A Review of VTrans’ Policy for Left Turn Lanes on Two-Lane, Two-Way Highways

Submitted By: Rick Bryant, Stantec
Dear NEITE Members:

Just one month into the 2018 calendar year, the New England Section has hit the ground running. We as a Section commenced many new initiatives in the past year and the Executive Board is looking to continue development of these initiatives while reaching out further for more. Many would not be possible without the help of our outgoing President. I would personally like to thank Rebecca L. Brown, P.E., PTOE for her service as the New England Section President during 2017. She made 2017 a memorable year, one that’s a tough act to follow.

The Section Executive Board met late in January at the annual Vermont Chapter Winter Meeting. The meeting, as well as some early morning skiing, was held in Killington, Vermont. The Board discussed and laid-out the annual budget and advanced many other upcoming Section actions. Coming out of this meeting, I would like to take this opportunity in our Chronicle newsletter to discuss where the Section is and where we are going regarding these actions.

Harnessing the Future

ITE itself is at a crossroads—currently laying out a new foundation to continue growth as the premiere transportation professional organization. Early in 2018, ITE regained its mark at 15,000 members internationally. The New England Section has kept its membership level at around 600 members. Over the past year, the Section has rolled out new initiatives to harness the resources of our outstanding members to not only further extend our knowledge as a profession; but to assist in promoting ITE and its many benefits. This includes our new Section mentoring program organized through the Emerging Professionals Group (EPG). To date, the program has in total fifteen mentees and mentors who have been recently paired. The EPG will be hosting various regional networking events along with direct contact between the mentors and mentees to continue fostering the program through its infancy and beyond. Thank you in advance to the mentors for volunteering their time to make this program possible. For more information, please contact EPG Chair Christina Dube at cdube@vhb.com.

To harness the future of our profession, our student chapters have been hard at work to increase the level of involvement. This includes both reactivating chapters such as UMass Lowell and continuing our partnership with principal student chapters such as UMass Amherst. UMass Amherst will be hosting the 2018 ITE Northeastern/Mid-Colonial District Student Leadership Summit. This is the first such event held in this part of the country and it is an honor for UMass Amherst to be sponsoring the event. This event is entirely planned by students, for students. The summit will gather approximately 100 students from across the northeast to promote leadership and professional development. The agenda will include sessions such as panel discussions on career advice, technical presentations, and speed interviews. The event will also serve as a great opportunity to promote the benefits of ITE to the next generation of engineers and planners. For more information, please contact UMass Amherst Chapter President Alyssa Ryan at alyssaryan@umass.edu.

Chapter Coordination

The New England Section of ITE is one of only a hand-full of ITE Sections internationally that are broken-up into individual and self-sustaining chapters. At times, this has resulted in a reduced connection between the Section and State Chapters, as many of the events sponsored under the ‘ITE’ title are not directly coordinated with the overall Section. It is my goal in 2018 to enhance the communications between the Section and State Chapters. In doing so, I am calling on each State Chapter within the New England Section to be responsible for the coordination tasks such as enhanced notification of chapter events, better reporting of chapter activities, and further promoting of ITE membership to those State Chapter members who are currently not ‘ITE’ members. As you may know, ITE is changing the status of affiliate members and we are encouraging those who participate in ITE, at all levels, to solicit membership within ITE.

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New England Section Directory

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In terms of what our responsibilities as a Section for this coordination effort are, we have a responsibility to aid the State Chapter in terms of programing, membership, participation, and leadership roles within the Section. The Section has a significant amount of resources and members at its disposal to assist the individual chapters in terms of technical programs, workshops, additional membership participation, coordination, etc.

Member Involvement
With the year starting off anew, it is a great opportunity for members or those who wish to become members, to get more involved with ITE. I know for myself, participating and involving myself with ITE has helped me gain a wealth of knowledge on our profession, our industry, and my daily life. As we continue into 2018, the New England Section is currently looking for help from our many members across New England. Many of the Section’s committees are seeking assistance. This is a great opportunity for members to get more engaged with the Section; and with ITE in general. In addition to assistance, several committee chair positions are currently open; including the Chronicle Action Committee, the Public Relations Committee, and the Student Chapter Liaison Committee. These positions are key to the Section as they directly tie to coordination and collaboration between members and students. For those who wish to get involved please do not hesitate to contact me.

I look forward to working with everyone this year and keeping with the mission while moving the Section forward! If you have any questions or suggestions, please contact me at (978) 794-1792 or at sgregorio@theengineeringcorp.com.

I hope to hear from you NEITE—Together we are the best!

Samuel W. Gregorio, P.E., PTOE
ITE New England Section President
Section Calendar

March 2018
NEITE/CTITE Joint Meeting
March 26th, 2018
Hartford, Connecticut

New Hampshire Chapter
Meeting
March 30th, 2018
Concord, New Hampshire

April 2018
Northeast/Mid-Colonial
Student Leadership Summit
& Traffic Bowl
April 13th-15th, 2018
Amherst, Massachusetts

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

Welcome to the Newest
ITE New England Section Members
(as of January 2018)

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Rohan Kavediya (University of Massachusetts Amherst)
Christopher Lyman (University of Massachusetts Amherst)
Nicholas Campbell (University of Massachusetts Amherst)
Caryn DeCrisanti (Central Connecticut State University)
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Frank W. Petise (City of Stamford)
Bintou Mamaka Tounkara Reteno (University of Massachusetts Lowell)

Total NEITE Membership: 613 persons

The Editor’s Minutes

RACHEL A. DOOLEY, PE
Transportation Engineer
VHB

Hello New England Section!

