Safety
MEETING SENSOR CHALLENGES HEAD-ON!

The Econolite EVO RADAR system offers high-performance vehicle, pedestrian, and object detection and requires only two-sensors at the intersection.

EVORADAR™ Best-In-Class

To learn more, visit www.econolite.com.
PTV Vistro enables you to monitor congestion, evaluate impacts, estimate VMT and optimize signals for large and small areas in one file.

Big or Small, PTV Vistro Works for All

Need to evaluate intersection performance over a wide area? PTV Vistro is easily configurable to analyze large areas as well as small. One application is the Santa Clara County Valley Transportation Authority (VTA) in California. Over 250 signals are analyzed at regular intervals to evaluate intersection operations and monitor congestion over time. This same network is then configurable to perform localized Transportation Impact Analysis (TIA) and corridor studies – including signal optimization and re-timing studies, without the need to start over from scratch.

Multimodal Evaluation
Analyze auto, pedestrian, and bicycle modes and the effects of transit using the HCM, the Canadian Capacity Guide, ICU, or Kimber methods for diverse signalized, stop-controlled, and roundabout configurations. PTV Vistro reports, maps, and colorfully displays measures of effectiveness in the network editor, making for quick screening of traffic conditions and identifying locations for improvements.

Scenario Management
Model numerous existing and future conditions using PTV Vistro’s powerful scenario manager. Analyze fluctuations during different times of day, varying traffic levels for historic and projected growth, roadway configuration changes, and signal timing modifications - including optimized conditions. Moreover, PTV Vistro’s scenario manager enables alternative comparisons and sensitivity testing, all within a single file.

Transportation Impact Analysis
Make quick work of analyzing various project scenarios with PTV Vistro’s integrated TIA tools. Trip generation calculations can reflect standard and custom rates. Distribution and assignment of trips are completely under the analyst’s control, allowing for maximum flexibility for assignments throughout the network, including project driveways. Adjust for internal trip capture, pass-by, and diverted trips. Want to know how much VMT project trips add, or how VMT differs between scenarios? PTV Vistro’s detailed trip assignment table calculates VMT for new project trips. Quickly test different mitigation measures using PTV Vistro’s mitigation tool.

Traffic Signal Optimization
Optimize signal timings along flexible travel routes. PTV Vistro’s robust signal optimization provides options for adjusting how delay and number of stops affect performance evaluation, as well as the ability to allocate different weights to routes within the network. Optimize cycles, splits, offsets, and lead/lag with PTV Vistro’s robust genetic algorithm or hill climbing option.

Simulation Compatibility
Need to simulate complex conditions to further evaluate traffic operations? PTV Vistro provides a built-in simulation previewer as well as the option to export to our PTV Vissim microsimulation software.

Want to learn more about PTV Vistro?
Scan the QR code to read our in-depth PTV Vistro Knowledge-Base articles.
Designing for Safety

In the 1990s as a new neighborhood developed in west Las Vegas, NV, USA, the city approved the installation of several roundabouts on major thoroughfares. Depending on the source, they are considered the first modern roundabouts in the United States. The first office I worked in following my move to the valley was located just down the street from them. As we’ve all experienced, some of the first feedback we hear when designing a roundabout is that people do not understand how to drive them and lots of crashes occur.

Certainly, I have witnessed a couple unique behaviors from motorists at these roundabouts: reversing through the roundabout after missing a turn or failing to navigate the approach and landing in the center landscaping; but on the whole, tens of thousands of drivers navigate the roundabouts every day without incident. Further, to paraphrase a metropolitan police department officer: crashes still happen, but drivers don’t have to call the ambulance.

Perhaps that is the most compelling aspect of the Safe System Approach—the acceptance of the fact that humans are fallible, and mistakes are inevitable. Those mistakes, however, should not result in death or a trip to the hospital.

There’s a corollary to that as well: accepting humans for who they are, not for what we wish they would do. As planners and designers of the transportation system, this should be the core of our work. For instance, when two attracting land uses are located across from each other, we cannot assume pedestrians will divert to the nearest controlled crossing, hope drivers will heed the speed limit sign, or wish site developers would have aligned building access points to the transportation infrastructure.

To advocate more strongly for the Safe System Approach, ITE recently joined with the Johns Hopkins Center for Injury Research and Policy in a Safe System Consortium, which resulted in a set of recommendations aimed at Congress and the U.S. presidential administration. The Consortium hopes these recommendations can change the course of road safety and help leaders and practitioners work toward a more equitable transportation system that leads to fewer injuries and deaths. The feature article outlining these efforts begins on page 29.

As I write this, I’m enjoying an iced coffee at a café on the newly renovated Water Street outside city hall in Las Vegas. I’m proud to have had a small influence on this street design, so I have to brag a bit. Anticipating all the users of this facility, leadership on this project considered the primary user to be a pedestrian. As such, the roadway is curbsless for much of its length. Frequently used for parades and other events, the facility’s retaining walls also serve as seating. Slow speeds are critical due to the vehicle/pedestrian interaction, and the narrow lanes, gates, and landscaping provide visual cues to slow without excessive signage. And even though the primary users walk, the street still accommodates transit vehicles and parents dropping off their kids at hockey practice.

Vision Zero is achievable. Eliminating serious injuries and fatalities on our roadways is wholly compatible with other transportation goals of system efficiency and access—if we plan for all users, influence policy, anticipate conflicts, control design, and retrofit existing infrastructure for modern use.
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Making the Most of the ITE e-Community

One of the biggest benefits of being an ITE member is access to the ITE e-Community, ITE’s internal social media network. The e-Community provides a place to share with all ITE members through the All Member Forum, or a narrower interest area through the more than 87 available forums. More than 12,800 of ITE’s 16,000 members are registered for one or more forum. Most choose to get a daily feed that summarizes posts from the last 24 hours and lands in your inbox in the early morning. I often start my workday by scanning through this summary to see what new discussions have been started, or what replies have been added to existing threads.

A powerful aspect of the ITE e-Community is the wide range of topics that are covered. Everything from nuts and bolts of traffic engineering and transportation planning problems to volunteer opportunities, high-level policy directions, and everything in between. If you want to find solutions to challenging problems, this is the place to go. Members from across the country and around the world are at the ready to offer advice, examples, and lessons learned. I am always amazed at the generosity of our members and their willingness to devote their time and expertise to helping others.

ITE staff strives to use e-Community to keep you abreast of the latest developments and upcoming opportunities. ITE’s Marketing Senior Director Pam Goodell does an outstanding job of posting about upcoming Virtual Drop-In Sessions, webinars, upcoming ITE District, Section, and Chapter events, and other professional development opportunities. ITE Director of Planning Sarah Abel often shares the latest developments in her areas of expertise and highlights new ITE products or services. I try to post articles that highlight interesting news in our profession and share major announcements from ITE.

At times, discussions on e-Community can get rather passionate. The recent thread on President Biden’s American Jobs Act is a good example. Because this proposal was centered on infrastructure—yet went beyond transportation—it generated some strong views on the merits of these investments. The e-Community is a good place for opposing perspectives on an issue, IF those views are expressed professionally and respectfully. Though seeing the other side of the argument can be hard, it may be a great way to learn and even sharpen the arguments for your position.

I always hesitate to close a thread, preferring to let the dialogue run its course and allow the community to decide how long to continue the discussion. However, sometimes we have no choice but to close down a thread. When posts become repetitive and continue to make the same point over and over—or worse, when one member attacks another member’s views, rather than focus on the merits of their own perspectives—then the discussion has moved from productive to counterproductive, and it is time to move on.

I appreciate those of you who reach out to me to share your thoughts about an ongoing discussion or a recent post I’ve added. I also thank all of you who post on the e-Community, whether you are sharing your expertise or your opinion on a topic. We will do our best to continue to make e-Community a safe and productive environment that supports the values of ITE—technical excellence, community, making a difference, and diversity and inclusion. As always, you can reach me on the ITE e-Community, or on Twitter @JPaniatiITE.
SIDRA INTERSECTION offers powerful extensions to the Highway Capacity Manual (HCM)

SIDRA INTERSECTION software complements the Highway Capacity Manual (HCM) as an advanced intersection and network analysis tool. The HCM Setup in SIDRA INTERSECTION offers options for US Customary and Metric units.

SIDRA and HCM use common fundamental traffic modelling principles and the HCM setup in SIDRA is calibrated using the HCM model parameters. Unlike other software packages, SIDRA INTERSECTION does not claim to be a simple replication of the HCM procedures. Instead, it offers significant extensions to the capabilities HCM offers.

To learn more, visit sidrasolutions.com/hcm
People in the Profession

Member Updates
Wes Guckert, PTP (F), president and CEO of The Traffic Group, Inc. (TTG), was recently named to the National Small Business Association (NSBA) Leadership Council. NSBA is the nation’s oldest small-business advocacy organization, and operates on a staunchly nonpartisan basis. Guckert, a recognized leader in the small-business community, joins the NSBA Leadership Council alongside other small-business advocates from across the country as they work to promote the interests of small business to policymakers in Washington, DC, USA.

Obituaries
ITE recently learned of the passing of the following members. We recognize their contributions to ITE and the profession, and send condolences to their families.

Ezequiel Gonzalez, P.E. (M) of Provo, UT, USA passed away on March 27, 2021.

Charles W. DeArmon, P.E. of Dayton, OH, USA passed away on November 27, 2020. He was a Fellow and Life Member of ITE.

New Members
ITE welcomes the following new members who recently joined our community of transportation professionals.

Florida Puerto Rico
Sara A. Linares, RSP1
Heather Roberts

Global
Tariq Khalid Albaker
Ray Bozorgmehria

Great Lakes
Siddharth Shah
Andrew Williams
Andy Wolpert

Mid-Colonial
Jessica Ann Butterly
Ruochang Huang
Katherine Anne Masetti

Missouri Valley
Jennifer Lynn Bullard
Zachary Ryan Burket
Jeremiah Stephen Conneal
Jeremy Conway
Matt DeMoss
Awet Frezgi
Gregory Scott Garland
Daniela Esther Gonzales
Victoria Hart
Rick L. Howland
Jon Logan
Luis D. Malave
Jamie Malmstrom

Mountain
Devon Brazel
Brian J. Bustos
Todd Finlinson
David Jensen
John F. Kraft, P.E.
Karen Roylance

Northeastern
James Francis Basile
Layla Fryc
Kristen Rundstein

Southern
Nicholas Burns
Arthur Goodwin
Lydia Johnson
Robert Andrew Joyner
Lucas Lampkin
Katie Rowe
Yoseph Shifare
Brad White

Texas
Marques Allen
Mirza Baig

Raunak Betala
Jorge Luis Hernandez
Todd Jeremy Hoover
Xiao Li, Ph.D.
Navam R. Sivaruban

Western
Christopher William Barney
Jessica R. Berry, AICP
Allison B. Boyd, AICP
Karolyn Chau
Charlotte Ann Claybrooke
Brendon P. Haggerty, MURP
Jon P. Henrichsen, P.E.
Ethan Jackson
Clive Lara
Ae-young S. Lee, P.E.
Leland R. Linkhart
Graham Martin, MRTP
Charlene A. McGee, MPA
Emily M. Miletich, P.E.
Phu Nguyen
Patrick Palmer
Alma Pradeepan, E.I.
Frank Provenzano
Mike J. Pullen
Anastasia Roeszler
Michael Ruiz-Leon
Jill A. Wolf

ITE Talks Transportation Podcast

New from the Thought Leadership Series
Lorraine Martin, National Safety Council President and CEO 2020 Motor Vehicle Fatalities Estimates and COVID-19 Safety
Lorraine Martin, President and CEO of the National Safety Council (NSC), discusses the NSC 2020 Motor Vehicle Fatalities preliminary data, which estimate that as many as 42,060 people died in motor vehicle crashes in 2020. That marks an 8 percent increase over 2019 in a year where people drove significantly less frequently because of the pandemic. She also talks about workplace safety guidelines issued by NSC during the COVID-19 pandemic and how they were utilized by employers.

