AUTONOMOUS VEHICLES AND THE FUTURE

SUBMITTED BY: MAGDA FLORES U., UNIVERSITY OF RHODE ISLAND
A Message from the New England Section President

REBECCA L. BROWN, PE, PTOE
Project Manager
Greenman-Pedersen, Inc.

Dear NEITE Members:

As this will be my last President’s message of the year, I just want to express what an honor it has been to serve the Section as your President. It has been an exciting year full of challenges and surprises. I also want to say a special thank you to Alan Cloutier, David Debaie, and John Adams for their involvement on the Executive Board as they will be leaving us at the end of the year. And thank you to all of the other Board and Committee members for your hard work and dedication.

Since the last issue of the Chronicle, all of the New England Chapters have been busy with technical and social programs. The Massachusetts Chapter and the Emerging Professionals Group sponsored a social event at the Red Sox game on August 16, with pre-game festivities at the Yard House. As always, this event was a huge success. On September 13, the Vermont Chapter hosted its fall meeting at VTrans, which featured a presentation by Stephen Buckley, P.E., AICP on Planning for Automated Vehicles. On October 13, the Connecticut Chapter co-hosted an event with WTS Connecticut and ITS CT for the 11th Annual WTS Connecticut Transportation Mini-Series. The event included a full day of technical presentations on topics such as Self-Driving Vehicles, Cultivating Strategic Partnerships for Transit Ridership Growth, Tappan Zee Bridge Construction, Sustainability and Transportation, and many more. On October 16 and 17, the Maine Chapter held an IMSA Work Zone Traffic Control certification course as the first step in assisting the Chapter’s engineers in obtaining Traffic Signal Technician certification.

On October 12, the New England Section held its annual joint meeting with the Massachusetts Chapter in Waltham, MA. As usual, I was very impressed by the organization of the meeting and the technical presentations. The meeting featured an all-day training on Connected Vehicles presented by ITS America and USDOT. The technical sessions included presentations on Autonomous Vehicles and Connected Work Zones by representatives of AECOM and MassDOT. The evening wrapped up with a dinner and keynote presentation by Chris Osgood, Chief of Streets for the City of Boston, on the City’s ongoing research and development to prepare for connected and autonomous vehicles. Both the New England Section Executive Board and the Northeastern District Executive Board held meetings simultaneous to the day-long training session. The New England Section’s meeting focused on arrangements for the upcoming Annual Meeting in Warwick, Rhode Island, election of 2018 Executive Board members, and revisions to our Bylaws for consistency with International’s new Bylaws. The Board also heard about two exciting new programs coming in the next year. The Emerging Professionals Group is working on developing a mentoring program for members of the New England Section of ITE. This program will pair emerging and seasoned professionals to provide guidance on career development. The UMASS Amherst Student Chapter was also selected to host the Northeast/Mid-Colonial District Student Leadership Summit in 2018. This is an incredible opportunity for the UMASS Chapter. I am proud to have them as a part of our Section and wish them the best of luck in organizing this event.

The New England Section Executive Board will convene again on November 9 at the Rhode Island Chapter’s Annual Meeting in Providence, RI. The event will offer a technical session on the Apponaug Circulator Project by Jon Skaarup, P.E., PTOE of GRA and a keynote presentation during dinner by Shoshana Lew, Chief Operating Officer at RIDOT, on Transportation Innovation Partnership (TRIP) Planning for a Rapidly Changing Future. The Board meeting will focus on the final arrangements for the Section’s Annual Meeting in Warwick, RI on December 4, further discussion of the Emerging

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Professional Group’s mentor program, and a potential new Professional Development program aimed at providing ITE members with the necessary skills to succeed professionally, such as presentation, networking, and interview skills. As I finish off my term as President, I hope to continue to serve the Section as the chair of this new committee.

While this year has been packed full of events, we’re not done yet. The Section’s Annual Meeting will be held on December 4 in Warwick, Rhode Island. Due to the amazing success and feedback we received from the Joint NE/ME/NH ITE meeting in July, we will be welcoming back representatives from Kittelson & Associates, Inc. to provide a day-long training on the new Highway Capacity Manual (HCM) 6. We will also get an opportunity to hear from our student members during the technical sessions, with three student presentations on mode share, autonomous vehicles, and connected vehicle testing. Michael O’Donnell of NHDOT will round out the presentations with a discussion on NHDOT’s guidelines for permitting and designing midblock pedestrian crossings, including the use of Rectangular Rapid Flash Beacons (RRFBs) and Pedestrian Hybrid Beacons (PHBs). And as always, don’t forget your bottle or gift for the raffle!

I would like to make one final thank you to Rachel Dooley, Chronicle Editor, for all of her hard work this year that has made the Chronicle such a success. I would also like to wish the best of luck to next year’s President, Samuel Gregorio, P.E., PTOE and look forward to seeing what next year brings as your Immediate Past President.

If you have any questions or suggestions, please contact me at rebeccabrown@gpinet.com or (978) 570-2946.

Sincerely,

Rebecca L. Brown, PE, PTOE

New England Section President
**Section Calendar**

**December 2017**
- NEITE Annual Meeting
  - December 4, 2017
  - Crowne Plaza
  - Warwick, Rhode Island

**January 2018**
- NEITE-VT ITE Joint Meeting
  - January 25, 2018
  - Killington Resort
  - Killington, Vermont

- ITS-CT and ITE-CT Joint Winter Meeting
  - January 31, 2018
  - Anthony’s Ocean View
  - New Haven, Connecticut

**April 2018**
- Northeast/Mid-Colonial Student Leadership Summit
  - April 13th-15th, 2018
  - University of Massachusetts Amherst
  - Amherst, Massachusetts

**May 2018**
- 2018 Northeastern District Annual Meeting
  - May 21st-23rd, 2018
  - Fort William Henry Conference Center
  - Lake George, New York

Please send all calendar announcements to New England Section webmaster Colin T. White, PE and Chronicle Editor Rachel A. Dooley, PE at cwwhite@gpinet.com and rdooley@vhb.com

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**The Editor’s Minutes**

**RACHEL A. DOOLEY, PE**
Transportation Engineer
VHB

Hello New England Section!

It’s amazing but we are at the end of another year! I want to thank everyone for their contributions throughout the year to help us meet our goal of publishing four issues in 2017. It’s hard to believe that I have been the Editor of the New England Chronicle for two years now. I’m looking forward to what next year may bring.

The feature article in this issue was written by Magda Flores of the University of Rhode Island and focuses on the future of autonomous vehicles. This article offers some great insight into the legislation and liability issues that may arise as autonomous vehicles become more of a reality. Congratulations to Magda for winning our student article contest and thank you to all the students who entered their papers for consideration.

This issue also features the position statements of the five candidates for open Director positions on the NEITE Executive Board. There is currently one Senior Director position and two Junior Director positions that will be decided through this election. Please take a few moments to read through the information for each candidate and don’t forget to vote!

You may also notice the advertisement for the upcoming Emerging Professionals Group Mentor-Mentee Program. I encourage everyone to consider partaking in this exciting new program. As a member of the Emerging Professionals Group, I can tell you we are all looking forward to getting this program off the ground next year. I hope it will be a beneficial program to many of our members.