I am happy to be joining you for my final year as the editor of the New England Chronicle. We were able to successfully release four quarterly issues in 2017 and we are hoping to meet that goal again this year. Thank you to everyone for the support and kind words that I receive after nearly every issue is released. This newsletter is truly a great collaboration between members all across New England. Let’s see what 2018 brings!

The feature article in this issue was written by Rick Bryant of Stantec and focuses on the study that was completed for VTrans regarding their policy for evaluating left-turn lanes on two-lane highways. This issue also includes a recap of the awards that were presented at the NEITE Annual Meeting in December. Congratulations to all of the winners and a special thank you to the Awards Committee for their time in the selection process.

As Sam has already mentioned, there are a number of opportunities for anyone who would like to become more involved in ITE. The Section Directory highlights all of the positions that are currently open that need to be filled. If you have any interest, please reach out to Sam, myself, or any member of the Board. There are also opportunities to help with planning the 2019 Northeastern District Annual Meeting which the New England Section will be hosting. If you would like to get involved in any of the planning, please reach out to either Joseph Balskus (jibalskus@vhb.com) or Joseph Hallisey (joseph.hallisey@wsp.com). Lastly, Mike Salatti has used his Message from the Northeastern District to highlight the LeadershipITE program, another great avenue to get involved. Please be sure to read the testimonials he has included and consider applying for the next class.

Looking ahead, it is time to start planning for the 2018 Northeastern District Annual Meeting. The meeting will be held at the Fort William Henry Hotel & Conference Center in Lake George, New York from May 21st to the 23rd. Be sure to keep an eye out for when registration becomes available.

Finally, I would like to thank all of our sponsors for their continued support of the New England Chronicle. 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 first issue of 2018!

Rachel A. Dooley, PE
Chronicle Editor
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On the Cover: Snow along Harbor Road in Shelburne, Vermont
Photo Source: Rick Bryant, Stantec

On the Back Cover: MBTA Commuter Rail over the Merrimack River Bridge in Haverhill, Massachusetts
Photo Source: VHB ©

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

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.
A Review of VTrans’ Policy for Left Turn Lanes on Two-Lane, Two-Way Highways

RICK BRYANT

Senior Associate
Stantec

If you paid thousands of dollars for a lifetime ski pass at your favorite mountain, how much skiing would you hope to do? Does one run per year sound like a good deal? These questions were asked of attendees at the ITE New England Chapter meeting held at Killington ski resort January 2017. Based on research conducted on behalf of the Vermont Agency of Transportation (VTrans) by Stantec and Cambridge Systematics, the questions posed are somewhat analogous to the dilemma VTrans faces each time the agency considers construction of a left turn lane on one of Vermont’s two-lane highways. The research suggests that left turn lanes constructed where current warrant criteria are just met would be needed for only 18 minutes per year. This is about the time it would take a skier to descend from Killington Peak to the base lodge.

For VTrans, and likely many other state transportation agencies, the list of needed roadway improvements seems endless while the resources to address those needs are finite. Consequently, the Agency must be judicious and cost-effective in its allocation of resources. In this regard, VTrans is facing challenges dealing with “budget-busting” requests to install left turn lanes throughout the state as a part of routine highway resurfacing projects. VTrans questions whether its practice of relying on the American Association of State Highway and Transportation Officials (AASHTO) Green Book1 left turn lane warrant criteria is leading to approval of too many new left turn lanes diverting funds from more critical roadway capacity and safety projects.

Scope of Work and Recommendations

The consultant team conducted interviews with VTrans employees to understand existing policies, issues and concerns. Research was also conducted regarding left turn lane policies in other states and alternative policies explored by the academic community. Alternative warrant criteria were tested to determine outcomes for a series of case studies. Recommendations were then developed based on the study findings and include proposals to:

- Apply alternative traffic volume-based warrant criteria
- Evaluate less conservative Design Hour Volumes
- Adopt a broader decision-making framework for left turn lane evaluations

These recommendations are currently under review by VTrans and are being evaluated through the application of additional case studies.

Current VTrans Practice

The consultant team found that the left turn lane evaluation standards applied by VTrans are consistent with methods used in most other states. The VTrans Road Design Manual (1998) advises designers to “follow the requirements of the AASHTO Green Book to determine the need and design criteria for auxiliary turning lanes”. In general terms, the Green Book suggests that “when designing an intersection, left-turning traffic should be removed from the through lanes, whenever practical…to improve safety and preserve capacity”. More specifically the Green Book states that “left turn facilities should be established where traffic volumes are high enough or safety considerations sufficient to warrant them”. “High enough” volumes are presented in the Green Book for various conditions related to operating speed, advancing volumes, opposing volumes and left-turn volumes. The AASHTO traffic volume thresholds are reproduced in Figure 1. AASHTO notes that peak hour volumes should be compared to these volume thresholds or warrant criteria. Standard practice in Vermont is to apply Design Hour Volumes (DHV’s) defined as the 30th highest hourly volumes of the year.