All episodes available at www.ite.org/learninghub/podcast.asp | Subscribe for free via iTunes at http://apple.co/2hOUz8t
ITE NEWS

Best Practices in Selecting Transportation Consultants – An ITE Informational Report

Public agencies require external services and advice from time to time when their own staff are either unavailable or lack the required skills or expertise. Most agencies meet this need by hiring a consultant to undertake the specific project or task. This choice is one the agency must make not only with a clear and complete understanding and knowledge of the project requirements, but also through the application of an effective consultant selection process. With this objective in mind, the ITE Public Agency and Consultants Councils have recently completed an informational report, Best Practices in Selecting Transportation Consultants. The report focuses on the selection of consultants in the disciplines traditionally described as transportation or traffic engineering and transportation planning performing work for local governments (i.e., towns, cities, counties). The report is available now in the ITE Bookstore at https://bit.ly/ConsultantBestPractices.

2021 EVENTS

CITE ANNUAL CONFERENCE
June 8–10 | Virtual Meeting

FLORIDA PUERTO RICO SUMMER MEETING
June 23–25 | Fort Lauderdale Beach, FL, USA

ITE INTERNATIONAL VIRTUAL ANNUAL MEETING
July 2021 | In conjunction with the Mountain and Western Districts. See page 11 for more information.

GREAT LAKES DISTRICT ANNUAL MEETING
August 30–31 | Columbus, OH, USA

TRANSPO (ITE AND ITS FLORIDA EVENT)
September 27–29 | Bonita Springs, FL, USA

Sign Up Today for the Matson and Hammond Mentoring Program

“Learn from the Experience of Others & Share Your Experience with Others”

“"I enjoy serving as a mentor, whether it’s through ITE’s Matson and Hammond Mentoring Program, or at work with my staff. I was fortunate to have many mentors support my career, so now it’s time to pass that support onto the next generations of transportation professionals and help them succeed.”

Jenny Grote, P.E., PTOE, PTP (F)
ITE Past President

“"We’ve all had help along the way to get where we are and I’ve had a lot of help from some pretty tremendous mentors. It is my honor to repay that debt by mentoring the next generation of transportation professionals. Working together we can achieve great things for our profession and our communities.”

Shawn Leight, P.E., PTOE, PTP (F)
Vice President/COO
CBB Transportation Engineers + Planners

Get involved: https://community.ite.org/mentoring/mentoring
(ITE membership log-in required)
CONGRATULATIONS TO THE NEWEST TPCB CERTIFICANTS!

The Transportation Professional Certification Board, Inc. (TPCB) and ITE congratulate the following 69 new Professional Traffic Operations Engineers (PTOEs), 13 Professional Transportation Planners (PTPs), 62 Road Safety Professionals—Level 1 (RSP1s), and 8 Road Safety Professionals—Level 2 (RSP2s, Behavioral or Infrastructure) who passed certification exams in the February 2021 exam period. To learn more about these certifications and how to apply, visit www.tpcb.org. The next application deadline for the October 2021 exam period is August 4, 2021.

PTOE
Lester E. Adkins, III
Mohammad Al-Akash
Amy Allen
Peter Ayindongo Apasnore
Gina M. Balsamo
David P. Beardsley
Michael Wayne Beaty
Ray Z. Bernardo
Kortney R. Brown
Andrew Christopher Buntua
Joshua Canter
Kelli Louise Capka
Neil Stuart Going
Paulin Hakizimana
Saly Heng
Zhang Huang
Amy Kathryn Hunter
Justin Iwinski
Anthony Moses Encarnacion
Swara Farheen
Kelly Bird Froude
Neil Stuart Going
Paulin Hakizimana
Saly Heng
Zhang Huang
Amy Kathryn Hunter
Justin Iwinski
Ramanujan Jagannathan
Mi Hyeon Jeon
William Floyd Johnson, Jr.
Virginia Carol Jones
Sidney H. Kelly
Dustin Kerskieck
James M. Kibbons
Kevin D. Korth
Julian B. Llorente
Teresa Marie Lord
Michael Maloch
Taylor Christopher Marino
Daniel David Marsalone
Paige Sophia Martz
Mayumi Mato
Robert P. McAvoy
Matthew T. McLaughlin
Emily Francine Moran
John Moschovich
Muhammad Musa
Blake Olofsøn
Gregory Mark Orsini
Douglas Michael Ostler
Hyun Jeong Park
Venkata Siva Praveen Pasumarthy
James R. Pavelski
Luke Peter
Aswini Rajagopalan
Robert Gall Rose
Behzad Rouhieh
Jonathan Ulysses Sanchez
Ethan Beach Schukoske
Shannon David Shank
Curtis Thompson
Jalin Tian
Bethany Lee Turner
Grady Padiac Vaughan
Jeri Michele Vondera
Jesha Williams
Joel Bradley Wittmann
Bonnie Poortenga Wood
Harry Yip
Xuesong Alexander Zhu

PTP
Megan Amber Gee
Jill Hough
Gary Hsueh
Eric A. Jefferson
Joshua Shayne Johnson
Ria Shveta Kulkarni
Camden Voss Palvino
Anne Patrone
Kathryn L. Shackelford
Andrew Steinsky
Mustafa Syed Ali
Barton G. Teece, III
Jiaxu Zhou

RSP1
Charles David Alexander
Priyanka Alluri
Ranjeet Singh Bagha
Ingrid Ballus Armet
Joseph C. Balskus
Kwaku Frimpong Boakye
Travis Brewer
David G. Champoux
Cong Chen
Melodie Clayton
Rosemarie Draskovic
Mohamed Ahmed Essa
Alan Fournier
Jonathan M. Gambino
William Tyler Golly
Eric Franklin Hackworth
Anoosh Hafezi
Nora Hallett
Kathleen Haney
Rawad J. Hani
Jennifer Hardwick
Travis Hunt
Mouyid B. Islam
Nichole L. Jacobs
Dejan Jovanovic
Vishal S. Kakkad,
Gaurav Kashyap
Bryan Jeffrey Katz
Roger A. Krahm
Shanthi M. Krishnan
James J. Lao
Max Chun Yin Leung
Mingmin Liu
Travis A. Lloyd
Ryan J. Martinson
Marshall R. Metcalf

RSP2 Behavioral
James Kleen
Eric Tang

RSP2 Infrastructure
Jeremy Ashlock
Parry Frank
Ossama A. Ramadana
Vikas Ravada
Brian J. Rensing
Veronica P. Richfield

WHERE IN THE WORLD?

Can you guess the location of the “Where in the World?” photo in this issue? The answer is on page 50. Feel free to send in your own photos to hstowell@ite.org. Good luck! itej
Join nearly 2,000 transportation professionals this July and August for the 2021 ITE Virtual Annual Meeting. The time-zone friendly technical program has been designed to provide transportation professionals with the critical information you need to know to help shape the future of transportation. This meeting will help you be ready to address the challenges communities will face as they recover from the pandemic, and take advantage of emerging opportunities in the areas of funding, technology and practice.

The technical program features 40 technical sessions, more than 75 poster presentations, and 6 workshops focusing on the critical transportation theme areas of safety, complete streets, planning, transportation system management & operations, connected and automated vehicles, data analytics, and much more. Sessions will be recorded and available to registered attendees until the end of October.

The Mountain and Western Districts are well represented throughout the program and we appreciate their support for both the technical and social program.

For more information: www.iteannualmeeting.org and follow us using #ITE2021
SCHEDULE OF EVENTS – WEEK 1 – JULY 20-24
This schedule is subject to change. More information about #ITE2021, including session descriptions and speakers, can be found at www.iteannualmeeting.org. Times are ET.

TUESDAY, JULY 20
11:00 a.m. – 12:30 p.m. Opening Plenary Session
12:40 – 1:25 p.m. Poster Presentations
1:30 – 3:00 p.m. Concurrent Sessions
• Walking and Biking: User Insights and Toolkits You Need to Know About
• ITE Town Hall
• Rural TSMO Planning in Western States (NRITS)
3:10 – 3:55 p.m. Poster Presentations
4:00 – 5:30 p.m. Concurrent Sessions
• Perspectives on Safety and Operational Benefits for Roundabouts
• How to Get Thru – Transportation Plans and Performance for Construction and Events (NRITS)
• Vision Zero Design Sandbox Competition

WEDNESDAY, JULY 21
11:00 a.m. – 12:30 p.m. Concurrent Sessions
• Transportation Technology Tournament Presentations
• Systemic Safety Improvements in Local Jurisdictions
• Signs and Markings: Innovations that Work (NRITS)
12:40 – 1:25 p.m. Poster Presentations
1:30 – 3:00 p.m. Concurrent Sessions
• Emerging Practices and Technology for Railroad Grade Crossings
• Building Effective Pedestrian and Bicycle Networks
• Rural ITS Town Hall (NRITS)
3:10 – 3:55 p.m. Poster Presentations
4:00 – 6:00 p.m. Workshops
• Our Changing Mobility Landscape: What It Means for Our Profession
• Walk the Mile: An Interactive Workshop on Transportation Equity
• Next Generation Traffic Incident Management – Safety and Mobility Benefits for All

THURSDAY, JULY 22
11:00 a.m. – 12:30 p.m. Concurrent Sessions
• COVID-19 Transportation Impacts and Innovations, Part 1
• Baking TSMO into All We Do in Transportation (NRITS)
• Tools for Advancing Vision Zero and the Safe System Approach
12:40 – 1:25 p.m. Poster Presentations
1:30 – 3:00 p.m. Power Plenary Session – Navigating a New Future
3:10 – 3:55 p.m. Poster Presentations
4:00 – 5:30 p.m. Concurrent Sessions
• Complete Corridors
• Critical Data Integration between PSAPs and TMCs (NRITS)
• COVID-19 Transportation Impacts and Innovations, Part 2
Evening (Hours may vary) District Social Events

FRIDAY, JULY 23
These events are open to all registered attendees. Please RSVP for these events by either clicking on the link or visiting the ITE Annual Meeting website. Please note that times are ET.
7:00 – 8:15 p.m. Western District Awards
8:30 – 10:00 p.m. Family Night Event (hosted by the Western District)

SATURDAY, JULY 24
These events are open to all registered attendees.
11:00 a.m. – 12:00 p.m. Career Guidance Panel Session (hosted by the Western District)
12:30 – 1:30 p.m. Western District Mentor Program
2:00 – 3:00 p.m. Resume Workshop (hosted by the Western District)

I really appreciated the virtual format … As much as I have enjoyed the face-to-face events in the past, this format allows so many others to participate that could not attend previously...not just due to the virus, but due to budget and schedule constraints...