Be sure to check out the Chapter Updates sections to hear about how the recent Massachusetts and Rhode Island Annual Joint Meetings went. I thought both events turned out great and I want to thank the Massachusetts and Rhode Island ITE Boards for all their hard work putting these programs together.

You will find details about the upcoming NEITE Annual Meeting in this issue as well. I’m looking forward to the meeting and networking with new colleagues though the annual bottle swap.

Finally, I would like to thank all of our sponsors for their continued support of the New England Chronicle. Be sure to keep an eye out for renewal notices for next year in the coming months. If you are interested in becoming a sponsor of the award-winning New England Chronicle, please contact Lisa Rutherford of Ocean State Signal (lrutherford@oceanstatesignal.com) or myself. I would also like to thank all of the contributors to this issue. I hope you enjoy the final issue of 2017. See you next year!

Rachel A. Dooley, PE
Chronicle Editor
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**Welcome to the Newest ITE New England Section Members (as of October 2017)**

- Molly Bialecki (University of Massachusetts Amherst)
- Ishraq Rayeed Ahmed (University of Connecticut)
- Viraj S. Attre (University of California Berkeley)
- Pruthviraj Takkuri (University of Hartford)
- Mariana Reis (Manhattan College)
- Corinne Tobias (Allen & Major Associates, Inc.)
- Peter Calves (Green International Affiliates)

Total NEITE Membership: 593 persons

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**Find The New England Section Online**

The New England Section of the Institute of Transportation Engineers is now on Facebook, Twitter, and LinkedIn.

Please remember to receive all your updates, news, and Section information at the New England Section website: [http://www.neite.org](http://www.neite.org)

For those members of the New England Section that would like to be included on the Google Group Section email list, please contact Samuel W. Gregorio, PE, PTOE at sgregorio@theengineeringcorp.com.

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**On the Cover:** The Blackstone River Bikeway in Worcester, Massachusetts

**Photo Source:** VHB ©

**On the Back Cover:** Wachusett Route 70 in West Boylston, Massachusetts

**Photo Source:** VHB ©
Autonomous Vehicles and the Future

MAGDA FLORES U.
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Automobiles have been around since 1885 thanks to Karl Benz from Germany. Since then the automobile has been remodeled, redesigned, reshaped, and now given a brain. The auto industry is moving towards making automobiles autonomous. An autonomous vehicle is defined by the state of California as a car that can drive “without the active physical control or monitoring of a natural person”. In 2004, Defense Advanced Research Projects Agency (DARPA) set forth a Grand Challenge that set in motion the demonstration of autonomous vehicle feasibility by navigating a 150-mile route (Fagnant and Kockelman). In this first year the best team was only able to drive through seven miles, but by the following year five autonomous cars completed the test successfully. In 2007, DARPA came up with the Urban Challenge that required autonomous cars to not only successfully drive in a route, but to also obey traffic rules, deal with blocked routes, and maneuver around fixed and moving obstacles. Six teams finished this challenge.

Cars have only been around for approximately one-hundred and thirty years. Over this past century astonishing accomplishments have been made. Engineers and auto manufacturers will only keep pushing for better cars, autonomous vehicles seem to be that future. With designing vehicles in this way there are a lot of rising questions on their safety, liability, and regulations. Autonomous vehicles not only have the threat of regular cars, but they also pose the threat of being hacked due to all of the technologies that are implemented into them to actually get them to work. Due to these technologies, arises the question about privacy and cyber attacks.

Early History
In the early years, automobiles were still being designed to function properly. Karl Benz was the first to make a “modern” day car. His automobile entailed a gasoline powered internal combustion engine with three wheels, four cycle engine and chassis to form a single unit (loc.gov). The next innovation came about a decade later when Charles Edgar and Frank Duryea successfully invented the gas powered vehicle with a four horsepower, two-stroke motor (loc.gov). In 1901 Mercedes designed a vehicle with a thirty-four-horsepower engine that achieved a speed of fifty-three miles per hour. In 1908, Henry Ford introduced his Model T that was a four-cylinder, twenty-horsepower, two-speed planetary transmission and a high chassis (history.com). Ford would soon introduce his assembly line that would help satisfy the demand for cars. Soon enough the dramatic differences between different companies was becoming more basic. Differences of post-World War II models and the Model T by the 1920’s—such as the self-starter, the closed all-steel body, the high-compression engine, hydraulic brakes, synchronesh transmission, and low-pressure balloon tires (history.com) were established. In the 1980’s the automobile industry reshaped itself and cars were designed smaller, more fuel-efficient, less polluting, and safer (history.com) with the aid of new regulations. By 1980, 87.2 percent of American households owned one vehicle or more (history.com) which shows the dependency on motor vehicles that people have.

Present Day
In present day, there are many different kinds of vehicles, each with their own gadgets. There are also a variety of engines: gasoline, diesel, electric, and hybrids. A vehicle can go from 0-60 mph in 2.5 seconds and range in cost from a few hundred dollars to a few million dollars. In the past few years’ vehicles have gone through a technology rejuvenation. Each year more and more new features come out with every new model. With an increase of sensor-equipped vehicles, vehicles are split up into four different groups starting with low capability to highest: (1) Warning and Information; (2) Assisted Driving; (3) Automated Driving; and (4) Autonomous Driving (Barringer).

Group one, Warning and Information, consists of vehicles that contain sensor systems to increase the safety of the vehicle like lane departures, parking distance, blind spot detection and back-up alerts. These sensor systems are known as Advanced Driver Assist Systems (ADAS)—the system only provides information to the driver, but does not contribute to the drivers’ execution of driving (Barringer). Vehicles in group 2, Assisted Driving, include vehicles that can complete specific tasks without the input of the driver. One example of this is adaptive cruise control that controls the brakes and acceleration of the vehicle, but has no control of the steering. Because of this, a human driver still must operate the vehicle at all times. In group 3, Automated Driving, like assisted driving, is also limited to what the vehicle can do except it is able to perform all the tasks in a given situation. Examples of this are self-parking vehicles, as well as vehicles that can drive themselves on highways without the assistance of a human driver. The difference between automated driving and autonomous vehicles is that automated driving vehicles still need a human driver, for instance, to pick an open spot for the vehicle to park itself. Group 4, Autonomous Driving, can complete all the driving tasks in all situations (Barrenger) that it undergoes. Autonomous driving can be defined as “give and go” (Barrenger) vehicles because the only human interaction that would be needed is an input of a place to go, the vehicle would do the rest of the tasks required to get to that destination.

Modern vehicles have become more semi-autonomous with the new features that are implemented into them every year. Some of the features that vehicles manufactured today include: adaptive cruise control (ACC), lane departure warning, collision avoidance, parking assist systems, [and on-
Temporal Auto Pilot (TAP) technology that would allow that car to semi-autonomously drive itself on roads up to speeds of approximately eighty miles per hour (Colonna, 89). The TAP technology of Volkswagen is a combination of autonomous technologies already available. Google has also developed its own set of autonomous vehicles. It is currently testing the autonomous technology on a fleet of Toyota Priuses, an Audi, and a Lexus (Gurney, 253). Due to the transportation laws set in place by the Department of Transportation (DOT) the Federal Highway Association (FHWA), and the National Highway Traffic Safety Administration (NHTSA), the cars must have a driver in them at all times. In the vehicles that Google is testing, the driver can assume control of the vehicle at anytime by moving the steering wheel, by utilizing a button that switches the vehicle off of autonomous mode, or by touching the pedals.