Derivation of the AASHTO Criteria

The AASHTO volume guidelines are based on the Harmelink method. The Harmelink method2, developed in the 1960’s, is based on calculations to predict the probability of a through vehicle overtaking a vehicle stopped to make a left turn. The acceptable thresholds for this condition vary by the roadway speed as noted below:

- One percent for 60 mph;
- One and one-half percent for 50 mph; and,
- Two percent for 40 mph.

The lower tolerances at higher speeds recognize the potential for more severe crashes with increasing speeds.

Harmelink calculated the traffic volume levels that relate to each of these threshold conditions considering the length of gaps that left-turning drivers would accept and the distribution of gaps in the approaching traffic stream. The probability factors used in the Harmelink left turn lane warrant methodology were “determined on the basis of the judgment of a panel of traffic engineers.”

A Little Math

So, what does it mean when the AASHTO/Harmelink criteria are applied to the 30th highest hour or Design Hour Volumes? For a 60-mph roadway, if the volume thresholds are just met, then a left turn lane is “needed” for one percent of the Design Hour or for 36 seconds. If the Design Hour volumes are met or exceeded only thirty times per year, then the turn lane is needed for 1080 seconds (30 x 36)

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«1080) or 18 minutes per year. Granted this is a rough approximation as the turn lane may be needed for more than one percent of the time when volume conditions are above the DHV. However, the 18-minute figure raises questions about the cost-effectiveness of marginally warranted left turn lane installations and confirms the need to assess current practice.

Issues and Concerns

Aside from concerns that the current left turn lane policy is too conservative, leading to the approval of too many left turn lanes, the consultant team and VTrans staff identified other specific concerns related to the current policy and AASHTO left turn volume warrant criteria. These specific concerns are discussed below.

- **Evaluation Criteria:** The AASHTO criteria were developed with a very narrow focus only considering the expected impacts of left-turning vehicles on through traffic delays. No effort was made to also quantify potential safety benefits or to balance the benefits with expected construction costs. No consideration is given to the impact of wider roads on pedestrian movements.

- **Volume Thresholds:** The Harmelink calculations used to develop the volume thresholds in the 1960’s have been challenged repeatedly by the academic community. The formulas used and resulting volume thresholds may be inaccurate. Modern traffic simulation tools that were not available to Harmelink could be applied to yield better results.

- **Applicability:** The Harmelink warrant was developed using data only for rural highways where travel speeds range from 40 to 60 miles per hour. VTrans is regularly asked to provide left turn lane warrant analyses on lower speed roads in village and suburban settings.

- **Interpretation:** Decision-makers sometimes interpret satisfying a warrant as indicating that the improvement must be constructed. VTrans may find it easier to work with the public if its policy makes it clear that satisfaction of a warrant is only a prerequisite for installation of a left turn lane rather than a mandate.

Policies in Other States

The consultant team’s research effort examined left turn lane policies in the New England states and a sampling of policies from other states around the country. A general uniformity of practice was found with nearly all states applying the AASHTO volume criteria indicating that the above challenges are not unique to Vermont. Some notable elements of other policies follow.

- **Massachusetts extrapolated from the AASHTO criteria (in Figure 1) to define threshold volumes for an operating speed of only 30 miles per hour.**

AASHTO provides no guidance for speeds less than 40 miles per hour.

- **New Hampshire applies a spreadsheet tool presented in National Cooperative Highway Research Program (NCHRP) Report 457 that allows the analyst to adjust the AASHTO volume thresholds by specifying site specific operating conditions for average time to make a left turn and critical headway.**

- **Similar to New Hampshire, Pennsylvania uses a spreadsheet tool to apply the AASHTO criteria however, the Pennsylvania tool also accounts for heavy vehicles in the traffic stream.**

- **The left turn lane policy in Utah is relatively simple and unique. Utah simply recommends that turn lanes be considered where there are 25 or more left turn movements per hour from the main highway.**

A common theme in many of the other state policies is the inclusion of specific language recommending consideration of left turn lanes where sight line or safety issues exist. The Green Book also cites safety as a consideration but does not provide specific guidance in this regard.

**Academic Research**

While many state departments of transportation have not strayed far from the AASHTO standards, the academic community has been very eager to scrutinize Harmelink’s work and propose alternative warrant criteria. Some academics have simply reviewed Harmelink’s calculations correcting math errors and assumptions yet maintaining the basic performance criteria related to the percentage of through vehicles overtaking a left turning vehicle. Others have replaced Harmelink’s equations with modern traffic simulation model results while others have proposed alternative performance criteria. Some prominent findings are listed below.

- **Modified Harmelink – Kikuchi and Chakroborty:** In 1991 researchers Kikuchi and Chakroborty2 corrected assumptions they considered flawed with the Harmelink methodology and addressed other model limitations they found. The resulting modified warrant criteria shown in Figure 2 are less conservative than the AASHTO criteria. Note, for example, in the top left corner of the table the Advancing Volume threshold for a 40-mph speed, 800 opposing vehicles per hour and five percent left turns is 434 vehicles per hour. The AASHTO threshold referenced in Figure 1 is only 330 vehicles per hour for these same conditions.