Daren Grilley
P.E., PTOE,
City Engineer,
City of Beverly Hills,
Beverly Hills, CA
TUESDAY, JULY 27
11:00 a.m. – 12:30 p.m. Concurrent Sessions
- Connected Vehicles: The Changing Landscape, Implementation, Lessons Learned, The Future
- What’s New in Trip Generation
- Considering Traffic Signals for All Users
12:40 – 1:25 p.m. Poster Presentations
1:30 – 3:00 p.m. Concurrent Sessions
- Tools for Complete Streets
- What Have Connected Vehicle Pilots Taught Us to Date?
- Pivoting to Virtual Public Engagement
3:10 – 3:55 p.m. Poster Presentations
4:00 – 5:30 p.m. Concurrent Sessions
- 30-Minute Delivery: Understanding Micrologistics Trends and Transport Planning
- Improving Safety through Speed Limit Setting
- Big Data and Cloud-Based Solutions for Improved TSMO
- Recruiting and Retaining Transportation Professionals: Diversity and Inclusion in Recruitment, Mentoring, and Career Development

Evening (Hours vary based on activity) Affinity Group Social Events

WEDNESDAY, JULY 28
11:00 a.m. – 12:30 p.m. Concurrent Sessions
- Equity in Transportation
- Deepening Crowdsourcing for Operations Roots for More Fruitful Benefits
- Best Practices from the Transit Community
12:40 – 1:25 p.m. Poster Presentations
1:30 – 3:00 p.m. Concurrent Sessions
- Safe System Conversation Circle with State and National Leaders
- Traffic Analysis, Modeling and Simulation Cornucopia
- Big Data Safety Applications
3:10 – 3:55 p.m. Poster Presentations
4:00 – 6:00 p.m. Workshops
- Women in ITE Forum: More than Just Friends
- Reforming Traffic Impact Analysis to Incorporate Safety and Multimodal Transportation
- Proactive Tools and Treatments to Address Road Safety
- Games of Modes: Bus and Bike Facility Design in Constrained Corridors

6:00 – 7:00 p.m. Student and Younger Member Events
6:00 – 7:30 p.m. Past President’s Event

THURSDAY, JULY 29
11:00 a.m. – 12:30 p.m. Concurrent Sessions
- Measures for Managing Speed
- Focusing on Balancing Safety and Mobility at Traffic Signals
- Edge Lane Roads – New Uses and Safety Performance
12:40 – 1:25 p.m. Poster Presentations
1:30 – 3:00 p.m. Concurrent Sessions
- Updating the MUTCD: What’s Being Proposed and What’s Being Said
- Legal Liability: Perspectives from Both Sides
- TSMO Performance Management Using Cutting Edge CAV Technologies
4:00 – 5:15 p.m. Closing Plenary Session

"The ITE conference offers the most relevant sessions for earning PDHs for PTOEs."

Kimberly Restoff
P.E., PTOE, Associate, Senior Civil Engineer, Burns and McDonnell
During #ITE2021, ITE has added the Solution Provider Track to provide exhibitors and sponsors with the opportunity to share information about exciting new products and services as part of the 2021 ITE Virtual Annual Meeting. This track will be held simultaneously with the concurrent sessions. Participating exhibitors and sponsors will have the opportunity to shape their sessions to best connect the audience with their products and services. Those sessions that have substantial educational content will include PDH credits. More information can be found on the #ITE2021 website.

ITE COUNCIL AND COMMITTEE MEETINGS

ITE Council and Committee meetings will be held August 3–5 from 11:00 a.m. – 12:30 p.m., 1:30 – 3:00 p.m., and 4:00 – 5:30 p.m. each day.

Dates and time slots for each ITE Council and Committee are in the process of being scheduled. Information will be available on the #ITE2021 meeting site as well as in the respective communities on ITE e-Community.

While there is no charge to attend ITE Council and Committee meetings, individuals do need to register.

REGISTRATION

<table>
<thead>
<tr>
<th>Registration Category</th>
<th>ITE Member Through June 15</th>
<th>After June 15</th>
<th>Non-Member Through June 15</th>
<th>After June 15</th>
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<td>$199</td>
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<td>Week 2 (July 27–29)</td>
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<td>$199</td>
<td>$249</td>
<td>$299</td>
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NRITS Registrants: The NRITS Technical Program takes place July 20-22. The registration fee through June 15 is $149 and after June 15 is $199.

Discounts are available for public agency members who plan to send 5 or more individuals. Contact membership@ite.org for more information.

Christa Greene
P.E., Senior Principal,
Stantec

"For a virtual meeting, I think you did it about as good as it could be done. I like the way it was spread out so you did not have to sit for extended periods … I do like that the sessions are still available to us online and that we can see sessions that might have been running concurrently. The price point was good for what we received … ITE is such a wonderful place to see old friends and make new ones. That’s what makes it worth the time and money."

"
ITE Young Leaders to Follow 2021

ITE is proud to announce our first-ever group of Young Leaders to Follow with the selection of the Class of 2021. The ITE Young Leaders to Follow program was designed to recognize and highlight talented ITE members under the age of 35 who have already made a mark on ITE and the transportation industry and are leaders to follow in the years to come. ITE is honored to introduce these young members to the greater ITE Community and to celebrate their accomplishments. ITE is also pleased to recognize our Young Member of the Year, Yung Koprowski, P.E., PTOE, RSP1 (M), who was selected from this outstanding group of awardees. Yung stood out among her peers. Her professional, ITE, and community accomplishments are remarkable at this early stage of her career. Yung’s selection as Young Member of the Year will be celebrated at the virtual ITE Annual Meeting in July 2021.

The selection committee was chaired by ITE International Vice President Beverly Kuhn, P.E., PTOE (F), and members of the committee included Eric Rensel (M), Coordinating Council Chair; Adam Allen, P.E., PTOE, TSOS, IMSA II (F), LeadershipITE Chair; Noelle Wilcox (M), Co-Chair, Younger Member Committee; and Shilpa Mallem, P.E., PTOE (M), Chair, Diversity and Inclusion Committee.

Young Member of the Year

Yung Koprowski, P.E., PTOE, RSP1 (M)

Yung formed her own engineering firm in 2017, Y2K Engineering, to serve as a role model for other women and young professionals. She leads a team of 13 from offices in Mesa, AZ, USA, and Denver, CO, USA. Y2K Engineering was the recipient of the ADOT Business Engagement & Compliance DBE Trailblazer Award in 2018. She received a bachelor’s in Civil Engineering from Arizona State University, is a licensed Professional Engineer, certified Professional Traffic Operations Engineer, and a certified Road Safety Professional. Her experience focuses on traffic engineering and transportation planning, specifically in safety, intelligent transportation systems (ITS), traffic operations, and active transportation. In 2016, the American Society of Civil Engineers recognized Yung as a New Face of Civil Engineering Professional Honoree. The Phoenix Business Journal recognized her as a 40 under 40 Honoree in 2019 and an Outstanding Women in Business Honoree and Rising Star in 2021.

She is a past president of the Intelligent Transportation Society of Arizona and the American Society of Highway Engineers Sonoran Section. Her husband, Keith Koprowski, is also a civil engineer and began working at Y2K Engineering three years ago. They live with their children, Chase (8) and Charlotte (6), in Gilbert, AZ, USA. Yung was appointed to the town council in May 2020 for a term ending December 2022 and was selected to serve as vice mayor from September 2020 through December 2020, and to continue as vice mayor for 2021. Yung is the 2021 President of the Arizona Section of ITE and is an alumnus of the 2019 LeadershipITE program. An ITE member since 2008, she also has served on the ITE Pedestrian and Bicycle Executive Committee, STEM Committee, and LeadershipITE Committee.

Sarah Abel (M)
Transportation Planning Director, ITE

Sarah is a highly skilled and thoughtful transportation professional who is involved in and works tirelessly to advance many of the cutting-edge topics that are helping to reshape what transportation professionals do and how they do it. Since joining the ITE staff in 2018, Sarah has become a highly visible thought leader in several emerging technical areas. She was instrumental in launching ITE’s visibility on the issue of speed management and has also been instrumental in ITE’s work on supporting the implementation of a Safe System Approach. In the transportation planning area, she is leading an ITE contract effort to develop technical resources on curbside management for FHWA. She is heavily involved in finalizing an ITE Recommended Practice on incorporating multimodal considerations into transportation impact analyses. Sarah is supporting the ITE Pedestrian and Bicycle Standing Committee in finalizing an informational report and helping guide the development of several technical products in the Mobility as a Service/Mobility on Demand (MaaS/MOD) area. She is also staffing the 16-person ITE delegation to the National Committee on Uniform Traffic Control devices (NUTCOD), which is currently preparing detailed comments on a proposed new edition of the Manual on Uniform Traffic Control Devices (MUTCD) for the first time in more than a decade. Sarah’s previous work experience includes serving as planning director for the Town of St. Michaels, MD, USA; design development director for Cambridge Architectural; and community design manager/interim director at the Eastern Shore Land Conservancy.

Luana Broshears, Ph.D., P.E., PTOE, RSP2I (M)
Assistant Project Manager Traffic/Transportation Engineering & Planning, Sain Associates, Inc.

Luana is “all in” for ITE. After completing her time as a student member, she immediately rolled into full membership and engagement at the Section, District, and International levels. She currently serves on the ITE Transportation Safety Council Executive Committee and the ITE Younger Member Committee, and was formerly a part of the leadership for the Southern Arizona Chapter of ITE and the
Southern District Leadership Committee. While at Auburn University, she founded the Auburn University Brazilian Student Association and led the ITE Student Chapter. She is currently working to establish an ITE Student Chapter at the University of Alabama in Huntsville. Through all of her activities, she has remained focused on helping others and making a meaningful contribution to advancing safe transportation for everyone. Luana’s experience includes traffic safety, traffic forecasting, traffic impact studies, traffic operation studies, signal warrant analysis, traffic signal timing, traffic simulation modeling, parking studies, pedestrian and bicycle studies, and roadway impact-fee studies. She was part of the team that worked with the Alabama Department of Transportation to update the 3rd Edition of the Alabama Strategic Highway Safety Plan. She also served as the champion for the transition to predictive safety analysis at the Arizona Department of Transportation. In addition, Luana was the instructor of the traffic safety class at the University of Arizona for two years.

Neelam Dorman, T.E. (M)
Principal Transportation Planner, City of Anaheim
ITE has been a significant part of Neelam’s career, having served in leadership as a student, with the Southern California Section, the Western District, and at the International level. She credits ITE with providing technical growth, leadership training, mentors, career opportunities, and a close group of friends. She is Past President of the Western District and chaired the Western District Task Force around ONE ITE, administering a transition plan during the redistricting of the Western District and creation of the Mountain District. She is currently on the ITE International ONE ITE Task Force and is planning to run for International Director for the Western District in 2021. Neelam leads impactful large-scale projects like the Anaheim Resort Mobility Plan, which is a multimodal study to evaluate how to best serve 25 million annual visitors, 37,000 employees, and residents in a unique and challenging transportation environment. She also led the grant effort for a Streetcar connector project and serves as the city’s transit lead. Neelam has worked with developers, cities, counties, metropolitan planning organizations, and state DOTs on roundabout design, benefit/cost analyses, signal synchronization, local and highway corridors studies, feasibility studies, EIRs, and TIAs.