Current Laws for Autonomous Vehicles

In the past few years, as autonomous cars have become more prevalent and the technology is advancing, some states have passed laws specified for allowing such vehicles to be on the roads. The NHTSA has not passed any legislation on license of autonomous vehicles because it is waiting on more research to be done on the technology before it takes any further action. Nevada became the first state in March of 2012 to pass legislations (Nev. Rev. Stat. Ann. § 482A.010) authorizing autonomous vehicles to drive on its roads. The statute first began by defining several terms; artificial intelligence, autonomous vehicle, and sensors. The statute of Nevada defines autonomous vehicles as vehicles that can drive “without an active intervention of a human operator” (Barringer), only covering vehicles with automated driving and autonomous driving. The legislation passed did not cover any specific requirements, but rather let the Nevada Department of Motor Vehicles (DMV) draft regulations. The legislature did provide the DMV with some specific areas to regulate: minimum safety standard, insurance requirements, testing procedures, separate driver’s licenses, and geographic boundaries. The separate driver’s license that the legislature required entails a driver’s license that states that the person is not required to actively drive an autonomous vehicle (Barringer). Autonomous vehicles in Nevada would also have different license plates like electric vehicles and hybrids do. Florida was the second state to pass legislation (Fla. Stat. § 316.85) for autonomous vehicles that became effective July 1, 2012. Like the Nevada legislation, Florida gives a definition of an autonomous vehicle and it seems that the statute only applies to automated driving and autonomous groups like Nevada. Florida, unlike Nevada, did not give the responsibility of making regulations to any agency. Florida only requires the Florida Department of Highway Safety and Motor Vehicles to submit a report to the Florida Senate and House of Representatives that suggests further legislation or regulations are needed. Like Nevada, Florida determines the person that engages the vehicle as the driver. California also passed legislation on January 1, 2013 (Cal Veh Code § 38750) for autonomous vehicles. California, like Florida and Nevada, defines autonomous vehicles and the statute applies to automated and assisted driving groups with an exception that autonomous vehicles will be operated only for test purposes and that a human be present in the driver’s seat while the vehicle is driving autonomously.

More and more states have been adding legislation for autonomous vehicles. Examples of other states that have made related legislation are Georgia, Hawaii, Louisiana, Maryland, Massachusetts, Minnesota, New Jersey, New York, South Carolina, South Dakota, and Washington. California (SB 1298) in 2014, along with Nevada (AB 511), enacted legislation that would allow autonomous vehicles to be certified. In July 2014, California, Florida, Michigan, Nevada, and Washington D.C. mandated that all drivers of autonomous vehicles on public roads would need to be licensed and be prepared to do a manual override if required (Fagnant and Kockelman). The Driver License Compact constitutes an agreement between all states except five (Georgia, Wisconsin, Massachusetts, Michigan, and Tennessee) that the policies of the party states reciprocate recognition of licenses to drivers in any of the states. Current law does not prohibit licensed automated vehicles with explicit autonomous vehicle licensing (Fagnant and Kockelman), but it could cause slow growth of widespread autonomous driving.

Liability

Autonomous vehicles are both vehicles and computers. They incorporate various technologies to function properly—from cameras and sensors to GPS navigations and decision-making software. One of the big hurdles that autonomous vehicle manufacturers are going to have to overcome, is to prove that the vehicles will work properly. An example of a change of liability would be that the vehicles are designed to be much safer than non-autonomous vehicles because there is no human error is taken out. With split second decisions, humans are typically not held at fault when responding to a circumstance beyond their control, regardless of the decision made. Autonomous vehicles in contrast have tons of equipment that will potentially make more informed decisions and this may be questioned in court even if the autonomous vehicle is technically not at fault (Fagnant and Kockelman).

Serious accidents would not only happen due to split second decisions of the autonomous vehicle, but also due to glitches, viruses, network failure, and programming errors that are commonly associated with computers, since they are hybrids between computers and vehicles (Duffy and Hopkins, 103). An example of such a glitch in assisted driving vehicles was the malfunction of autonomous acceleration systems in certain cars manufactured by Toyota. The autonomous acceleration systems unintentionally accelerated vehicles, which caused severe personal injury and property damage. The malfunction affected 3.2 million cars, and Toyota recalled more than eight million vehicles in the United States for having problems with floor mats getting entangled with the accelerator pedals or pedals sticking the throttle open [Vlasic]. Toyota in 2012 settled to pay over $1.1 billion due to this problem. This example shows the threat of malfunctioning is put to a higher degree.

There are three different situations to assess accident liability: driver liability, runaway cars, and defective vehicles. Driver liability can be divided into four different scenarios: a distracted driver, the diminished capabilities driver, the disabled driver, and the attentive driver (Gurney, 255). The distracted driver in a non-autonomous vehicle scenario would be liable for the accident due to negligence. In an autonomous vehicle case, it would be much harder to determine if the driver (operator) of the vehicle is at fault or the manufacturer since they have put software in place to tell the driver when they need to take manual control of the vehicle. If the vehicle is autonomous, without any manual override, would the manufacturer be found at fault since there was no way for the driver to take control? The next scenario is the diminished capabilities driver who would normally not be a driver without assistance whether it be due to elderly age, intoxication, or being a minor. In this scenario, the driver would not normally be able to drive a vehicle, but because of autonomous cars, they are able to get to and from places without the help of others, thus relying on these cars to work properly. If the autonomous car malfunctions, the “driver” may not be able to manually take control of the car due to their diminished capabilities. The third scenario is a disabled driver who is completely dependent and can not drive traditional vehicles due to a physical disability like blindness (Gurney, 257). In this scenario, like the one before, the “driver” would not be able to take control of the autonomous vehicle if it malfunctioned due to their disability. The last scenario would be an attentive driver that takes the same precautions of watching the road in an autonomous vehicle as they would in a traditional vehicle. Due to the car being autonomous, it is supposed to work in all situations without the help of a human driver. Even though the driver was attentive and maybe could have taken control of the car, it is supposed to work properly, no matter what the situation.

Runaway vehicle liability usually finds the owner of the vehicle at fault due to negligence. An example would be if a car rolled down a hill and hit another vehicle due to the owner not applying the parking brake properly. The owner of the vehicle that rolled down the hill would be at fault. If an autonomous vehicle did that same thing, it would be much harder to determine if the owner is at fault or the manufacturer. Vehicle liability based on drivers and runaway vehicles focuses on actions of the person responsible for driving and operating the car, thus these laws would be incapable of giving a “just” decision based on the current laws. Accidents with autonomous vehicles could also be caused by other factors that do not involve defects like poor road maintenance, weather conditions, and unpredicted behavior by other drivers, pedestrians, and small children (Duffy and Hopkins, 108).