- **Kikuchi and Chakroborty – Delay and Level of Service Based Criteria:** Kikuchi and Chakroborty also proposed their own alternative to the Harmelink model. They developed delay-based and level of service-based criteria. In the first case, a left turn lane is warranted if the delay imposed on through vehicles by left turning vehicles is greater than 19 seconds per vehicle. For the level of service standard a left turn lane is considered warranted if the level of service on the advancing approach decreases from Level of Service A to Level of Service B. (At the time this research was conducted, level of service at unsignalized intersections was calculated based on reserve capacity for the left turn movement rather than the delay as is the case in the current version of the Highway Capacity Manual.) These two models also produced less conservative volume thresholds.

- **New England Transportation Consortium (NETC):** The New England Transportation Consortium3, using a microsimulation model that was calibrated with data collected at intersections in Vermont and Connecticut, proposed criteria based on total delay and number of stops per hour. The NETC researchers developed separate warrant “curves” for urban and rural conditions and looked at a lower range of speeds (30 mph to 50 mph) compared to the AASHTO criteria (40 mph to 60 mph). The statewide speed limit in Vermont is 50 mph on non-interstate highways.

- **Virginia Transportation Research Council (VTRC):** Researchers at the Virginia Transportation Research Council4 updated the Harmelink method using a simulation model that applies shorter gap acceptance times than used by Harmelink. The shorter gap times are based on field measurements and reflect better vehicle performance today relative to the 1960’s.

- **NCHRP Document 193 Benefit-Cost Analysis:** The National Cooperative Highway Research Program funded a study, NCHRP Document 1935, to apply a benefit-cost approach to left turn lane warrants. Benefits associated with left turn lanes are quantified.

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Would you like to contribute to an award winning New England Chronicle newsletter? The New England Chronicle’s Action Committee is seeking members (both professionals and students) who are interested to write both short and feature articles for publication in the upcoming New England Chronicle issues. Both short and feature articles should be about technical topics, professional matters, innovative projects, and cutting-edge solutions that affect transportation engineering and planning. We are also looking for pieces on transportation-related legislation.

Typically short articles would consist of 1,000 to 2,500 words and feature articles would consist of 2,000 to 4,000 words. Each article should include a head shot and bio of all participating authors. Further details for each article submission can be given upon request.

For more information on how you can become a New England Chronicle contributor contact the New England Chronicle Editor, Rachel A. Dooley, PE at rdooley@vhb.com.

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fied in terms of reduced travel delays and reduced crashes. Dollar values are assigned to these benefits and the benefits are compared to typical costs to construct left turn lanes. A left turn lane is recommended in urban and suburban settings if the benefit-cost ratio exceeds 1.0 and is recommended in rural settings where the benefit-cost ratio exceeds 2.0. This approach resulted in the most conservative volume thresholds for left turn lane consideration.

Figure 3, reprinted from the NETC study with NCHRP Report 193 data added, compares the warrant volume thresholds cited in the various studies for 30 percent left turns with a 40-mph operating speed. As shown, three of the suggested alternative criteria raise the volume thresholds for left turn lane consideration. These curves however, converge with the Harmelink curve at high opposing volume levels. The NCHRP Report 193/benefit-cost approach lowered the warrant volume thresholds significantly. Independent of the sound arguments presented in the literature to modify or replace the Harmelink procedures, none of the researchers indicated that their methods were being considered for adoption by any state transportation agency.

Case Studies

Traffic volume conditions were evaluated with respect to each of the above criteria for eight intersections where VTrans had recently installed left turn lanes or was considering an installation. The AASHTO criteria indicated that a left turn lane should be considered at seven of the eight intersections. When the Modified Harmelink, NETC or VTRC methods were applied, the number of locations considered suitable for left turn lane installations was reduced to four or five.

Recommendations

The research findings were reviewed at length with VTrans staff. Ultimately it was recommended by the consultant team that VTrans move toward less conservative traffic volume criteria for the consideration of left turn lanes. First, however, it was recommended than a more comprehensive decision-making framework be adopted that would direct VTrans to more deliberately and consistently consider the many other factors, besides traffic volumes, that could indicate the need for a left turn lane. VTrans has not modified its existing left-turn lane policy yet. VTrans is collecting data at a few more locations where left turn lanes were installed to understand if the change in policy would have resulted in a different outcome.

As noted above, some states already consider safety and sight line conditions in their turn lane evaluation process. The framework suggested to
Continued from Page 7

VTrans, and illustrated as a flow chart in Figure 4, would include these factors and several other context sensitive criteria. These relate to: presence or absence of a median; intersection configuration (three-way or four-way); setting (urban, suburban or rural); and, upstream and downstream intersection configurations. Where local jurisdictions or prior studies have established corridor-level left turn lane policies these would also be considered. These factors would all be considered before applying traffic volume criteria. For example, when a left turn lane can be constructed at minimal cost within an existing highway median, it may make sense to provide the left turn lane regardless of existing traffic volume levels. Such an installation would satisfy the “whenever practical” criterion specified by the AASHTO Green Book.

A key component of the flow chart is the third box that asks if the project is located in a densely developed area or on a low speed roadway. Explicitly assessing this factor would allow VTrans to apply different rules in village settings relative to more rural areas. In villages, the policy could emphasize quality of life issues such as reduced traffic speeds and safer pedestrian travel. In more remote locations reduced travel delays could be emphasized. This process could lead to the adoption of separate volume criteria for village and rural settings. As noted above, the NETC methodology was developed considering data from lower speed Vermont roadways and could be the new criteria applied under such conditions. For higher speed roadways, the research suggests that the AASHTO criteria should be replaced with the less conservative criteria provided by the Modified Harmelink, NETC or VTRC methods.