Claudio A. Figueroa, P.E. (M)
Traffic Engineer, Neel-Schaffer
Claudio has been connected to ITE through every step of his career. He has taken on leadership roles starting as an undergraduate at the University of Puerto Rico, as a member of the Indiana Section then the North Carolina Section, and now back in the Florida Puerto Rico District. He is Secretary of the ITE Roundabout Standing Committee, leading a study project with the ITE Transportation Planning Council, and is a LeadershipITE alumnus. Claudio has been involved in several major projects in his professional career, most of which involve innovative, cost-saving designs, including one that required a feasibility study of a commuter corridor. This project allowed him to propose an alternative design not common in North Carolina, USA for two major intersections. This design minimized delay and required a smaller footprint while also improving safety. In Florida, Claudio wants to help with the new Central and Northwest Florida Section. He believes the skills he gained as a student in Puerto Rico and at Purdue, involvement with the Indiana and North Carolina Section, and the leadership skills obtained during the LeadershipITE program will be of great value to continue to develop and raise participation in the new Section.

Jodi Godfrey (M)
Senior Research Associate, University of South Florida – Center for Urban Transportation Research
Florida Puerto Rico District Rising Star
Jodi currently serves as President of the Greater Tampa Bay Section of ITE and has been active at all levels of ITE and in other professional organizations. She is a member of the Women of ITE Subcommittee and serves on the ITE STEM Committee. Within the industry, she is secretary of the Transportation Research Board Stand-
ing Committee on Transit Safety and Security, the communications officer and membership chair for WTS Tampa Bay, and secretary of the American Public Transportation Association’s Bus Safety Committee. In the words of her supervisor, “Jodi is a natural leader who brings a bright and compelling perspective. She has been instrumental in the successful development and management of several federal projects, where she has demonstrated a breadth of knowledge and insight in many critical factors that affect public transit safety and security. Jodi has been published several times and has presented in numerous transportation conferences.”

Adam Greenstein, P.E., PTOE (M)
Technical Principal, Traffic Engineering, WSP
Mid-Colonial District Rising Star

Adam is a leader in the local transportation community, not only through his service and leadership positions within ITE, but also through his professional work and his involvement with other technical committees and programs. He is the current Vice President of the Washington DC Section of ITE (WDCSITE) serving Maryland, USA; Washington, DC, USA; and Northern Virginia, USA. As the former Baltimore Area Director, Adam planned numerous local ITE events and panel meetings that challenged participants on topics of local and national importance. He is an active member of the ITE STEM Committee and has led countless STEM activities for the Section. He is a member of the Transportation Research Board Standing Committee on Traffic Control Devices, contributing to the National Committee on Uniform Traffic Control Devices. Locally, Adam plays a key role in enhancing mobility and safety for all users by pushing the envelope in the industry and raising the floor for practitioners. He helped establish a transit priority program for Washington Metropolitan Area Transit Authority (WMATA) and advanced Maryland Transportation Authority’s first Connected and Automated Vehicles (CAV) Strategic Action. He has shown innovation in his techniques to find solutions to problems by using technology to his advantage and by advancing the use of technology in transportation. He pushes boundaries to promote safety and efficiency for motorized and vulnerable road users, and has advanced CAV strategy and encouraged transit signal priority.

Dan Hennessey, P.E., PTOE, T.E. (M)
Consulting Engineer, Project Development
City of Austin Transportation Department

Dan is building a career in mobility planning and traffic engineering with a focus in multimodal transportation planning, traffic operations analysis, and traffic engineering design. He is active in ITE at all levels and is currently Vice Chair for the ITE Transportation Planning Council, served on the Vision Zero Working Group, and was a contributor to the 2020 Developing Trends Report. He was appointed to the City of Austin Urban Transportation Commission in Texas, USA, was on the Texas Department of Transportation Connected/Automated Vehicle Task Force, the Downtown Austin Alliance Land Development Code Task Force (March 2019 – present) a part of the 2021 ATXelerator Elected Office Candidate Recruitment Program, on the American Society of Civil Engineers Mobility on Demand and Mobility as a Service Committee, and has held many leadership positions with the Austin Chapter of the Urban Land Institute. Dan’s work has included detailed traffic operations analysis, including microsimulation, travel demand forecasting for urban multimodal networks, and design work involving traffic signals, roadway/pathway lighting, and pedestrian/bicycle facilities. He is also experienced in traffic signal timing and optimization, construction traffic control planning, and improvement phasing evaluation. He helped the pro-transit PAC pass Proposition A in November of 2020 to bring high-capacity transit to Austin, and is looking forward to aiding in its planning, design, and implementation.

ITE YOUNG LEADERS TO FOLLOW FOR 2022

The application process for the 2022 class of Young Leaders to Follow will open in the fall of 2021.

ITE will recognize 20 more young leaders who are involved in ITE Councils and Committees, becoming prominent in the profession, and within your communities, and contributing to your local Section and District. Stay tuned for more details and if you have any questions or are looking for ways to get more involved with ITE, contact Colleen Agan at cagan@ite.org.

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Farukh Ijaz (M)  
**Project Manager, Traffic and ITS, Kimley-Horn**  
*Northeastern District Rising Star*  
Farukh is a committed leader of ITE, currently serving as the Vice President for the ITE Metropolitan Section of New York and New Jersey (Met Section). As a leader for the Met Section, he has overseen the transition to a new platform for meeting registrations and email outreach to members that has dramatically improved the quality of contacts, registrations, and payment for meetings. During the complications of COVID-19, he oversaw the programming and arrangements for approximately 10 meetings, handling the position with dignity and grace. Farukh is a 2018 LeadershipITE graduate, a member of the ITE Connected Intersections Committee, a TRB AME40 Committee on Transportation in the Development Countries Paper reviewer, the 2020 Einah Reza M. Pelaez Young Professional of the Year, the 2020 Outstanding Young Professional Year Award from ITS New Jersey, and has earned the Outstanding Personal Career Development Award from Kimley-Horn. As a project manager in Traffic and ITS for Kimley-Horn, his experience includes being the lead ITS engineer for Newark International Airport Terminal One Redevelopment, being the lead ITS engineer for the Master Plans for the Holland and Lincoln Tunnels, and being the ITS Task Leader for the installation of Travel Time Readers on New Jersey Turnpike Authority properties.

Daniel Lai, P.E. (M)  
**Senior ITS Engineer, City of Bellevue, Washington**  
*Western District Rising Star*  
Daniel has demonstrated a very serious commitment to both ITE and the industry, making a significant impact through his leadership. He served as President of the Washington State Section of ITE in 2019 and the Section Representative to the Western District in 2020. Daniel coordinated the technical content for meetings, helped oversee efforts to welcome and nurture Student Chapters, including initiating an industry night to serve students in rural eastern Washington, and helped expand student scholarships to include high school students. Daniel was instrumental in shifting the Section’s administration and finances to electronic platforms. As Washington State Section Representative, Daniel embraced ONE ITE and vastly improved the Section’s two-way communication with the Western District. “Since joining Bellevue’s ITS Team in 2017, Daniel has made tremendous contributions to advancing Bellevue’s mobility strategies while continuing to advance the industry through mentoring and the transfer of knowledge,” his supervisor said. “Daniel is extremely innovative and finds creative ways to solve problems to advance our operations. He took a well-established ITS system and brought it to a new level, leveraging our fiber network and ‘360’ cameras to improve the safety of our roadways for all users, upgrading distribution of traveler information, and expediting performance data gathering and reporting. With each new innovation, Daniel is quick to share his successes and lessons learned through industry presentations and informal gatherings of agency peers.”

Tyler Krage, P.E., PTOE (M)  
**Professional Traffic Engineer, Alliant Engineering, Inc.**  
*Great Lakes District Rising Star*  
Tyler is committed to helping make ITE the “go-to association” for young transportation professionals, and a place to grow professionally while connecting socially. He is committed to getting people involved, volunteers to take on ITE initiatives, and makes significant contributions to ITE at the International, District, and Section levels. Tyler is currently Vice President of the North Central Section of ITE and the Great Lakes District Student and Young Member Committee Chair. He is a member of the ITE International Younger Member Committee, the student to Younger Member Taskforce, and serves as the ITE TSMO and Traffic Engineering Technical Council liaison and a liaison for the ITE Pedestrian and Bicycle and Sustainability Standing Committees. He assisted with the 2020 ITE Developing Trends Report Task Force, is a mentor with the ITE Matson and Hammond Mentoring Program, a 2020 graduate of LeadershipITE, and provides social media support for the ITE International Traffic Bowl as well as the competitions in his Section and District. He has helped amplify the fun at ITE by hosting social events like the 2020 Virtual Traffic Bowl watch party, listening sessions, helping with the MiteY races, and happy hours.

Federico Puscar, MA.Sc., P.Eng., PTOE (M)  
**Transportation Engineer, Bunt & Associates Engineering Ltd.**  
*Canadian District Rising Star*  
Federico has a passion for transportation and spends considerable time volunteering for ITE, the Canadian District of ITE (CITE), and the Transportation Association of Canada (TAC). He is currently the CITE Private Sector Representative on the TAC Road Safety Webinar Series’ Project Steering Committee, an advisor helping to update the ITE Trip Generation Manual, 11th Edition, and an advisory panel member and instructor for the new ITE Transportation Impact Analysis (TIA) Training Program. Showing great promise as a leader, Federico was named a project manager with just two years of experience, a feat typically accomplished after four to five years of experience. He has been an integral part of multi-year transportation studies including the Lansdowne Master Plan and Central City Phase 1. These were large-scale, transit-oriented, high-density developments in complex urban areas that required extensive traffic operations modeling and client-city relationship building. In both cases, he...
Lili Liang, P.E., PTOE, PTP (M)
Senior Traffic Design Engineer,
Transportation Engineering Manager,
Maryland Transportation Authority

Lili has shown outstanding leadership qualities, demonstrated through her experience at the Maryland Transportation Authority (MDTA), as well as her contributions to ITE and other organizations. She is a member of the ITE Safety Council and was named the 2020 Volunteer of the Year for that Council. She also serves as on the Professional Development Committee, helped organize the 2021 Vision Zero Sandbox Competition, and is a member of the 2021 LeadershipITE class. Lili is also involved in other non-profit organizations to empower minority groups, including the Chinese America Civil Engineers Society and GalTogether Women Power. Through presentations, she shares her career and life experiences, and hopes to inspire Chinese graduates and young working moms. At the MDTA, Lili manages projects ranging from small task orders to multi-million capital projects, including a $60-million part-time shoulder use transportation improvement project. She reviews plans and reports for various transportation projects including operations and capital projects. She presents and provides technical advice to the chief engineer, board members, the executive director, and secretary on complex, controversial, and sensitive plans and studies. After Lili addressed a traffic safety issue at I-95 SB ramp and Old Mountain Road, MD, USA in 2020, one citizen replied, “I am thrilled. I know that there have been several accidents there since mine. I am sure it will save folks like me money and injuries.”

Tracy Lehman, P.E., PTOE, RSP2I (M)
Transportation Engineer, Kimley-Horn

Tracy’s passion for ITE is contagious and inspires those around her to become more involved and contribute to the betterment of our profession. She is a graduate of the 2017 class of LeadershipITE, a Past President of the Illinois Section of ITE, and is currently serves as Chair of ITE’s new Transportation and Health Standing Committee. Tracy also serves on the Georgia Section of ITE Safety Committee (2019-present) and was the Section’s SDITE Representative (2018-2019). She led ITE’s technical working group on the Transportation and Health Initiative. In 2020, the ITE International Board of Direction voted to transition the initiative to a formal Standing Committee under the Transportation Planning Council and nominated Tracy to lead the Committee. While much of Tracy’s work is with the Georgia DOT and metro Atlanta municipalities, Tracy routinely partners with clients across the nation. She assisted Iowa DOT with developing local road safety plans for more than 30 counties and for each of the DOT’s six districts. Tracy is assisting Alabama DOT in their first phase of Local Road Safety Plan (LRSP) development with a goal of creating plans for all 67 counties in the state. Her work has been recognized on the national level, with her recently contributing to the Federal Highway Administration’s new guidance manual, Implementing a LSRP. Tracy served on the Technical Advisory Committee for the Atlanta Regional Commission’s (ARC) safety action plan, Safe Streets for Walking and Bicycling, and on the Governor’s Office of Highway Safety’s Distracted Driving Task Team.