Computer systems law can also be applicable to autonomous vehicles because they rely heavily on computer technologies. The Uniform Electronic Transactions Act (eUTSA) implemented in 2010 encourages the electronic commerce, and it covers the ways in which electronic contracts are formed and carried out. The eUTSA provides the protection of legal rights and obligations on both parties that are involved with electronic transactions. The eUTSA provides a legal framework for the activities involving electronic commerce, and it includes responsibilities of parties, disputes of rights and obligations, and liability of parties. In the case of autonomous vehicles, the eUTSA provides protection to the parties involved with the autonomous vehicles, and it includes responsibilities of parties, disputes of rights and obligations, and liability of parties. The eUTSA provides a legal framework for the activities involving electronic commerce, and it includes responsibilities of parties, disputes of rights and obligations, and liability of parties. The eUTSA provides a legal framework for the activities involving electronic commerce, and it includes responsibilities of parties, disputes of rights and obligations, and liability of parties. The eUTSA provides a legal framework for the activities involving electronic commerce, and it includes responsibilities of parties, disputes of rights and obligations, and liability of parties. The eUTSA provides a legal framework for the activities involving electronic commerce, and it includes responsibilities of parties, disputes of rights and obligations, and liability of parties.

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New England Section Annual Meeting

Date: December 4, 2017
Meeting Location:
Crowne Plaza at the Crossings
801 Greenwich Avenue
Warwick, Rhode Island 02886

Meeting Schedule:
8:30 AM - 4:00 PM  All-Day Professional Workshop
10:00 AM - 2:00 PM  NEITE Executive Board Meeting
2:00 PM - 4:00 PM  Technical Sessions
4:30 PM - 6:30 PM  Cocktail/Networking Hour
6:30 PM  Dinner

Registration Costs:
All-Day Workshop + Dinner (Private): $220
All-Day Workshop + Dinner (Public/Students: $110
Technical Sessions & Dinner (Private): $80
Technical Sessions & Dinner (Public): $50
Technical Sessions & Dinner (Students): $35
All Walk-Ins: Add $10

ALL REGISTRATIONS MUST BE HONORED
REGISTRATIONS DUE BY MONDAY NOVEMBER 27, 2017

Registration Flyer available at www.neite.org

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Transaction Act (UETA) defines a system that operates without human intervention as an electronic agent. The UETA views an electronic agent as a tool to the user and that user can be legally bound to the tool’s actions, even if the user had no involvement (Duffy and Hopkins, 111). This act can be applied to autonomous vehicles because they do not need a human to operate. This act would find the user of the vehicle at fault for the actions of the vehicle even though the user may not have had any knowledge/control of the vehicle doing such actions. Based on computer law, autonomous vehicles would be defined as instrumentalities of the owners, thus making the owner liable for the actions of the vehicle.

Privacy and Cyber Security

Another rising question with autonomous vehicles would be their susceptibility to cyber attacks. Just like any computer system, autonomous vehicles may be targeted by hackers and terrorists to bring the system down or impair its functionalities (Barringer). Legislation would have to be drafted with this mind to avoid such occurrences. It would ultimately be infeasible to develop a system that is completely secure. Cyber attacks are usually acts of espionage that gain unauthorized access to a system for the purpose of gathering data rather than sabotage, which is actively compromising a system’s normal operation (Fagnant and Kockelman, 177).

Privacy, or lack thereof, would also be a key factor in legislation for autonomous vehicles. Due to autonomous vehicles being artificial intelligence means that it tracks everything that the vehicle does to better its driving. Questions arising about this are who would own this data, for how long would it be stored, and for what will it be used? Some users may be reluctant to get an autonomous vehicle based on the fact that vehicle data recorded could be used against them in court (Fagnant and Kockelman, 178). Without proper legislation, this data could be misused by the U.S. government and employees to track individuals.

Safety and Benefits

There are constant car accidents every day, ranging from minor infractions to fatal accidents. Some are due to driver distraction or negligence, while other accidents occur due to uncontrollable circumstances. Over 90 percent of crashes are primarily due to human error and 40 percent of fatal crashes involve drivers under the influence, drivers who are distracted, or fatigue drivers. Autonomous vehicles are assumed to reduce crash injuries by 50 percent only at the 10 percent market penetration rate (Fagnant and Kockelman, 173). Autonomous vehicles would not only make vehicles more safe because it takes all the autonomous technologies that have helped decrease accidents and puts them into one car, but they would also reduce congestion. Uber and Lyft, like the big auto manufacturers, are investing in autonomous technologies. The impacts of these two companies with traditional vehicles have increased vehicle sharing dramatically. The U.S. has had a decline in licensed drivers to total licensed drivers per 1,000 driving-age persons in 1995 and 846 in 2013 (BMI). The figure above shows the decline in licensed drivers over the last 30 years.

Like the above figure shows, the University of Michigan Transportation Research Institute also compared the percentage of Americans between the ages of 20 and 24 who have a license. In 2014 only 77 percent of Americans had a license compared to 92 percent in 1983 (History.com). Among 16 year old’s, the percentage was at 25 percent in 2014 and 46 percent in 1983. Uber and Lyft could benefit greatly from these declines in licensed young people because both companies could provide a new transportation system through autonomous vehicles (Canberra Times). Another big benefit with having autonomous vehicles would be possible discounts from auto insurance and tax breaks from the federal and state government. Car insurance companies today give customers discounts if their cars have preventive technologies incorporated into them. With an autonomous vehicle, the discounts could be even greater than just having adaptive cruise control. The federal and state government offers grants to buyers of fully electric and hybrid vehicles with a tax break to get more people to buy them. The government could also do the same with autonomous vehicles because of the benefits that they will bring.

Personal Opinion

Autonomous vehicles do not seem like they are very far away from becoming fully incorporated into everyday life. I love the idea that these cars would be beneficial to the elderly and the disabled. These types of vehicles are a giant stride into the future that we are only able to see in movies. The technologies associated with these vehicles are very complex because of how intertwined they are with one another. The giant risk that comes with autonomous vehicles being artificial intelligence is privacy. Like stated earlier, privacy would have to be considered when making laws for the data collected by autonomous cars. The use of the data would also need to be addressed. Another legislative topic that is important is liability law associated with autonomous vehicles and whether they will be considered under vehicle law or computer law or if an entirely new law system would have to be designed for them. I think in order to be fair, and based upon the articles that I have read about vehicle and computer laws, it would be best if either the federal or state governments made new sets of liability laws for autonomous vehicles. Liability laws are not the only types of laws that need to be updated to be able to incorporate the issues that arise with these new vehicles. Transit laws would need to be improved to reflect what autonomous cars are capable of doing and how they can change the way that speed limits, accidents, and any other types of road violations are prosecuted. Overall, I think that autonomous vehicles are going to be a great innovation for society as a whole. Society will benefit not only in a futuristic feel to cars, but also in a reduction of accidents and injuries that are normally caused by human error. Other benefits would be less emissions into the air due to better driving conditions that would reduce the amount of braking and gasoline consumed. The benefits of autonomous vehicles will exponentially grow as they become more widespread on roads.

Magda Flores U. is a senior in the Spanish International Engineering Program at the University of Rhode Island and will be studying abroad in Spain next year. She is the current first president of the URI ITE Student Chapter and a project manager for the URI ASCS concrete canoe project. She plans to pursue a career in sustainable transportation upon graduation.