Independent of the criteria selected, VTrans should also consider abandoning the practice of conducting warrant analyses using a Design Hour Volume that is equal to the 30th highest hourly volume of the year. This practice implies that when a left turn lane is just warranted, it is only needed for 30 hours per year. In comparison, traffic signal warrants consider eight-hour, four-hour and one-hour time periods under typical or average weekday traffic conditions. Conditions that satisfy an eight-hour signal warrant for a typical weekday, meet the volume criteria 2080 hours per year. In comparison, traffic signal warrants consider eight-hour, four-hour and one-hour time periods under typical or average weekday traffic conditions. Conditions that satisfy an eight-hour signal warrant for a typical weekday, meet the volume criteria 2080 hours per year. Even if a one-hour warrant is met every weekday, it would be met approximately 260 hours per year. It is suggested that VTrans use a Design Hour Volume for left turn lane warrant analyses equal to no more than the 520th highest hourly volume of the year. The 520th highest hourly volume condition would be expected to occur two hours per day on a typical weekday.

Implementing the above recommendations would help ensure that left turn movements on Vermont two-lane highways are accommodated in a safe and cost-effective manner. It should also provide a consistent and transparent decision-making process for left turn treatments.


Figure 4—Suggested Decision Flow Chart

Figure 3—Comparison of Alternative Volume-Based Warrant Criteria
The Student Leadership Summit originated in the ITE Western District and has since then traversed throughout the rest of the country. The Summits are entirely planned by students, for students. Through the promotion of leadership and professional development, these events aim to guide the future transportation professionals in our field. Approximately 100 students, both undergraduate and graduate, are expected to attend the three-day event.

www.UMassITESLS2018.com

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- Dinner & Social Event

**Saturday, April 14th**
- Career Advice Panels
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- Leadership Development Sessions
- Dinner & Social Event
- Northeastern District Traffic Bowl

**Sunday, April 15th**
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- Student Leader Roundtable

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Thank you to all of the generous sponsors who have helped make this Summit possible!

Check out our website if you are interested in becoming a sponsor.

**Registration**

Register by March 1st:
- Students - $55  Professional - $75

Register after March 1st:
- Students - $70  Professional - $100

Registration closes April 1st.

Questions?
Email UMassITE@gmail.com

Event Co-Chairs:
Alyssa Ryan, alyssaryan@umass.edu
Francis Tainter, ftainter@umass.edu
The 2017 New England Section Awards

Committee Members

The 2017 New England Section of the Institute of Transportation Engineers (NEITE) Awards Committee was comprised of:

- Joseph C. Balskus, Connecticut
- Thomas A. Errico, Maine
- Kevin W. Johnson, Rhode Island
- Samuel W. Gregorio, Massachusetts
- Kim Eric Hazarvartian, New Hampshire and Chairman
- Joseph F. Segale, Vermont

Process

The guidelines speak to the Chairman reporting directly to the President. Otherwise the process is open. The Chairman keeps a database of past nominees that may be reused for future nominations. Telephone and email has facilitated the exchange of information among the Committee, including coordination and selection.

Awards and Selections

The awards and selections were:

- Transportation Leadership Award, Joyce Noel Taylor, P.E., Chief Engineer, Maine Department of Transportation and William J. Cass, P.E., Deputy Commissioner and Chief Engineer, New Hampshire Department of Transportation
- Transportation Engineer of the Year Award, Michael A. Knodler, Jr., Ph.D.
- William P. McNamara Distinguished Service Award, Joseph A. Hallisey, P.E.
- Emerging Professionals Group Award, Rachel A. Dooley, P.E.

TRANSPORTATION LEADERSHIP AWARD

is presented to

Joyce Noel Taylor, PE

Joyce Taylor is the chief engineer for the Maine Department of Transportation. She joined the department in 1999 and has risen through the ranks holding several key positions. Joyce first worked in the construction division as its environmental engineer and held various positions, including bureau director of Project Development before becoming chief engineer in 2013.

She has worked on various high profile department projects, most recently heading the Sarah Mildred Long project between Maine and New Hampshire. Joyce was the first president of Maine’s newly-formed chapter of Women in Transportation. She is an active participant on the Standing Committee on Highways of the American Association of State Highway and Transportation Officials. She is a member of the American Society of Civil Engineers and serves on the Maine Board of Licensure for professional Engineers.

She graduated from the University of Maine at Orono in 1986 with a Bachelor of Science in chemical engineering.

This award specifically cites Joyce Taylor’s accomplishments in the Memorial Bridge and Sarah Mildred Long Bridge projects in the States of Maine and New Hampshire. Both projects are challenging and complex, involving interstate efforts to provide for multimodal safety and efficiency in sensitive contexts.

TRANSPORTATION LEADERSHIP AWARD

is presented to

William J. Cass, PE

William J. Cass is the Assistant Commissioner and Chief Engineer for the New Hampshire Department of Transportation (NHDOT). Prior to his appointment in April of 2015, he served as the NHDOT’s Director of Project Development for eight years, and had previously served as the Assistant Director of Project Development for three years.

Bill Cass has 32 years of experience in various design and management capacities for NHDOT including Chief of Preliminary Design, Chief Project Manager and Project Manager for the Inter-state Route 93 reconstruction and widening project from Salem to Manchester. He has a Bachelor of Science degree in Civil Engineering from the University of New Hampshire (1985).

