**3:30 pm – 4:30 pm: Coordinated Adaptive Ramp Metering and its Future in North Carolina with Will Letchworth, PE (1 PDH)**

Coordinated Adaptive Ramp Metering (CARM), otherwise known as Managed Motorways, is a system of interconnected ramp meters and other ITS devices that work in concert to keep freeways operating at their best when they are needed the most. This presentation will include a discussion of how CARM operates, the current deployment of CARM in Australia, ongoing projects in the US, and the future of CARM in North Carolina, including projects on I-40 in Raleigh and I-85 in Charlotte.

**Will Letchworth** is an Assistant Vice President and the Raleigh Office Lead for WSP, an international infrastructure consulting firm. He holds Bachelors and Masters degrees from North Carolina State University and lives in Zebulon with his wife April, and two daughters, Lainey and Ava.

**Friday, February 15:**

**9:00 am - 10:00 am:** **Charlotte Gateway Station with Gene Conti former Secretary of the North Carolina Department of Transportation (1 PDH)**

Beginning in early 2018, the City of Charlotte accelerated long-standing efforts to reimagine transportation across Piedmont North Carolina. The city and state plan to directly linking its center city to Raleigh’s by rail, transforming the station’s immediate neighborhood, and creating an impressive gateway to Uptown Charlotte and beyond.

To help achieve the vision of a multimodal hub anchoring nearly 12 acres of office, residential and commercial development, the North Carolina Department of Transportation (NCDOT) supported a small team of planners and engineers to develop the necessary institutional and financial framework to move the project forward.

The planning team of LJB Inc., The Conti Group LLC, and MWB Consult LLC, coordinated the NCDOT efforts with city leadership and staff, including the Charlotte Area Transit System (CATS) and Center City Partners (CCP). The team completed the bulk of this work at the end of 2018.

In December, the city and NCDOT established a joint management structure to solicit a private partner and to oversee design and construction of a new uptown intercity rail station, new bus facilities for both CATS and intercity buses, and a strategy for transforming the surrounding blocks through ongoing, sustainable partnerships with NCDOT and private developers.

In 2019, the city will initiate and complete a procurement process, under the City’s charter, to select a private development partner. The target date for opening the new station and bringing passenger trains to it is mid-2022.

**Eugene A. "Gene" Conti, Jr.** is an American government official. He served as Secretary of the Maryland Department of Labor, Licensing and Regulation from 1995 through 1998, when he became Assistant Secretary for Transportation Policy at the United States Department of Transportation.

In 2009, then-Governor-elect Beverly Perdue named Conti as the new Secretary of the North Carolina Department of Transportation, where he served until January 2013. He had served as deputy secretary for that department from 2001 through 2003.

**10:15 am - 11:15 am: Computational Fluid Dynamics (CFD) with Baljinder Bassi (1 PDH)**

Mr. Bassi will discuss the factors and inputs required for performing computational fluid dynamic (CFD) modeling and how CFD is used in predicting egress times for occupants.

**Baljinder Bassi** has extensive multidisciplinary engineering experience, with expertise in emergency, fire and life safety, tunnel ventilation, and associated electrical and mechanical works design for complex underground transit, roadway, aviation, and industrial projects. Baljinder’s background includes design and program management work on multimillion-dollar transportation programs across the globe, including the Westside Subway in Los Angeles; the Eastside Access and Grand Central Station in New York; Dulles Airport outside Washington, DC; the Eglington Crosstown Light Rail and Union Station projects in Toronto, Ontario, Canada; the Dubai 2020 Extension in the United Arab Emirates; Metro Line 4 in Rio de Janeiro, Brazil; the Shanghai Expo in China; and numerous London Underground projects. His expertise is in the field of ventilation and fire and life safety, including aerodynamic and thermodynamic analysis of complex systems during normal and emergency conditions, such as fire events. He is also an expert in the field of pedestrian modeling and evacuation analysis and is a long-term, expert user of the STEPS software. Baljinder is the global ventilation and fire and life safety practice lead responsible for providing technical leadership on projects with fire and life safety and emergency ventilation needs across the globe, ensuring technical excellence and customer satisfaction for aboveground and belowground projects. He also leads proposal efforts and team development to ensure Parsons’ continued excellence and leadership on technically challenging projects where safety is paramount.

**11:30 am to 12:30 pm: Update from the NC Board of Registration with Andrew Ritter (1 PDH)**

We will get our update on any new engineering licensure changes and items that may be being studied.

**Andrew Ritter** has been with the North Carolina Board of Examiners since 1993 and has been the Executive Director since 2001. He has also been an investigator and the Supervisor of Investigations. He has served on national engineering and surveying committees for ethics, law enforcement, international licensure, education accreditation and licensure qualifications. He has served as a guest lecturer on ethics and license promotion at NCSU, Duke and UNC – Charlotte.

He was selected to proctor the first exams given in Saudi Arabia and assisted in developing licensure models for several foreign countries including Japan, the United Arab Emirates and the Commonwealth of the Bahamas. Mr. Ritter has a Bachelor of Science degree in Criminal Justice from Appalachian State University and a Masters in Public Administration from North Carolina State University with a concentration in finance.