Bibliography

Looking for a resource to improve your network connections? Willing to share your industry experiences to help guide young engineers? Need a sign?

The NEITE Emerging Professionals Group is now accepting mentor and mentee applicants! Apply [here](http://example.com) or email [cdube@vhb.com](mailto:cdube@vhb.com) for more information.
Candidates for New England Section Directors

Kenneth P. Cram, PE
Business Address: Bayside Engineering, Inc. 600 Unicorn Park Drive Woburn, MA 01801
Business Title: Director, Traffic Engineering

Education: B.S., Civil Engineering (1982) from Northeastern University, Boston, MA

Work History: Licensed transportation engineer with over 35 years of experience in traffic engineering, transportation planning, and highway and traffic signal design for projects in New York, Massachusetts, Maine, New Hampshire, Connecticut and Rhode Island. Prior employment consists of firms large and small: HNTB, Raymond Keyes Associates, BSC Group, VHB, VAI, Land Strategies and Bayside Engineering. Specializes in the area of traffic engineering, transportation planning, civil engineering design, and transportation systems management. Responsibilities include the supervision of the design and analysis of roadway systems, intersections, and interchange systems, along with the preparation and review of traffic impact studies, environmental impact reports, site feasibility studies, corridor studies, peer reviews, traffic signal warrant studies and parking studies. Manages a team of engineers to prepare reports required to obtain state and local permits for a wide range of development proposals. Oversees both the technical aspects of study preparation and the project management of each job. Considerable experience preparing presentations for public hearings.

Ted DeSantos, PE, PTOE
Business Address: Fuss & O'Neill, Inc. 146 Hartford Road Manchester, CT
Business Title: Senior Vice President

Education: B.S., Civil Engineering, 1994 UMass Dartmouth

Background: Ted has diverse experience over the past 23 years in transportation engineering including traffic impact, signal system design, road design, intelligent transportation systems, complete streets, and state permitting. He serves as Principal and member of the Board of Directors at Fuss & O’Neill Inc., a consulting firm with nine offices in New England providing expertise in transportation, environmental, community planning and development.

Ted has been an ITE member since 1992, and had been active in the Connecticut Chapter as an officer and committee member. Ted has presented at technical sessions for CT meetings many times over the years, and presented at the District 1 Annual meetings in Mystic 2000, Portland 2010, North Hampton 2012, and ITE International meeting in Boston 2013. Ted was awarded the NEITE New England Transportation Engineer of the Year in 2015.

Ted is the Board Chair for Connecticut Main Street Center www.ctmainstreet.org.

Goals: I have been actively involved with ITE through the MAITE Chapter for the past eight years. During that time, there was a significant revitalization of the Mass Chapter. Our focus has been, and continues to be, getting more individuals involved in ITE and its activities. I plan to continue to work with the Mass Chapter, as well as the other Chapters within the Section to increase the awareness of NEITE's opportunities for growth, as well as professional development. This includes working with the Student Chapters at colleges and universities within the Section.

My focus will also encompass moving ITE forward. ITE will be faced with many transportation changes in the upcoming years as technological innovations continue to shift our way of getting from one place to another. We are dealing with many multi-modal transportation options, services and applications, which are virtually changing on a daily basis. I believe ITE will be at the forefront assessing these changes and developing solutions for the future.

In addition, the need to retain membership and draw an increase in participation at events, meetings, and trainings is another goal for the future. Having greater input from the members as to the specific topics that they would like to see as training or technical presentations will allow us to boost attendance and draw the attention of the entire section. Topics that will educate the section and keep us on the forefront of standards, technology, planning efforts and policies are keys to the success in years to come.

I will advocate for more social events such as the PawSox, SeaDogs and Fisher Cats games solely for networking and interactions. Often time events are tied into a technical session or a presentation, but having one or two social events to interact with section members outside of the workplace and typical meeting spaces would allow interaction that would otherwise not take place. Given the proper planning and location, these social outings would foster a more personal environment that would in turn generate more ITE participation.

Goals I would like to achieve: As the current membership committee chair for the New England Section and a younger member of the Section, my focus has been and will continue to be the success and growth of the section. To achieve this goal, I hope to increase the membership of the section through a number of different ways. I would advocate for a greater outreach to the students population, increasing the membership of our student sections, both within existing student chapters and by working with local colleges and universities to form new student chapters. As a student in college, I was unaware of ITE and all the benefits that came with becoming a member. From having this experience, it makes me wonder just how many other students and young engineers could benefit from ITE. ITE has done an excellent job at providing education, professional development, and networking to its members and the goal is to communicate these benefits with the younger members and students.

In addition to these goals, I would also like to be more involved with the NEITE’s Sections. I am currently working with local colleges and universities to form new student chapters. As a student in college, I was unaware of ITE and all the benefits that came with becoming a member. From having this experience, it makes me wonder just how many other students and young engineers could benefit from ITE. ITE has done an excellent job at providing education, professional development, and networking to its members and the goal is to communicate these benefits with the younger members and students.

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Positions held for ITE:
- Immediate Past-President MAITE Chapter (current)
- President of the MAITE Chapter for two years
- Vice-President of the MAITE Chapter for two years
- Treasurer of the MAITE Chapter for two years

Positions held in other professional organizations: Member of American Society of Civil Engineers (ASCE).

Professional Registrations: Professional Engineer in Massachusetts.

Goals: I have been actively involved with ITE through the MAITE Chapter for the past eight years. During that time, there was a significant revitalization of the Mass Chapter. Our focus has been, and continues to be, getting more individuals involved in ITE and its activities. I plan to continue to work with the Mass Chapter, as well as the other Chapters within the Section to increase the awareness of NEITE's opportunities for growth, as well as professional development. This includes working with the Student Chapters at colleges and universities within the Section.

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a non-profit statewide agency promoting revitalization of downtowns. Ted has a passion for sustainable transportation, complete streets and place making as a foundation for community building. He has worked since 2010 on various task force and subcommittee assignments as a Director, and has been a vocal advocate for smart growth to Connecticut state agencies and major corporations.

**Positions held for ITE:**
- President – CT Chapter 2002, and 2012
- Vice President CT Chapter 2001, and 2011
- Secretary/Treasurer CT Chapter 2000, and 2010
- District 1 ITE 2019 Annual Meeting – Finance Chair

**Professional Registrations:** Professional Engineer in Connecticut, Massachusetts and Rhode Island; Professional Traffic Operations Engineer (PTOE)

**Candidate statement and goals:** The Institute of Transportation Engineers has a proud history of excellence in networking, professional development and advancing the science of transportation engineering. Declining membership, meeting participation and sponsorship has frustrated local, regional and international leaders over the past decade. The future of the transportation profession will demand a professional organization that can evolve to serve a world of increasing electronic connectivity, connected technology, autonomous vehicles and more. We must recruit future generations of engineers, connect professionals through social and electronic media, increase sponsorship, and attract diverse professionals to attend meetings that are fun, engaging, and informative. To that end, my goals in serving NEITE include:

- Engage public transportation agencies and private employers in strategic planning to establish long term growth goals for NEITE. Secure partnerships that will be cultivated over time to provide baseline membership, meeting attendance and sponsorship to support the strategic plan implementation.
- Work to achieve ethnic, gender and age diversity in our membership and meeting attendance.
- Foster partnerships with other professional organizations and non-profit organizations where we can achieve our mission through the strength of other organizations.
- Diversify funding and sponsorship revenue. New ideas on how we fund our activities and decrease costs for both retirees and young professionals.
- Solicit feedback from NEITE members so that I may serve as an effective advocate on the NEITE Board.