This award specifically cites Bill Cass’s accomplishments in the Memorial Bridge and Sarah Mildred Long Bridge projects in the States of New Hampshire and Maine. Both projects are challenging and complex, involving interstate efforts to provide for multimodal safety and efficiency in sensitive contexts.
The 2017 New England Section Awards

**TRANSPORTATION ENGINEER OF THE YEAR AWARD**

is presented to

Michael A. Knodler, Jr., Ph.D.

This year’s recipient of the Transportation Engineer of the year has contributed to the transportation profession and society in general through his years of research focused on transportation safety and engineering design. His research has included:

- Behavior of older and younger drivers
- Data analysis, access and management
- Traffic safety and operations
- Human factors
- Geometric design
- Pedestrians and bicycles
- Geographic information systems
- Intelligent transportation systems
- Development of advanced traffic-control systems
- Application of unmanned aircraft

The recipient has had dozens of publications, dozens of conference proceedings and dozens of research projects. The recipient serves as an Associated Professor in the Department of Civil and Environmental Engineering, Associate Director of the Human Performance Laboratory and Director of the Traffic Safety Research Program at a major university. The recipient has also been very dedicated to the Institute of Transportation Engineers, with service as Northeastern District Chairman, NEITE President and Student Chapter Advisor.

**WILLIAM P. McNAMARA DISTINGUISHED SERVICE AWARD**

is presented to

Joseph A. Hallisey, PE

The winner of this award is one of those engineers that everyone seems to know, as this engineer is at most NEITE meetings. This engineer has an unassuming personality, but will befriend anyone in the crowd. This engineer’s demeanor, jokes about life and, especially, the laugh can make you laugh. This award winner is a true traffic engineer and has an unrelenting commitment to ITE through the years with the Chapter to tenure as the NEITE President. This engineer is always there for ITE, throughout his career, beginning with tenure as a Chapter officer and President and then into the Section over the last decade. This engineer has also attended the annual section ski trip in Vermont most of the years it has been held as has another participant. Hint – if you want this award you should learn to ski!

This engineer has an interesting career that many may not know about, despite the numerous stories told at ITE events. This engineer graduated from the Catholic University of America and became a water engineer for the Peace Corps in the early 1990’s and served in Kenya on a project improving the water supply for 30,000 Kenyans. Perhaps that is where the running with a water bottle in the hand for 20 miles started. The LinkedIn page shows this engineer is bilingual with English and Kiswahili.

Completing Peace Corps service in 1994, the LinkedIn resume is blank until 1996 where this engineer worked for City of New Britain, Connecticut as a civil engineer on numerous roadway projects. Perhaps two years were needed to recover from the Kenya trip. This engineer started with the former Parsons Brinkerhoff in 1999, now known as WSP, as a lead/civil traffic engineer on numerous projects involving classic traffic engineering.

**EMERGING PROFESSIONALS GROUP AWARD**

is presented to

Rachel A. Dooley, PE

This recipient of the Emerging Professionals Group Award has a Bachelor of Science in Civil and Environmental Engineering and Master of Science in Civil Engineering from the University of Rhode Island. The recipient is a registered Professional Engineer in the State of Rhode Island.

The recipient has continued growth as a professional while participating in and supporting ITE.

The recipient’s service to ITE includes:

- Editor of the NEITE New England Chronicle for the past two years
- Participating in monthly Rhode Island Chapter ITE (RIITE) board meeting to provide information and insights on NEITE’s activities
- Coordinating joint NEITE and RIITE events

The recipient’s accomplishments as a Transportation Engineer at VHB’s Providence, Rhode Island office include key Rhode Island Department of Transportation projects such as RISTARS pedestrian safety project along America’s Cup Avenue in Newport, statewide wrong way driving mitigation program, and the highly successful ferry program between Providence and Newport. The recipient has also led VHB’s Rhode Island office Charity Committee, which is over $10,000 annually over the past several years.
Dear Transportation Professionals,

Winter is here and I’m sure we are all longing for springtime warmth! Since my last article, I traveled to Washington DC for the year’s first IBOD meeting and the swearing in of Bruce Belmore as our new Vice President on the Executive Committee. I also visited our New England section for wonderful meetings in Warwick, RI and Killington, VT. Recently, the Met Section had its annual past president and awards night in Manhattan. Jeff Paniati, CEO traveled up from DC to attend and Joe Balskus, District Chair came down. At that meeting, Paula Flores was presented with the Met Section’s highest service award for her work and dedication to ITE. An unusual occurrence considering she was never a member of the Met Section. In my opinion, she was indeed the right person at the right time on the Board during its time of struggle. We were in financial straits, our influence as an organization was waning and we were losing membership, we were in the process of choosing a new Executive Director and the Industry was going through great transitional change. The outlook was anything but rosy, but through her vision and dedication she helped chart the course for a “new” ITE.

While in DC, I had the opportunity to meet the new 2018 Leadership ITE class as the program was commencing. What I saw, as I had seen last year and knowing the many candidates that have gone through the program, were an array of members representing a cross-sectional diversity that were enthusiastic, energetic, engaged and committed to ITE. Could the next Paula or perhaps John Kennedy or Steve Gayle or Paul Eng Wong be among them? It’s certainly possible as this program will help potential future leaders of ITE find their voice and confidence in our ITE organization to remain committed.