Lasaro (Larry) Picasso, P.E. (M)
San Antonio Traffic Lead, WSP USA
Texas District Rising Star

Larry has been actively involved with South Texas ITE (STITE) since he joined as a professional in 2014. He is currently the 2021-2022 Section Representative, having already served all leadership roles on the South Texas ITE Board of Directors. He created a meaningful program with the STITE Annual Sponsorship program, a means to increase both sponsorship and scholarship funds. He was the 2020 Texas District of ITE Younger Member of the Year and a graduate of the 2020 LeadershipITE program. With a focus on making Bexar County, TX, USA roads safer, Larry has led efforts to secure funding and improve his community. In coordination with Texas DOT, Larry developed a proposal for Highway Safety Improvement Program (HSIP) funding and received $7 million USD in funds. This funding was used to construct an overpass at Spur 151 and Westwood loop, improving an area that had experienced exponential growth leading up to 2018 and where crash data analysis indicated it was one of the most dangerous intersections in the state. In addition to this one major intersection, additional projects involved new traffic signals and revitalizing old infrastructure through the county, capitalizing on federal funding while leveraging his modest budget.

Asheque Rahman (M)
Senior Traffic Engineer, Traffic Engineering
New York City Department of Design and Construction

Asheque Rahman has been an active member of ITE since he joined in 2008 and is currently the Treasurer of the ITE Metropolitan Section and an active member of the ITE STEM Committee, as well as past Chair of the ITE Urban Goods Movement Standing Committee (2017-2019). Asheque has more than 13 years of diverse experience in traffic and transportation engineering, planning, supply chain logistics and emerging technology. Asheque was the recipient of the American Society of Civil Engineers (ASCE) Young Government Civil Engineer of the Year Award (2013) and the Institute for...
Operations Research and the Management Sciences (IMPORMS) Franz Edelman Finalist Award (2017). Asheque is an Alumnus of Leadership-ITE (Class of 2017), as well as the New York University Rudin Center for Transportation Policy and Management’s Emerging Leaders in Transportation (Class of 2017) programs. At the New York City Department of Design and Construction (NYC DDC), Asheque serves as the agency’s first ever traffic engineer and is responsible for developing and managing NYC DDC’s Traffic Engineering Unit. Committed to working with young people, Asheque is practitioner advisor to the City College of Technology Civil Engineering Club (American Society of Civil Engineers Met Section), as well as advisory board member for the High School for Construction Trades, Engineering & Architecture, as well as a long time mentor in the City College of New York Alumni Mentoring Program. Just for fun, below is just a sample of Asheque’s poetic stylings. To read the full poem, visit http://bit.ly/urbanfreight_poem.

The State of Freight, Urban Freight
Allow me to narrate / The state of freight, urban freight
The food you just ate / That was on your plate
Was delivered through freight, urban freight
That’s just one example mate / Most things around you to date
Were delivered through freight, urban freight.

Kellie Reep, P.E. (M)
Senior Transportation Engineer, Stantec
Kellie has exhibited leadership in many ways across all of ITE. She is currently a member of the Leadership-ITE Curriculum Committee and the ITE Younger Member Committee, where she played a leading role in the development of the ITE Matson and Hammond Mentoring Program. She is currently on the North Carolina Section’s Board of Directors, the Scholarship Committee Chair, was previously the Section’s Traffic Engineering Council Chair, and served on the SimCap Users Group and Traffic Analysis Tools Task Force. Recently, she started a North American Microsimulation Modeling Users Group to educate and coordinate simulation modeling efforts throughout her company. She does an excellent job training other engineers and has been instrumental in assisting offices across Stantec with complex design evaluations. Kellie has led the model development for several significant projects such as major design build pursuits, the Buffalo Skyway Project in New York, NC 150 in Mooresville, NC, and I-526 and a BRT system in Charleston, SC, USA.

Kelly Schaefer, P.E., PTOE (M)
Senior Traffic Engineer, Lochmueller Group
Missouri Valley District Rising Star
Kelly has been a longtime volunteer with the TEAM Chapter that is now the Gateway Section of ITE, and she joined the board of directors in 2019. She served on the Local Arrangements Committee for the Joint Missouri Valley District of ITE (MOVITE) and Midwestern District Meeting held in St. Louis, MO, USA. In the past year, she helped with the elevation of her Chapter to a Section by helping to write their policy manual and creating an officer’s manual to help guide board members in their roles. She was the recipient of MOVITE’s 2020 Young Transportation Professional of the Year award. Her supervisor, Tyson King, recognized Kelly for her “commitment to advancing the transportation engineering industry, continued efforts to share her expertise with partners and clients, and sustained involvement with professional organizations, especially ITE. She is recognized as an expert in the region relative to traffic signal operations, and has consistently broadened her knowledge base by participating or leading various projects including signal/lighting design, neighborhood studies, traffic calming, multimodal infrastructure, and conceptual corridor studies.”

Kate Shearin, P.E., PTOE (M)
Metro Atlanta Signal Operations Engineer, Georgia Department of Transportation Southern District Rising Star
Kate is an enthusiastic supporter and leader of the Georgia Section of ITE (GAITE), the Southern District of ITE, and ITE International. She served as president of the Georgia Section in 2020, successfully leading her Section during the pandemic, navigating to a virtual platform, while maintaining the high level of professional development and networking opportunities that GAITE has come to expect. She is a 2016 Leadership-ITE graduate and helped plan the GAITE Summer Seminar Conference in 2017. In addition, she participated in the GAITE Leadership and Mentoring Programs and received the GAITE Marsha Anderson Young Member of the Year Award in 2016. Throughout her entire career, Kate has devoted tremendous amounts of time and effort to advancing traffic operations within the state of Georgia. “Through Kate’s leadership and forward-thinking approach, GDOT has led the nation in innovative operations systems and programs that make its arterial signal systems one of the most efficient in the country,” her supervisor noted. “With a program that influences more than 2,000 signalized intersections, Kate has also delivered infrastructure enhancements to the entire state that connect more than 8,000 traffic signals—one of the largest systems in the country. In addition to operations, Kate’s expertise help enhance and improve the safety of signalized intersections through meticulous and consistent engineering design. Kate’s impact in the advancement of the profession is significant at this stage in her career, and her passion for innovation and inclusion makes her an ideal candidate for this award.”

YOUNG LEADERS TO FOLLOW
Purpose and Intended Use
Where a signalized intersection is in close proximity to a railroad crossing and either queues from the intersection impact the crossing or queues from the crossing impact the intersection, the railroad signal control equipment and the highway traffic signal control equipment should be interconnected. The normal operation of the traffic signals controlling the intersection should be preempted to operate in a special control mode when trains are approaching. While public agencies have practices or procedures on the preemption of traffic signals near railroad grade crossings, there have been significant advances in engineering and technology since the last edition in 2006. The report is written primarily for an audience of engineers working for public agencies, railroads, and public transit agencies engaged in signal design and operational timing. ITE’s intent for the Recommended Practice is to reflect current state-of-the-practice, and a balance between sound engineering theory and practical application.

The Recommended Practice
The report includes new information on the design and operation of traffic signal preemption that has been developed since the previous edition was published, including:

- The function of diagnostic teams including the role of the railroad signal engineer.
- Explanation of the critical factor for determining the need for preemption is not the distance to the crossing, but the likelihood that a traffic queue will extend onto the tracks, regardless of the distance and methods for estimating queue lengths.
- New definitions have been added as well as new drawings illustrating the definitions of the Clear Storage Distance and the Minimum Track Clearance Distance.
- Illustrated explanation of the procedure for preempting traffic signals of diagonal grade crossings at intersections as well as the use of pavement markings to warn drivers of the area of a railroad crossing to not block.
- Additional discussion on the need for special traffic control when there is construction in the vicinity of a railroad crossing consistent with the requirements of the MUTCD.
- Discussion of maximum preemption timer, motion-sensing detection circuits, and simultaneous versus advance preemption operation.
- Detailed information regarding the use of pre-signals and queue-cutter signals as well as hybrid systems for long distances between the traffic signal and the railroad crossing.
- Expansion of the section on the design of preemption interconnection circuits types relative to current standards.
- Discussion of ADA considerations, pedestrian hybrid beacons, and the timing of traffic signal preemption to accommodate pedestrians.
- New information regarding the need for preemption of flashing beacons or hybrid beacons at pedestrian grade crossings.
- References to preemption timing worksheets from two roadway jurisdictions as methodological examples.
- Includes updated figures as well as other technical and editorial revisions to improve readability and clarity throughout. ITE
The elected leadership of a mid-sized city proposes to take steps towards implementing a recently adopted Vision Zero goal by adopting a citywide maximum speed limit of 25 miles per hour (mph) (40.2 kilometers per hour) to provide better protection for pedestrians and bicyclists, after an increase in pedestrian and bicycle crashes in the past two years. The city’s leadership is familiar with some of the concepts related to Vision Zero, have consulted with their peers in other Vision Zero communities, and believe a citywide maximum speed limit is the proper solution. Ms. Dudley, the city traffic engineer, is faced with three choices: accept and implement the decision; advise the mayor and city council of the anticipated impacts (positive and negative) of such a decision; or prepare a full engineering analysis and report to address the issue. Ms. Dudley is fully supportive of the safety goals of the city council’s proposal, but is worried about limited compliance, the need for increased enforcement, and whether a citywide speed limit is sustainable as a long-term solution to the community’s safety concerns.

Ms. Dudley chooses to perform an engineering analysis and prepare a report addressing the issue and providing recommendations. Within the report, she does an analysis of the crash history, particularly those involving pedestrians and bicyclists. The city’s crash database shows some of the vehicle, pedestrian, and bicycle crashes are types that could likely be reduced with roadway modifications. She also notes the main thoroughfare bisecting the city...
community is a state highway that limits the ability of the city to modify the existing speed limit. The city has also a history of speed studies documenting operating speeds on most arterial and collector streets that are higher than 25 mph. Ms. Dudley recognizes that speed limit signing alone will not significantly lower vehicle speeds and the need to take a more holistic approach to speed management.

In the report, Ms. Dudley fully documents the available speed and crash data, and describes her concerns that a "one-size fits all" solution focusing only on a citywide speed limit will not address the safety concerns in the community. She supports the 25 mph speed limit in many locations in the city, including all residential and some collector streets, with traffic calming measures to be implemented at problematic locations. She recommends retaining the existing speed limits on the remaining collectors and arterials, while also recommending engineering changes to reduce speeds and enhance vulnerable road user safety.

Questions
1. Does the city traffic engineer have due regard for the safety, health, and welfare of the community?
2. Is the city traffic engineer basing recommendations on adequate knowledge and honest conviction?
3. Has she advised the elected leadership of the expected consequences of their decisions?
4. Do the data support her recommendations and professional engineering judgment that will provide a sustainable reduction in vehicle, pedestrian, and bicycle conflicts?