**Rachel A. Dooley, PE**

**Business Address:**
VHB
1 Cedar Street, Suite 400
Providence, RI 02903

**Business Title:** Transportation Engineer

**Education:** M.S. Transportation Engineering, 2011, B.S. Civil and Environmental Engineering, 2010, University of Rhode Island, Kingston, RI

**Work Experience:** I have been a transportation engineer at VHB since 2012 working in both the highway and traffic design groups. My experience includes Road Safety Assessments (RSAs), roadway design, bicycle and pedestrian facility design, and signal design in Rhode Island and Massachusetts.

**Positions held in ITE:**
- Member, Institute of Transportation Engineers, 2014-Present
- Editor, The New England Chronicle, 2016-Present
- Member, NEITE Emerging Professionals Group
- Member, Massachusetts and Rhode Island Chapters

**Positions held in other professional organizations:**
- Member, American Society of Civil Engineers, 2009-2014
- Treasurer, University of Rhode Island Student Chapter of the American Society of Civil Engineers
- Member, Chi Epsilon Honor Society
- Member, Tau Beta Pi Honor Society

**Professional Registrations:** Professional Civil Engineer, State of Rhode Island

**Goals:** While I feel that growing our membership is a common goal we all share, I would especially like to focus on maintaining the current members that we have. I would like the opportunity to serve on the executive board to help bring about new ideas and benefits that would translate directly to our current members. I feel that by expanding upon the opportunities that we offer, we will not only retain our existing membership, but also attract new members. In addition, I believe this would be a way to help maintain student members who sometimes only experience the benefits of ITE for a short time before graduation.

A second goal of mine would be to improve the communication between the New England Section and the state chapters. As the editor of the New England Chronicle newsletter, I have experienced first-hand the disconnect that can occur between the different groups within our Section. I would like to use my position as a member of a smaller state chapter to better help the Section understand how the state chapters function and to help the state chapters better understand the opportunities the Section affords.

Lastly, as ITE transitions from being exclusively a group of transportation engineers to a group of transportation professionals, I would like to find ways we can incorporate these professionals into our technical programs and training. At the state and section level, we sometimes struggle with presentation topics being repetitive in the programs that we offer. By expanding our presenters to include those from other professions, NEITE could provide many new opportunities to learn about our profession from a different point of view. I would like to see a new variety of topics introduced while still helping our members meet the requirements of their professional licensures.

**Douglas S. Halpert, EIT**

**Business Address:**
Greenman-Pedersen, Inc. (GPI, Inc.)
181 Ballardvale Street
Wilmington, MA 01887

**Business Title:** Transportation Project Engineer

**Education:** B.S. in Civil and Environmental Engineering, Northeastern University, Boston, MA, 2013

**Work Experience:** Transportation Project Engineer, TEC, Inc., July 2013 – July 2017
Transportation Project Engineer, GPI, Inc., July 2017 – Present

**Positions Held in ITE:**
- President, Northeastern University Student Chapter, 2012 – 2013
- Program Coordinator, Northeastern University Student Chapter, 2011
- Affiliated Member, Institute of Transportation Engineers, 2011 – Present

- Continuing Education – Chairman, 2015 – Present
- Director, Massachusetts State Chapter ITE, 2016 – Present

**Professional Registration:** Engineer in Training, Commonwealth of Massachusetts

**Awards and Honors:**
- District Student Chapter of the Year Award, New England ITE, 2012 – 2013
- Northeastern Achievement Award, 2008 – 2013
- Northeastern Civil Engineering Alumni Scholarship, 2013

**Goals:** As the Continuing Education Chairman, I helped plan, organize the New England Section Annual meeting, and assist with technical trainings. I would like the opportunity to serve as Junior Director to establish greater cooperation between section and state chapters regarding new and innovative trainings. I’ve had increased opportunities to attend section board meeting over the last year and wish to continue to provide support.

One of the major themes I’ve heard over the last few years is how members of ITE would like additional online resources such as webinars, and access to previous trainings at state and section meetings. As Junior Director, I would like to continue the work started between myself and other board members.
On Wednesday, August 16, 2017, the Massachusetts Chapter of ITE teamed up with the NEITE Emerging Professionals for a baseball game at historic Fenway Park for a game between the Boston Red Sox vs. St. Louis Cardinals. Prior to the game, people met at Yard House for a pre-game social for drinks and free appetizers before heading into the stadium. The 26 attendees marks the highest turn out to this summer social event.

On Wednesday, September 27, 2017, the Massachusetts Chapter teamed up with APBP Boston, and in conjunction with the MassDOT Moving Together Conference, hosted a bicycle infrastructure tour of Connect Historic Boston (CHB) with about 30 attendees. CHB was an initiative between the National Park Services and Boston Public Works funded through a TIGER grant to create a family-friendly, low-stress bicycle trail that makes a full circuit of downtown Boston for locals and tourists alike. The tour was led by Stefanie Seskin - Active Transportation Director with the City of Boston, and Chris Malsch with HSH who worked as resident engineer on this portion of the project. The tour highlighted the enhanced multimodal transportation features such as the newly constructed two-way cycle track down the center of Causeway Street and the two-way cycle tracks on the sides of Staniford Street and Commercial Street, as well as other design elements including bicycle traffic signals, wider sidewalks and accessibility improvements. The tour concluded at the Living Room restaurant near the end of the project for some “food and networking.”

On Thursday, October 12, 2017, the Massachusetts Chapter and the New England Section held their annual joint meeting in Waltham, Massachusetts. The event boasted another year of high attendance with over 130 registered participants. This year’s theme was “Connected Communities” and focused around an all-day training about the future of driverless vehicles and advanced technology applications throughout the transportation industry presented by ITS America. Two presentations commenced during the technical sessions, with the first from Dalia Leven with AECOM presenting on planning for autonomous vehicles now and into the future, and the second from Neil Boudreau and Jim Danilia from MassDOT and Michael Sutton from VHB presenting on the technologies being used at MassDOT to deliver real-time traffic data to reduce delays and increase safety. The keynote speaker was Chief of Streets for the City of Boston – Chris Osgood who presented advancing technology in partnership with the MBTA, public crowd sourcing across all modes to better improve mobility, and ongoing driverless vehicle trails in the seaport.

The MAITE Board would like to thank all of our presenters again for their participation and congratulate the recipients of the Desjardins Scholarship for undergrad and graduate students which were announced during the dinner program.
Vermont ITE will hold its annual Ski Day in conjunction with the joint NE ITE/VT ITE January meeting at Killington Resort on January 25, 2018. New England ITE and Vermont ITE members join to ski Killington for the morning and then attend the board meeting and/or tech sessions in the afternoon, followed by networking during happy hour. Please contact Jenn Conley at Jennifer.Conley@wsp.com for more information or to register.