So I thought this article would be dedicated as a “plug” for the program and have more Northeastern District members consider participation. LeadershipITE is a program to identify, develop and engage leaders to ensure that ITE and its members are positioned to shape the future of transportation. It is a rigorous program that requires a commitment of finances and time by the candidates. It consists of 3, two day meetings usually set up in conjunction with IBOD, District or Intentional annual meetings and participation in several webinars. Like anything, you get out of it what you put in it. But I thought hearing some testimonials from district candidates that have gone through the program would be most useful to anyone considering the opportunity. Please consider the thoughts of these individual’s and if you have any interest at all in the program, please contact Adam Allen, Vice Chair of the LITE Committee.

Tra Vu, PhD., PE
Immediate Past President, Met Section

LeadershipITE is a gift that keeps on giving. It’s been several years since I graduated from the program, and still I am thankful for the close friendships, professional connections, and leadership skills that I acquired in 2015. Even more valuable than the educational content of the program is a sense of being in a family that understands and is always there with open arms. We keep in touch despite being in different countries, time zones, and companies. We make an effort to stay updated and link up at ITE annual meetings and other events. It always feels like old times with old friends when we meet. Can you imagine that we only spent 12 days together in that one year program and yet we were able to forge life-long friendships? I am grateful to have such an experience and hope that you will too.

Continued on Page 13
Throughout my life I gravitated towards leadership roles and in the back of my mind, I always just thought that leaders were born with these innate, “natural” abilities. **Leadership** really opened my eyes and proved to me that the greatest leaders are the ones that have a strong understanding of their own leadership skillset and commit themselves to consistently learn and refine these tools throughout their careers. The program does an amazing job of helping you to assess your leadership strengths and weaknesses; all while introducing you to new concepts and techniques to help expand and refine your leadership style. All of this takes place in a lively atmosphere in a room filled with some of the most diverse, intelligent, motivated and creative people in the transportation industry.

If you care about the future direction of ITE, the **Leadership** program will change your life. In addition to meeting and working with dynamic transportation leaders from across North America, you will get to play an active role in the dialogue about ITE’s role in the rapidly changing transportation landscape.

Being part of **Leadership** (LITE), Class of 2017, was a very inspiring journey that opened many new doors for me. It was very refreshing to be part of a class that included transportation professionals from across North America. The program drastically broadened my professional network. This program isn’t your typical leadership and developmental program where the participant simply goes through a series of lectures and lessons to get through the curriculum. LITE offers an exciting mix of activities that promote interactive and fun learning. The educational content of the program was very structured and detailed, which added value to my own professional skillset. The program groups members of the class into teams to work on selected projects. My team consisted of members from Florida, Indiana, Texas, British Colombia and New York. Working with my team allowed me to see the different perspectives from transportation professionals with different work experience and from different regions. What I love about a program like LITE is that it connects passionate transportation professionals with other passionate professionals to advance the profession.

The **ITE Awards Program** kicked off on January 2 with an updated website, submission process, and brochure. This year the award deadlines have changed. All district and section awards will need to be submitted to ITE by April 1, which means submittals to the districts and sections will need to be by March 1. Wilbur Smith, Transportation Achievement, District/Section Communications, and HSIS deadline is April 1.

In addition to making the deadlines consistent, we have also streamlined the submittal requirements for most awards. Again, this is in the interest of making the entire submittal process easier for award submitters. To help further facilitate this new process, ITE is now using OpenWater as a platform for award submittal and judging. The system will work in concert with other aspects of the annual meeting to have one platform where users are able to enter information. This is now the only way that ITE will be able to submit awards from this point forward.

The list of awards along with past recipients is located at [www.ite.org/awards](http://www.ite.org/awards).
WSP USA, formerly WSP | Parsons Brinckerhoff, is the US operating company of one of the world’s leading engineering and professional services firms—WSP. Dedicated to serving local communities, we are engineers, planners, technical experts, strategic advisors and construction management professionals. WSP USA designs lasting solutions in the building, transportation, energy, water and environment sectors. With nearly 7,000 people in 100 offices across the U.S., we partner with our clients to help communities prosper.

We have an immediate opening for a full-time mid to senior level Traffic Engineer with a strong background in traffic systems operation and engineering, signal design, developing construction documents and managing traffic projects in our growing practice in Glastonbury, CT. The position will also support to the WSP Sports & Entertainment Group on developing transportation management and operations plans for sports facilities and special events throughout the US. The successful candidate will work as part of a dynamic team on the delivery of projects and expanding our practice.