Discussion
The city traffic engineer is responsible for the safety and operation of the community’s transportation system, and is in a key position to ensure the safety, health, and welfare of residents of the community from a transportation perspective. Based on her education, training, experience, and professional activities in the community, she has the knowledge and qualifications to make the engineering investigations and recommendations on these issues. She has both an ethical responsibility to raise concerns about proposed solutions that she believes will not be effective, as well as a responsibility to devise, document, and recommend alternative solutions.

Conclusions
The city traffic engineer has demonstrated due regard to the public for safety, health, and welfare and has performed her responsibilities in an ethical manner. With her report, Ms. Dudley advised the city of her concerns regarding their recommendation, backed up her concerns and recommendations with appropriate data, and included reasonable alternative solutions to address the city’s constituent concerns. Ms. Dudley recognizes that the need to address the safety concerns through geometric revisions and other design changes to reduce speed, versus only signing and enforcement. The proposed improvements are permanent, providing a potential long-term reduction in conflicts and crashes. She not only raised her concerns about the solution proposed by the elected leadership, but proposed appropriate alternative solutions. It is noted that the above discussion and opinions are based on the data submitted by Past ITE President Richard Beaubien and do not necessarily represent all of the pertinent facts when applied to a specific case. The opinions are for educational purposes only and should not be construed as expressing ethical opinions of individuals. The discussion and opinions do not represent the opinion of the Institute of Transportation Engineers nor do they represent decisions of the ITE International Board of Direction.

This information is not intended or offered as legal advice. The advice and/or situations presented in this column are for illustrative purposes only. Always consult your legal counsel before taking any actions or making any decisions that would require legal input. No person should act or fail to act on any legal matter based on the contents of this column.
Building a Safety Legacy

Brian Chandler, P.E., PTOE, RSP2IB, PMP
National Director for Transportation Safety, DKS Associates, Seattle, WA, USA

ITEJ: It’s clear from your experience you are passionate about safety. Why is this issue so important to you both personally and professionally?

CHANDLER: My career has been safety-focused because saving lives continues to motivate me. I believe our industry has the ability and responsibility to make transportation safer for all users, and we have the tools to approach zero fatalities. I’ve had the good fortune of working with hundreds of incredible professionals over the years, at Missouri DOT, the Federal Highway Administration, Leidos, and now at DKS. One of those people was Tempe Humphrey, Missouri DOT’s Younger Driver Safety program manager. Tempe was killed in a roadway crash—a tragedy for her family, friends, and coworkers—and a stark reminder that this work is personal. It matters to the lives of real people and their loved ones. It matters to me.

ITEJ: You have been involved in various projects that focus on safety. What are some of the basic ingredients that help make these projects successful?

CHANDLER: Three main ingredients are required for successful safety efforts: understanding the problem, focusing on implementation, and building a safety legacy through policy. Impactful safety projects and programs begin with understanding the problem. Evidence-based problem ID often starts with crash reports, but it should not end there. Safety risk goes well beyond reported crashes, to roadway conditions and unreported incidents. We now have exciting new data sets to support preventive risk ID, including video analytics and connected vehicle outputs.

To encourage implementation of a particular safety project or program, I spend less time these days trying to change hearts and minds. Instead, I try to talk less, listen more, and find allies in the room. They may care most about traffic flow, aesthetics, or environmental benefits, so I will align with the strongest arguments to move the project forward, if I know one outcome will be improved safety. I know one outcome will be a safer intersection.

For long-term safety impact, no single project or program is as valuable or long lasting as established policies. This is how I see safety culture: we must embed safety into everything we do—transportation planning and analysis, design, construction, operations, and maintenance—to build a safer system.

ITEJ: Why did you pursue the Road Safety Professional (RSP) certification? Any words of advice for others wishing to pursue this professional milestone?

CHANDLER: Like any registration or certification, the RSP certification provides an indication of interest and competency in transportation safety. While I have “safety” in my job title, most people working as safety professionals do not. The RSP Level 1 provides a chance to show safety interest to others in the industry. Given my daily work in this area, the RSP Level 2 allows me to quickly communicate that focus—in my resume, email signature, and online profiles. My background includes work in both Infrastructure and Behavioral areas, so pursuing both certifications was valuable for my career. I am proud to have participated in the first cohort for both levels, and to have earned my RSP2IB. I highly encourage anyone interested in the RSP certification to pursue it. The RSP can be a professional’s first certification, and it could start them on a path to making their community safer.
Upcoming Live Webinars

Using Real-Time Transit Applications as a Tool to Improving the Transit System
Thursday, June 3, 3:00 – 4:30 p.m. EDT
Developed by the ITE Transit Standing Committee

Current Efforts Addressing Equity in Transportation
Tuesday, June 15, 2:00 – 3:30 p.m. EDT
Developed by the ITE Smart Communities Standing Committee and TSMO Council

Exploring Certification as Part of Your Career Development
Wednesday, June 16, 2:00 – 3:00 p.m. EDT

Roundabouts Down Under
Thursday, June 17, 2021
Developed by the ITE Traffic Engineering Council
Members from Australia/New Zealand

Smart Columbus Program: What Smart Columbus Ohio Learned from the USDOT Smart City Challenge
Tuesday, June 22, 1:30 – 3:00 p.m. EDT

The Impact of Vision Zero on Land Use Decisions
Tuesday, June 29, 2021
Developed by the ITE Transportation Planning Council

Courses

Dates Announced for next TIA Training Program!

Transportation Impact Analysis (TIA) Training Program
September 27 – November 22
The Transportation Impact Analysis (TIA) Training Program is a new certificate-based, blended learning program that provides students with comprehensive coverage of the technical elements of the TIA preparation and review. Topics include conditions that require a TIA, recommended qualifications for both the preparer and reviewer, definition of the site development characteristics, designation of the study area and description of its characteristics, description of TIA-specific analysis tools, assessment of current conditions and forecast methods for evaluating future conditions, estimation of modal trips generated by site, distribution and assignment of site-generated modal trips, multimodal analysis, safety analysis, evaluation of site access needs, identification of on-site and off-site mitigation alternatives that support TIA recommendations, and preparation and presentation of a complete final report.

New Course Launching Fall 2021!

Designing Signalized Intersections
Dates and Information Coming Soon. Check the ITE website!
The Illinois Section of ITE (ILITE) takes pride in incorporating new initiatives and its willingness to incorporate positive changes to encourage member activity. A look at its activities and accomplishments over the past several years, as well as how it has adapted to the pandemic, demonstrates the Section’s dedication to its members, the transportation industry, and the continued success of ITE.

To promote public agency participation at the Section’s events and provide more streamlined access to ILITE member benefits, the Illinois Section ITE created the Public Agency Partnership (PAP) program in May 2019. The Section recognizes that public agencies have a different budgetary process that can make it more difficult to register for individual events. Under the program, public agencies make a one-time annual financial commitment, and in turn may register for events such as luncheons, in-person webinars, and the Annual Banquet at no additional cost, alleviating any financial hurdles public agency employees often face.

In addition to supporting public agency members, the Section actively encourages younger members to pursue leadership positions. Nearly two-thirds of leadership positions on the ILITE board and committees are held by members under 35 years-old. ILITE is also a major supporter of the LeadershipITE (LITE) program. The Section provides partial financial support for all LITE participants, setting aside $2,000 USD last year to support LITE candidates. It also looks for monthly updates from its LITE participants at each of the monthly board meetings. The Section currently has two committee leads, Justin Effinger, P.E. (M) and Karyn Robles, AICP (M), enrolled in LeadershipITE 2021. When they share their experiences at monthly board meetings, it not only encourages others to consider applying for an upcoming LITE class, but also provides quick lessons-learned and helps others improve their careers.

The Illinois Section holds an Annual Awards Banquet in January as a commemorative event to present student awards, Section awards, and to install the new Section board. The banquet also provides an opportunity to raise funds for student scholarships. ILITE is honored to have notable keynote speakers every year, including industry leaders representing Illinois transportation agencies like the Illinois Department of Transportation (IDOT), Chicago Department of Transportation (CDOT), local county DOTs, and other influential member organizations within the state of Illinois.

The Section continues its longstanding tradition of hosting luncheons with guest speakers discussing current projects and transportation initiatives. Attendees have the opportunity to network, enjoy a good meal, stay abreast of current industry news and projects, and earn Professional Development Hours (PDHs). Events in recent years include the Midwest High Speed Rail Association March Luncheon, the ITE/WTS/ITS Midwest Autonomous Vehicle Luncheon, the Chicago Regional Automated Traffic Signal Performance Measures (ATSPM) Workshop, and tours of the Illinois Tollway’s Traffic Management Center (TMC) and the recently constructed I-90 Jane Adams Smart Road project, in addition to several other presentations. The Section also organizes numerous technical webinars throughout the year to provide ongoing professional development opportunities for its members.

ILITE held a Traffic Engineering Workshop presented by Northwestern University Transportation Center.
the year, providing a shared venue for attendees to view webinars presented by ITE, the Transportation Research Board, the Federal Highway Administration, the National Association of City Transportation Officials, and other national organizations, all while receiving PDHs.

The Section also organizes quarterly after-hours social events to provide members with an opportunity to network and blow off steam. Members meet at local social establishments to enjoy drinks, appetizers, and just hang out with colleagues. One of the Section’s hallmark events is the annual Golf Outing where members and non-members can share a fun-filled day of 18 holes of golf in scramble format. The day concludes with a lunch and awards presentation. Sponsorships and proceeds go to fund the Section’s scholarship program for the year.

The Illinois ITE Section played a significant role in planning the 2020 Virtual Midwestern and Great Lakes Districts Annual Meeting, in addition to the cancelled in-person meeting planned for Chicago, IL, USA. Significant effort was put forth to convert the in-person event to a fully digital experience, and the 2020 Virtual Illinois ITE Section of ITE (ILITE)

Great Lakes District

Membership
347 members

Leadership
President – Jenna Brose, P.E., PTOE (M)
Vice President – Tom Szabo, RSP1, TOPS, TSOS (M)
Secretary – Monica Shei, P.E., PTOE (M)
Treasurer – Katelyn Bleach, P.E. (M)
Past President and Section Representative – Josh Harris, P.E., PTOE (M)

Committee Members
Activities Group – Justin Effinger, P.E. (M), Karyn Robles, AICP (M)
Technical Group – Andrew Freeman, P.E., PTOE (M)
Student Affairs Group – Patrick Jordan (M)
Public Affairs Group – Ashley Hochstatter, P.E., PTOE (M)
Operations Group – Curtis Cornwell, P.E., PTOE (M)

Communications/Social Media Efforts
Illinois ITE prides itself on remaining connected to its local membership through a variety of methods: the ITE Illinois Section website, email, social media, and Items, its quarterly electronic newsletter. In the past few years, ILITE has boosted its LinkedIn group members and engagement, and increased activity on the Job Postings portion of the ILITE website. For three consecutive years from 2017-2019, the Illinois Section was the recipient of the District/Section Communication Award from the Midwestern District. The purpose of the award was to “recognize the District or Section that during a calendar year most effectively communicates with its membership through innovative approaches and the effective use of media.”

ILITE has used this momentum to continue its member communications throughout COVID-19, and all meetings transitioned to a virtual setting. The Section continues to use Constant Contact for membership announcements and is now well versed in hosting Zoom webinars. As a result, webinar attendance has significantly increased in the past year. Recently, ILITE released a membership survey to gather feedback. The Section typically releases a membership survey every few years to keep an accurate pulse on its membership’s opinions, and takes their feedback into account to improve member retention.