The Rhode Island ITE Chapter hosted their annual joint meeting with NEITE on Thursday, November 9th. Jon Skaarup, PE, PTOE of GRA gave a technical session on the Apponaug Circulator Project (pictured right) and Shoshana Lew, Chief Operating Officer of RIDOT gave the keynote presentation on RIDOT’s Transportation Innovation Partnership (TRIP). The meeting hosted over 80 attendees from local engineering firms. The RIITE Board and Committee Chairs (pictured left) also presented three students from the University of Rhode Island with $1000 scholarships. Congratulations to this year’s scholarship recipients: Lindsay Cullen, Magda Flores, and Nina Gardner.

2017 Thomas E. Desjardins Memorial Scholarship Winners

The NE Section awarded two scholarships, one to a graduate student and one to an undergraduate student majoring in or interested in pursuing a career in transportation engineering, during its annual joint meeting with ITE Mass Chapter. Congratulations to the scholarship recipients.

Sayeeda Ayaz, UMass Amherst, Graduate Student
Sayeeda is a PhD candidate of Transportation Engineering and expected to graduate in December 2018. Sayeeda took her first class in transportation planning when she was a sophomore in college. She is determined to find solutions to traffic inefficiencies and congestion. She received a Master in Transportation Engineering and is enrolled in the PhD program at UMass Amherst. Her work and research included driver’s route choice, interaction between driver’s route choice, the infrastructure, and the real-time information system to adequately assess the effectiveness of advance traveler information system (ATIS).

Sayeeda is an active member of several associations including Women in Transportation Seminar (WTS), the Institute of Transportation Engineers (ITE), Transportation Research Board (TRB) and Graduate Women in STEM (GWIS).

Sayeeda’s Career objective reads in part “I always wanted to be a leader and advance the world with an effective use of my science and engineering knowledge… The Thomas E. Desjardins Memorial Scholarship would create a new platform for me to share my innovative ideas with the greater transportation community.”

Annabel Li, UMass Amherst, Undergraduate
As a senior civil engineering major, Ana’s main career objective is to gain as much experience and perspective about the transportation field as possible. She hopes the classes she takes will both prepare and enable her for a transportation engineering career. After she graduates, Ana intends to pursue a career in transportation engineering, she intends to pass the FE and EIT and obtain a Professional Engineering License (PE). For the past three years, Ana has received various grants and awards; the Chancellor Award, Federal Grant, Engineering Scholarship, and Federal Subsidized grant award.

Her career objectives read in part “After completing my Bachelor of Science in Civil Engineering in May 2018, I plan to immediately find a career path in transportation engineering.”

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Chronicle Editor
rdooley@vhb.com
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Professional Services Directory

BETA Group, Inc., a multi-office Engineering and Landscape Architecture firm, was established in 1982 and has grown to become a regional leader in the fields of Transportation Engineering, Civil/Site Engineering, Structural Engineering, Environmental Engineering, Landscape Architecture, GIS/Asset Management, and the Environmental Sciences. Due to our continued growth for over 30 years, we have immediate openings for professionals ready to accelerate their career track.

Senior Traffic Engineer
Norwood, Massachusetts

You understand that filling the pipeline is as important as perfecting the crash reduction safety measures. You know that managing staff is as critical as optimizing signal timing. You believe that knowledge of complete streets is only as good as the design of implementable mobility solutions. If this sounds like you, we want to meet. BETA is looking to hire a Senior Traffic Engineer who will be responsible for variety of tasks from business development to leading traffic assignments.

For Detailed Employment Opportunity Information, please visit: http://neite.org/job-opportunities/

The main responsibilities:
This role is for someone who doesn’t mind rolling up their sleeves to dig into a signal design, mingling with a client, and determining quarterly business development projections – all in one day. BETA is a dynamic company with the need for a senior-level Traffic Engineer who is as confident in public presentations as they are in their working knowledge of MUTCD. We have a growing client-base of municipalities, regional commissions and state agencies who rely on us for our smart solutions and quick turnaround. The right candidate will be highly skilled in written and verbal communication, proficient in all forms of traffic analysis and cutting edge technology applications, and ready to wear many hats.

The fine print:
• Bachelor of Science in Civil Engineering is required
• PE and PTOE are required
• Master’s Degree is preferred
• 15+ years of experience is preferred
• MassDOT experience is preferred

BOSTON TRAFFIC DATA

Boston Traffic Data is a Limited Liability Company, founded in 2015 and continuing to grow in the New England market. We serve both public and private sectors and recently was selected to provide the City of Boston with traffic data collection for Fiscal Year 2018. Boston Traffic Data is MassDOT pre-qualified, DBE/MBE certified, and an equal opportunity employer.

Project Manager
New England

We have an immediate opening for a Project Manager who would serve our New England clientele. Interested individuals are encouraged to contact us at www.BostonTrafficData.com.

Job Responsibilities
• Field installation and removal of traffic data equipment
• Staff supervision
• Quality assessment/quality Control of deliverables
• Scheduling and logistics
• Client management

Desired Skill Sets
• Aptitude in MS Excel, MS Access and programming in Python
• A Bachelor’s degree in engineering or planning from an ABET accredited university or college.
• At least 3 years of experience in engineering or planning
• Valid and active driver’s license
• Excellent verbal and written skills

Applications for the future February 1 - 28, 2018 computer-based exams of Professional Traffic Operations Engineer (PTOE) and Professional Transportation Planner (PTP) are due December 7, 2017.

Please note that applications received after the deadline will require an additional $75 late fee to process the application, in addition to the application and examination fee that must accompany the application. TPCB will try to accommodate late applications, but there is no guarantee they will be able to do so.

For a list of available exam cities, please visit: http://castleworldwide.com/main/site/ibtsites/default.aspx
Employment Opportunities

Howard Stein Hudson

Now in our 30th year, Howard Stein Hudson (HSH) is an expanding, dynamic firm of civil engineering and planning experts based in Massachusetts and working throughout the Northeast. Our culture is warm, close-knit, and fully engaged with both colleagues and clients. Our work on some of the most high-profile, exciting, and complex projects in Massachusetts is driving our growth.

We are an established firm of over 60 professionals, all located in Boston and Chelmsford. We are well-known in the region and enjoy close working relationships with our clients. Our aim is to offer rewarding professional experiences with opportunities for professional development.

Manager of Traffic Engineering

We have an excellent opportunity for a Manager of Traffic Engineering. The successful candidate will manage and mentor engineering staff on a variety of the region’s most complex projects. The type of work will include, but not be limited to: traffic analysis from local intersections to interstate system models; safety analysis; development of conceptual and final solutions; presentations to clients and the public; design of traffic signal, signage, and pavement marking plans; and management of transportation studies. You will be featured as an expert in one of the leading firms in the region.