Responsibilities include:

- Function as the senior project engineer and/or traffic engineering task manager
- Provide technical analysis for a wide range of transportation infrastructure projects
- Perform and provide technical review of Synchro, VISSIM, and other traffic engineering analysis software
- Interface with staff from other disciplines (civil, structural, planning, transit & rail, geotechnical, buildings, power, etc.) to support a diverse range of projects
- Perform a range of marketing and business development activities, including gathering client intelligence, leading pursuits and proposals, and interfacing through professional organizations

Required Skills:

- Proficiency in AutoCAD and Microstation for traffic design projects
- Develop traffic signal and MOT construction documents from concept to final PS&E
- Proficiency in Traffic software/simulation modeling applications, such as VISSIM and SimTraffic
- Proficiency in preparing traffic impact reports
- Knowledge of traffic control design, including developing plans, specifications and estimates
- Work cooperatively with clients and existing staff to expand the traffic engineering team
- Working knowledge of appropriate Federal Highway Administration, AASHTO, state DOT, and other relevant guidelines, including the Manual on Uniform Traffic Control Devices, the AASHTO Green Book, and the NACTO Urban Street Design Guide
- Positive attitude and people skills that constitute a team player
- Ability to manage staff to effectively deliver projects on deadlines, including managing multiple staff working on multiple projects
- Ability to mentor younger staff in the profession of traffic engineering
- Ability to work in a corporate environment, communicating with a wide range of professional skill sets

Experience and Education Required:

- B.S. degree in Civil/Traffic Engineering (M.S. degree desirable)
- Around 7 years of experience in traffic systems operation and engineering projects
- Excellent verbal and written communication skills
- A strong background in traffic engineering and signal design

Applications for the future June 1 - 30, 2018 computer-based exams of Professional Traffic Operations Engineer (PTOE) and Professional Transportation Planner (PTP) are due April 5, 2018.

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/mainsite/ibtsites/default.aspx
Employment Opportunities

City of Lowell—Division of Planning & Development

Transportation Engineer

Manages traffic signal, signage, and striping operations and maintenance program. Develops plans for traffic improvement projects according to established engineering standards and state, federal or local construction policy by performing the following duties:

**ESSENTIAL DUTIES AND RESPONSIBILITIES**
include the following. Other duties may be assigned.

Manages the traffic signal program, updating and maintaining traffic signal timings. Conducts routine inspections and diagnoses basic traffic signal problems. Plans and designs traffic signal improvements and oversees the permitting process for signals and traffic signage in accordance with applicable local, state, and Federal regulations.

Manages the citywide pavement marking maintenance program. Conducts yearly inspections of pavement markings. Procures, schedules and supervises pavement marking contractors. Assists in the purchasing of pavement marking materials.

Prepares and/or reviews plans, estimates, and specifications for engineering projects such as intersection traffic improvements. Creates, designs, and manages the implementation of various neighborhood scale multi-modal improvement projects. Plans alterations and modifications of existing streets, highways, freeways, sidewalks, crosswalks and intersections to achieve the goals of the Complete Streets Policy, Master Plan and/or Neighborhood Plans Recommends priorities for neighborhood traffic calming projects, pedestrian improvements and intersection upgrades.

Reviews all private development projects with respect to traffic impacts and determines measures to mitigate adverse impacts of projects. Ensures consistency with the city’s transportation policies and goals.

Helps the City Engineer develop and implement the City’s Complete Street Policy and transportation elements of the Comprehensive Master Plan.

Prepares and presents public reports of traffic analysis statements and other traffic information.

Conducts investigations relating to traffic controls and public inquiries; supports the Department’s customer service goals in relation to a timely and professional response to the needs of the community, elected officials and other city departments; provides research and recommendations to address public complaints and City Council motions regarding traffic issues. Drafts all ordinances for regulatory measures with input from the Lowell Police Department, Law Department and relevant planning studies.

Provides quality control reviews for construction projects prior to bid advertisement.

Coordinates and manages private consultants in the study, design, and construction oversight of capital improvement projects. Manages projects through the public procurement process including bidding and construction.

Reviews and approves all traffic management plans for all utility and construction projects impacting public streets and sidewalks. Ensures compliance with MassDOT and MUTCD standards.

Studies vehicular and pedestrian traffic conditions. Conducts traffic studies including speed studies; traffic, pedestrian, and bicycle counts; turning movement counts; manual classification counts; accident studies, and other data collection efforts as required to support traffic engineering studies and roadway design projects.

Identifies and pursues all appropriate federal and state funds which support traffic improvements.

Coordinates planning, design and construction of various transportation projects with local, state, and federal agencies.

**QUALIFICATIONS**

To perform this job successfully, an individual must be able to perform each essential duty satisfactorily. The requirements listed below are representative of the knowledge, skill, and/or ability required. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential functions.

**EDUCATION and/or EXPERIENCE**

Bachelor of Science degree (B.S.) from four year college or university in Civil Engineering with a transportation concentration. Familiarity with established standards for transportation analysis and design. Familiar with procedures related to traffic impact studies and roadway safety audits. Ability to communicate engineering concepts to the general public. Must possess excellent project management, organizational, communication, presentation, computer, writing and analytical skills. Skills in the use of computer programs including CAD, Synchro/SimTraffic, HCS, Petra, GIS required. Good negotiation skills and an ability to achieve consensus among diverse groups and the ability to explain complex technical information to lay audiences also required. Must have demonstrated experience in managing consultants who produce designs and construction documents for transportation infrastructure. Ability to review plans, work with a wide variety of people, coordinate projects and understand cost estimates required. Demonstrated ability to function as a team member as well as a project manager. Mastery of the Manual on Uniform Traffic Control Devices (MUTCD) and the Massachusetts Amendments to the MUTCD. Knowledge and experience with complete street design guidelines. Knowledge of the State Procurement laws and regulations. At least 10 years of related experience preferred.
The New England Chronicle is interested in short articles on innovative projects and cutting-edge solutions. Please send articles, listings (ITE and other relevant), graphics and photographs to the Editor: Rachel A. Dooley, PE at rdooley@vhb.com