Special Awards
ILITE awards two student scholarships, one student paper award, and three Section awards annually during the Section’s Annual Awards Banquet in January. These awards include:

Undergraduate Scholarship
Graduate Scholarship
Student Paper Award
Outgoing Past President Award
Outstanding Member Award
John LaPlante Past President’s Award: This award was recently named in memory of John LaPlante who passed away in early 2020 from COVID-19. John was a tireless advocate for the transportation industry and promoted Complete Streets and safety for bicyclists and pedestrians. By challenging the status quo, he had a deep impact on our community in Illinois and the transportation industry while working well into his 70s. His knowledge and mentorship will be missed.
Midwestern and Great Lakes District Annual Meeting hosted more than 300 attendees, 20-plus presentations, and more than 30 presenters. Virtual attendance rivaled what would have been expected of the in-person event. Each presentation was prerecorded and hosted online, along with an agenda with timestamps for the presentations, allowing attendees to revisit any of the presentations from the meeting. PDHs were distributed to all attendees using attendee lists from Zoom. The Planning Committee, with limited experience, was able to convert the cancelled in-person event to a virtual experience in a tight timeframe. The Districts received positive feedback from the meeting, and both Districts continue to look for opportunities to use this experience to continue to serve their membership.

The Illinois Section is actively involved with K-12 STEM activities. For the past six years, ILITE has participated in the Future Cities Regional Competition that takes place annually in Chicago. The competition is the culmination of months spent by junior high school teams and their engineering mentors to create a city of the future based on a yearly theme. ILITE participates as a Special Award judge for the competition and chooses the winner of the Excellence in Transportation Safety and Operations Award.

Illinois ITE also initiated participation at the Girl Scouts of Great Chicago and Northwest Indiana's STEMapalooza Expo in 2017. The goal of STEMapalooza is to inspire girls to explore the fields of STEM by providing hands-on activities for the 400 girls who attend. ILITE has collaborated with Girl Scouts for the past few years and hopes to continue inspiring young girls to pursue STEM subjects. In 2019, ILITE members provided guidance to the Girl Scouts on how to create each student’s “ideal roadway” and answered questions regarding traffic operations and standard road design. While ILITE was unable to attend the 2020 event, it is hoping to reignite involvement with the local Girl Scouts chapter as things return to “normal” after the pandemic is over.

Students from the St. Athanasius School (Evanston, IL, USA) pose with their project, named the ILITE Special Award Winner for Excellence in Transportation Safety and Operations at the 2021 Future Cities Regional Competition.
The Center for Injury Research and Policy at Johns Hopkins University (JHCIRP), known for its leadership in the public health arena, in collaboration with the Institute of Transportation Engineers (ITE), recognized for its leadership in the practice of transportation planning and transportation engineering, recently convened the Safe System Consortium, with support from the FIA Foundation. This Consortium included a diverse group of experts including transportation planners and engineers, public health professionals, safety advocates, academics, researchers, and international road safety experts.
The purpose of this effort was to develop recommendations directed primarily at Congress and the Biden administration that can move the United States toward Vision Zero using the Safe System Approach while supporting a more equitable transportation system. Through a series of meetings, the Consortium members identified three essential areas for change: Safety across the System, Equity by Investment, and Progress by Design. This article outlines the rationale behind this effort and presents the recommendations. More details can be found in the full Consortium Report (see page 31 for more information).

**The Safe System Approach**

The Safe System Approach offers the potential for major reductions in traffic deaths and injuries in the United States, where more than 42,000 roadway fatalities are estimated to have occurred in 2020 alone, according to the National Safety Council, and crashes persist as a leading cause of death among teens and young adults.\(^1\)\(^2\)

However, widespread adoption of this approach will require major policy shifts at all levels of government, starting with the federal level. During the past 20 years, a number of nations and cities around the world have adopted the Safe System Approach. The approach begins with a commitment to eliminate fatalities and serious injuries among all road users and uses thoughtful road and vehicle design to minimize crashes that occur when people make mistakes, and to reduce crash forces so that people are less likely to be injured when crashes occur. By designing safety into the road system, deaths and serious injuries are engineered out. While the United States differs in cultural and historical context from nations with the longest experience with the Safe System Approach, their experience bodes well for similar benefits in this country, if we implement the approach in ways that prioritize safety upgrades in areas most in need.

The concept of the Safe System is built around the idea of shared responsibility, and as shown in Figure 1, includes safe roads, safe speeds, safe vehicles, safe users, and effective post-crash care. From an infrastructure owner and operator perspective, embracing the Safe System Approach starts with a commitment to planning, designing, and operating a roadway system design that prioritizes safety and engineers deaths and serious injuries out of the process to the greatest degree possible. Countries with the longest experience with this approach, including Sweden, The Netherlands, Australia, and New Zealand, have seen fatalities drop by nearly 50 percent, or even more.\(^3\)

**Working Toward Equity Using the Safe System Approach**

Compounding our safety problem is the fact that the burden of death, injury, and social costs from crashes is unequally distributed. Our current roadway system reflects a history of flawed decisions about land use, opportunity, investment, and racial and ethnic equity. A Safe System can be implemented in ways that help address structural and institutional racism by correcting for prior underinvestment in historically marginalized communities and closing gaps in safety between areas that have been well served and those that have been underserved. Improvements to road safety can contribute to equity by reducing the burden of unsafe roads on historically underserved communities.

Equity differs from equality. A system can achieve equality if each individual or group are given the same resources or opportunities. But a system that is equitable goes further. Equity requires recognizing that communities have been differentially impacted by a variety of circumstances, structures, and historical contexts that have unjustly advantaged some, while unjustly disadvantaging others. Hence, communities that have been disadvantaged require a differential allocation of resources and opportunities to eventually reach an equal outcome. In the United States, the recognition that certain groups—for example because of their race, ethnicity, or ability—have not enjoyed the same access to resources and opportunities must be accounted for through equitable decision-making.

Getting to zero requires a focus on equity. That is, the goal is to eliminate death and serious injury for everyone using the roads, which includes people of all ages, abilities, races, ethnicities, and income levels. This demands investment according to need. In a Safe System, we do what it takes to achieve the same outcome for all: zero road deaths and serious injuries.
ITE Leadership
As a community of transportation professionals, ITE International has been a leader in the Safe System Approach over the past several years, providing national leadership in advancing understanding and adoption of the practice in the United States. ITE has partnered with organizations such as the Federal Highway Administration (FHWA), the National Highway Traffic Safety Administration (NHTSA), the Road to Zero Coalition under the National Safety Council (NSC), and many other organizations to further the Safe System Approach by developing resources, engaging with subject matter experts, and educating government leaders and industry practitioners on the subject. Additionally, ITE has developed and compiled a wealth of resources on the Safe System Approach—such as webinars, podcasts, reports, case studies, and ITE Journal articles—many of which are available on ITE’s website at www.ite.org/technical-resources/topics/safe-systems. Through these partnerships, resources, and initiatives, ITE has been proactive in moving the topic forward and being a champion for the Safe System Approach in the United States.

A Time for Action
Currently there is a clear opportunity to embrace the Safe System Approach through funding, policy, and program incentives and guidance. A strong push by the Biden Administration for a major infrastructure investment through focused, equitable investments, combined with the need for the U.S. Congress to reauthorize the federal surface transportation bill and the influence that the hundreds of billions of dollars authorized by this legislation can have—directly and indirectly—on road owners across the nation. The Consortium also recognizes the influence that transportation has on other social needs such as housing, employment, education, health, and the environment, and urges a broader consideration of sources for funding, collaborations, and other resources that could facilitate realization of a holistic vision for a Safe System.

Recommendations
The three areas for change each include a related set of recommendations, and each recommendation is accompanied by a more specific set of actions to achieve them.

Change Area 1: Safety across the System
The Consortium recognizes the need to leverage the federal surface transportation bill and the influence that the hundreds of billions of dollars authorized by this legislation can have—directly and indirectly—on road owners across the nation. The Consortium also recognizes the influence that transportation has on other social needs such as housing, employment, education, health, and the environment, and urges a broader consideration of sources for funding, collaborations, and other resources that could facilitate realization of a holistic vision for a Safe System.

Leadership is needed to address a significant barrier to Safe System implementation, the entrenched assumption that crash injuries are exclusively the fault of the victim or other road user, and that road or vehicle designers can do little to compensate. While road users should be expected to take reasonable care, blaming the victim for crash injuries lessens the motivation for improvements to the system—both to roadway and vehicle design—and only prolongs the safety problem.

Change Area 2: Equity though Investment
When applied equitably, Safe System investments are made proactively and systemically to prevent serious crashes and reduce crash forces where crashes persist, saving lives, improving mobility, and enhancing access to health determinants across the community. However, achieving equity in Safe System investment will require overcoming structural racism in long-standing processes that have been barriers to improving roads in historically underserved communities and communities of color. Other barriers include a lack of engagement of marginalized communities in investment-related decision-making by local authorities and lack of measurement methods that are sensitive to the range of health-related consequences of transportation infrastructure conditions.4, 5

The Consortium recommendations in this area are intended to reduce the risks faced by road users in underserved communities and optimize the potential for a Safe System to contribute to transportation equity and health equity. These actions will bolster leadership for equitable investment of resources for Safe System implementation and upgrade decision-making criteria that overlook the needs of road users in underserved communities.

Read the Report
some communities and fail to recognize the range of health-related implications of under-investment in road infrastructure in historically-underserved communities. The Consortium recognizes that while Safe System implementation can lead to substantial improvements in transportation equity, sustainable solutions will require the involvement of other sectors and partners and a commitment to long-term policy and system changes that address the root causes that limit racial, ethnic, economic, and social equity.

Change Area 3: Progress by Design

The Safe System concept is new to most authorities that are responsible for road systems in the United States, and detailed guidance will be needed to stimulate and steer progress in implementation. The Consortium recommends that federal transportation officials develop training and implementation tools and educate state and tribal departments of transportation to assist them in becoming proficient in Safe System principles and practice. State and tribal departments should then prioritize training for local road owners to enable them to analyze their problems and effectively implement Safe System solutions.

Safe System principles need to be incorporated in foundational policy and guidance documents that steer the design and operation of roads, such as the American Association of State Highway and Transportation Officials (AASHTO) Policy on Geometric Design, the Highway Safety Manual, and the Manual on Uniform Traffic Control Devices. Of particular importance is guidance on setting safe speed limits based on evidence of human injury tolerance.

Adoption of Safe System principles will change the practices of most professionals who work with the road infrastructure, and in the longer term will significantly change roles of some stakeholders such as law enforcement officers. The Consortium recognizes that guidance will be needed to make smooth professional transitions. For example, with more intuitive, self-enforcing roads, law enforcement officers will have more time to participate in problem identification, using their familiarity with traffic behaviors to diagnose problems and suggest Safe System solutions.

Outlook

The current atmosphere in both U.S. politics and the transportation industry present a unique opportunity to call on Congress to adopt the Safe System Approach as a national practice to achieve Vision Zero and a more equitable transportation system. Now is the time to act and to embrace these principles within the United States more broadly. Building a Safe System can transform our communities, reducing loss of life and serious injury, reducing parents’ fear for the lives of their small children and teens, and improving equitable mobility and access for everyone. With more options to walk and bike safely, these benefits can extend to climate change.