Desired Skills and Experience:
• Bachelor’s Degree Civil Engineering
• 8+ years’ experience of progressive responsibility in Civil/Traffic Engineering
• P.E. license preferred
• Experience with AutoCAD, Synchro, and Vissim required
• Experience with the City of Boston and MassDOT standards and deliverables a plus
• Ability to work in team environment as an individual contributor
• Organized and able to prioritize tasks and manage time efficiently
• Strong written and verbal communication skills
• Ability to utilize critical thinking, judgment and experience to define, analyze and resolve problems and issues

Senior Traffic Engineer

We have an excellent opportunity for a Senior Traffic Engineer. The successful candidate will assist senior staff on a variety of engineering projects including, but not limited to: traffic analysis; development of design plans; roadway safety audits; technical specifications and estimates for public bidding; conceptual/functional design and feasibility reports; field data collection; and proposal and presentation assistance.

Desired Skills and Experience:
• Bachelor’s Degree Civil Engineering
• 1-3 years’ experience of progressive responsibility in Civil/Traffic Engineering
• Experience with AutoCAD, Synchro, and Vissim required
• Experience with the City of Boston and MassDOT standards and deliverables a plus
• Ability to work in team environment as an individual contributor
• Organized and able to prioritize tasks and manage time efficiently
• Strong written and verbal communication skills
• Ability to utilize critical thinking, judgment and experience to define, analyze and resolve problems and issues
The Technical Sessions Committee for the Northeastern District Meeting is presently soliciting technical presentations for the conference. If you would like to present at the Annual Meeting, please send an e-mail to Jeff Lebsack at jeff.lebsack@mottmac.com with a presentation proposal by December 15, 2017. See www.neite.org for more information.
2017 ITE New England Section Annual Meeting

Monday, December 4th, 2017

LOCATION:
Crowne Plaza at the Crossings
801 Greenwich Avenue
Warwick, Rhode Island 02886

MEETING SCHEDULE:
HCM 6 Workshop – 8:30AM to 4:00PM
Executive Board Meeting – 10:00AM to 2:00PM
Technical Sessions – 2:00PM to 4:00PM
Cocktail Hour – 4:30PM to 6:30PM
Dinner – 6:30 PM

ALL PARTS OF MEETING HELD IN GRAND BALLROOM SECTION OF HOTEL

HOTEL INFORMATION:
NEITE has reserved a limited number of rooms at the Crowne Plaza. Please make reservations by November 27, 2017 and refer to NEITE to obtain the special rate available. Their telephone number is 401-732-6000. Please let us know when you make your reservations.

DIRECTIONS:
From Interstate 95 North or South: take exit 12A, Route 113 East to Route 5. Turn right onto Route 5. The hotel is the first right.
From Interstate 295 Southbound only: Take Exit 2 to Route 2 South. At first traffic light, turn left onto Route 113 East. Follow to Route 5, turn right. Hotel is the first right.

Technical Sessions will each offer PDHs.

To register, complete information below and return with check.

NEITE ANNUAL DINNER RESERVATIONS

Registration cost: Private Sector: $80/person | Public Sector or Retired: $50/person | Student: $35/person |
All Walk-ins add $10 to cost listed above

Professional Workshop registration includes: Workshop, Handout Materials, Lunch, Dinner (see attached)

Workshop Attendee Cost: Private Section: $220/person | Public Sector or Retired or Student: $110/person

REGISTRATION DUE BY: Monday November 27, 2017

Name: ___________________________ Telephone: ___________________________

Company: ___________________________ Email: ___________________________

Dinner Choices: Beef_______ Chicken_______ Vegetarian_______

MAKES CHECKS PAYABLE TO NEITE. ALL REGISTRATIONS MUST BE HONORED

Email preferred (or mail, call, fax) registrations to:
Ocean State Signal
Attn: Lisa Rutherford
27 Thurber Blvd.
Smithfield, RI 02917
Tele: 401-231-6780 | Fax: 401-231-4390 | Email: lrutherford@oceanstatesignal.com

PLEASE BRING A GIFT OR BOTTLE FOR THE DOOR PRIZE (put business card on gift/bottle)
**PROFESSIONAL DEVELOPMENT WORKSHOP:** HIGHWAY CAPACITY MANUAL 6

**BACKGROUND**
The Highway Capacity Manual (HCM) is a fundamental reference for transportation engineers and planners that provides concepts, performance measures, and methods for analyzing the multimodal operations of urban streets, highways, and freeways. The HCM 6th Edition, released in October 2016, incorporates several million dollars of funded research that introduces both new analysis capabilities and updates existing methods to reflect the latest vehicle and driver characteristics.

**WORKSHOP CONTENT**
This one-day workshop will focus on the HCM 6th Edition’s new and updated content, including tools and techniques for analyzing travel time reliability, alternative intersections and interchanges, freeway managed lanes, work zones on streets and highways, and corridors containing a series of roundabouts. The workshop will also highlight the HCM’s multimodal analysis capabilities and introduce the companion Planning and Preliminary Engineering Applications Guide to the HCM, which provides simplified versions of HCM methods designed for applications with limited data availability, large study areas, a need for quick answers, and/or a need for a simple assessment of operational sufficiency. A calculator or a smartphone with a calculator app is recommended for performing hands-on examples during the workshop.

**INSTRUCTORS**
Paul Ryus, P.E. is a principal engineer with the Reston, VA office of Kittelson & Associates, Inc. (KAI). Paul was the research team’s technical editor for both the HCM 2010 and the HCM 6th Edition, and is a co-author of the Planning and Preliminary Engineering Applications Guide to the HCM.

Radu Nan, P.E. is a senior engineer in KAI’s Boston, MA office. Radu is a co-author of the MassDOT Roundabout Design Guide and has evaluated, conceptualized, or designed over 70 roundabouts in his career with KAI. He’s used the HCM 2010 and HCM 6th edition roundabout operations analysis model within Excel-based tools and SIDRA to evaluate numerous intersection concepts.

**CONTINUING EDUCATION**
Six (6) Professional Development Hours (PDHs) will be awarded to the workshop participants.

**TECHNICAL SESSIONS**

**PART 1: Student Research Presentation**
- Exploring Demand for Shared-Mode and Assessing Implications for Public Transit  
  – Raymond Gerte
- Forecasting Activity-Travel Trends in an Autonomous Vehicle Future Utilizing Multiyear NHTS Data and Sequence Alignment Technique  
  – Jingyue Zhang
- Traffic Signal Upgrades to Enable a Connected Vehicle Test Bed in Somerville, Massachusetts  
  – Sushma Srinivas

**PART 2: The Development of the New Hampshire Department of Transportation Midblock Crossing Design Guideline**
Michael O’Donnell will present on the Department’s current practice for permitting and designing midblock pedestrian crossings on State roads, including the use of RRFBs and PHBs.

**FEE**
- $220* for private consultants
- $110* for public employees or retired persons
*Includes dinner at the NEITE Annual Meeting along w/ handouts, breaks, and lunch.

**REGISTRATION**
To register for this workshop, please contact:
Lisa Rutherford
Ocean State Signal Company
27 Thurber Boulevard
Smithfield, Rhode Island 02917
Phone (401) 231-6780
Fax (401) 231-4390
Email lrutherford@oceanstatesignal.com

Make checks and purchase orders payable to: NEITE

Please, register by Monday, November 27th.
For more information on this training session, please visit our website at www.neite.org