Achieving all this will require thoughtful analysis, persistence and concomitant decisions, and policy action at many levels. The three essential areas for change that will set a course for achieving a Safe System identified by the Consortium—Safety Across the System, Equity by Investment and Progress by Design—urge unanimous dedication to reaching this goal.
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References
What Type of Crash Can We Expect?

Designing for Safety at Common Traffic Control Devices

By Alyssa Ryan (S) and Michael Knodler, Ph.D. (M)
Lowering crash severity is a critical priority for transportation professionals and all those in the transportation community who are actively adopting Vision Zero. With the goal of reaching zero fatality and serious injury crashes, the need to better understand the factors related to severe cases becomes essential. Crash severity is highly shaped by the crash type, or manner of collision. For example, the odds of being fatally injured in a crash greatly increases for head-on and rollover crashes. Severity has been found to be highest for head-on collisions, followed by angle crashes, and lower for rear end and sideswipe crashes. Given this relationship between crash type and severity, it is critical that transportation professionals understand the likelihood of specific crash types to occur at various traffic control devices. A large-scale study in the United States revealing this relationship has yet to exist in literature. This information will guide future decision-making, guiding transportation practitioners to implement the most critical countermeasures to achieve the highest level of safety.

This paper aims to investigate the probability of various crash types at different traffic control devices. The results allow transportation professionals to create informed decisions in their crash countermeasure selection process at various traffic control devices.

Procedure and Data Analysis
Data used in this study were obtained from the Federal Highway Administration (FHWA) Highway Safety Information System (HSIS) database. HSIS is a multistate database that contains police-reported crash, roadway, and volume data. For this study, data from the states of North Carolina and Ohio from 2010 to 2015 were obtained.

These two states were chosen as they both had current data from the chosen study variables, unlike other states, who were missing key contributing variables. Ohio and North Carolina have similar percentages of rural versus urban roadway miles, rural vehicle-miles travelled, and deaths per vehicle-miles travelled compared to the greater United States area. Given this, North Carolina and Ohio were deemed as reasonable states to use in reference to the rest of the United States.

For this study, speed limit, traffic control device, crash type, and weather condition data were all obtained from HSIS for the two states. With this data, simplistic models could be created to determine the presence of relationships. These simpler models are not meant to detract from other variables, such as vehicle type, sex, and age. This study rather presents a larger-scale, particular perspective on crash types and traffic control with the recognition that on a smaller-scale, with complementing studies, and with analysis on a location-specific basis, these additional factors would be considered.

All data rows (or crash occurrences) with missing values and those with a speed limit of 0 miles per hour (mph) were omitted from the dataset. To establish consistency between Ohio and North Carolina coded data, each variable was recoded to match one another. In this process, some traffic control types or crash types were recoded into “Other” categories, as they were unmatchable to the other state’s data or not the focus of this study. After this recoding, more than 1.8 million crashes remained for model development. A graphical representation of this data is presented in Figure 1. Table 1 presents a summary of crash types. It is noted that Ohio law has a 20 mph [32.2 kilometers per hour (km/hr)] speed limit in school zones during certain hours. In North Carolina, speed limits in school zones are designated at the local level and cannot be lower than 20 mph. School zones in each state are defined differently, but are generally road sections that border school grounds or pass a school fronting.

Analysis was completed using multinomial logit regression (MLR) with relative risk ratios (RRRs). MLR with RRRs
demonstrate the probability of each crash type occurring at each traffic control device. This method has been proven effective at predicting crashes based on collision type. As crashes are assumed to be independent of one another, the necessary independence of irrelevant alternatives (IIA) assumption holds true.

When MLR is applied, a log-linear model is fitted with coefficients of zero for a specified response variable category. This category acts as the baseline outcome. In this study, a crash location designated with “no control” (or no traffic control device involved) was set as the baseline outcome for the response variable of traffic control. The crash type predictor variable baseline category was rear end crashes as they occurred at the highest frequency and tend to result in relatively low injury severity. All statistical analysis was implemented by the multinom() function in the “nnet” package of R version 3.4.3.

Results and Discussion
The results are presented as exponential values of the logit coefficients. The relative risk ratios of each traffic control device are presented in Table 2 based on crash type and Table 3 based on the speed limit and weather condition. These relative risk ratios are interpreted as odds. For example, the odds of an angle crash occurring at a traffic control signal as compared to a rear-end crash occurring at a location without a traffic control device would be 53.7 percent higher (1.537 minus 1). Due to its continuous nature, the speed variable unit is in relation to a 1-mph (1.61 km/hr) increase in the speed limit. Results of the “other” categories were not included in the results as they were a mixture of different outcomes, providing no useful insight. Table 4 presents crash types as probabilities at each traffic control device based on a separate MLR model including the same variables at a common U.S. speed limit of 45 mph (72.42 km/hr). The approximate p-values included in both tables refer to the statistical significance of the result. A p-value below 0.05 is commonly accepted as statistically significant, as this indicates there is less than a five percent probability that the results are random.

Traffic signal. Crash types of animal, sideswipe, meeting in the opposite direction, meeting in the same direction, backing, parked vehicle, pedestrian, and pedal cycle were each significantly less likely to occur at a traffic signal compared to angle crashes, which were significantly more likely to occur. A 1-mph speed limit increase resulted in a 5.8 percent less likely chance of a crash occurring at a traffic signal, as compared to no traffic control. These results present that angle crashes at traffic signals should be considered to a higher degree as they are more likely to occur and are often more severe than other crash types.

Stop sign. At stop sign controlled locations, all of the following crash types were significantly more likely to occur compared to rear end crashes at locations without a traffic control device: angle, backing, head-on, pedestrian, and pedal cycle. Given the high likelihood of head-on, pedestrian, and pedal cycle crashes, all high severity crash types, future crash countermeasure selection at these locations should be guided by these crash types.

School zone. Of the significant results of crash types in school zone locations, pedal cycle crashes were less likely to occur, while pedestrian, head-on, parked vehicle, and backing crashes were more likely. As school zone locations often have high parking lot movement at peak hours and high pedestrian movement, these results seem reasonable. However, given pedestrian crashes tend to be of higher severity simply due to the vulnerability that they face with no outward protection, this crash type should be considered to a higher degree in school zone locations. There is a high risk of pedestrian crashes in these areas, both in occurrence and in severity, than other crash types. Similarly, countermeasures for head-on crashes would be beneficial to consider in these locations.

Table 1. Summary of crash type variables in analysis.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Number of Crashes</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rear end</td>
<td>567,841</td>
<td>31.4%</td>
</tr>
<tr>
<td>Angle</td>
<td>225,386</td>
<td>12.4%</td>
</tr>
<tr>
<td>Animal</td>
<td>179,144</td>
<td>9.9%</td>
</tr>
<tr>
<td>Sideswipe (meeting same direction)</td>
<td>167,077</td>
<td>9.2%</td>
</tr>
<tr>
<td>Sideswipe (meeting opposite direction)</td>
<td>32,598</td>
<td>1.8%</td>
</tr>
<tr>
<td>Backing</td>
<td>27,148</td>
<td>1.5%</td>
</tr>
<tr>
<td>Parked vehicle</td>
<td>17,578</td>
<td>1.0%</td>
</tr>
<tr>
<td>Head-on</td>
<td>13,948</td>
<td>0.77%</td>
</tr>
<tr>
<td>Pedestrian</td>
<td>6464</td>
<td>0.36%</td>
</tr>
<tr>
<td>Pedal cycle</td>
<td>4584</td>
<td>0.25%</td>
</tr>
<tr>
<td>Other</td>
<td>569,130</td>
<td>31.4%</td>
</tr>
</tbody>
</table>
Table 2. Relative risk ratios of crash types (reference category: no traffic control).

<table>
<thead>
<tr>
<th>Variable</th>
<th>Traffic signal</th>
<th>Stop sign</th>
<th>School zone</th>
<th>Police officer/ Human control</th>
<th>Yield sign</th>
</tr>
</thead>
<tbody>
<tr>
<td>Angle</td>
<td>1.537**</td>
<td>11.024**</td>
<td>1.055</td>
<td>1.515**</td>
<td>1.105**</td>
</tr>
<tr>
<td>Animal</td>
<td>0.078**</td>
<td>0.180**</td>
<td>1.028</td>
<td>0.645**</td>
<td>0.182**</td>
</tr>
<tr>
<td>Sideswipe (meeting same direction)</td>
<td>0.418**</td>
<td>0.402**</td>
<td>0.884**</td>
<td>1.023</td>
<td>0.454**</td>
</tr>
<tr>
<td>Sideswipe (meeting opposite direction)</td>
<td>0.290**</td>
<td>1.476**</td>
<td>1.112</td>
<td>1.216**</td>
<td>0.069**</td>
</tr>
<tr>
<td>Backing</td>
<td>0.506**</td>
<td>3.252**</td>
<td>1.642**</td>
<td>3.373**</td>
<td>0.421**</td>
</tr>
<tr>
<td>Parked vehicle</td>
<td>0.315**</td>
<td>0.156**</td>
<td>6.244**</td>
<td>0.683**</td>
<td>0.202**</td>
</tr>
<tr>
<td>Head-on</td>
<td>1.026</td>
<td>4.166**</td>
<td>8.453**</td>
<td>0.477**</td>
<td>2.022**</td>
</tr>
<tr>
<td>Pedestrian</td>
<td>0.391**</td>
<td>2.715**</td>
<td>25.221**</td>
<td>1.341*</td>
<td>4.867**</td>
</tr>
<tr>
<td>Pedal cycle</td>
<td>0.482**</td>
<td>3.094**</td>
<td>0.427**</td>
<td>0.040**</td>
<td>0.071**</td>
</tr>
</tbody>
</table>

*p-value < 0.05; **p-value < 0.01

Table 3. Relative risk ratios of speed limit and weather (reference category: no traffic control).

<table>
<thead>
<tr>
<th>Variable</th>
<th>Traffic signal</th>
<th>Stop sign</th>
<th>School zone</th>
<th>Police officer/ Human control</th>
<th>Yield sign</th>
</tr>
</thead>
<tbody>
<tr>
<td>Speed limit (mph) (1mph = 1.61kph)</td>
<td>0.942**</td>
<td>0.993**</td>
<td>0.994**</td>
<td>1.019**</td>
<td>1.001</td>
</tr>
<tr>
<td>Rain</td>
<td>0.859**</td>
<td>0.565**</td>
<td>0.417**</td>
<td>0.634**</td>
<td>0.885**</td>
</tr>
<tr>
<td>Snow</td>
<td>0.542**</td>
<td>0.362**</td>
<td>0.119**</td>
<td>0.606**</td>
<td>0.283**</td>
</tr>
<tr>
<td>Fog, smoke, smog</td>
<td>0.476**</td>
<td>1.253**</td>
<td>0.667**</td>
<td>8.874**</td>
<td>1.080</td>
</tr>
<tr>
<td>Severe/heavy winds</td>
<td>0.920</td>
<td>0.222**</td>
<td>0.345**</td>
<td>0.001**</td>
<td>13.317**</td>
</tr>
</tbody>
</table>

*p-value < 0.05; **p-value < 0.01

Table 4. Crash type probability at each traffic control device at a 45 miles per hour (72.4 kilometers per hour) speed limit.

<table>
<thead>
<tr>
<th>Crash Type</th>
<th>No control</th>
<th>Traffic signal</th>
<th>Stop sign</th>
<th>School zone</th>
<th>Police officer/ Human control</th>
<th>Yield sign</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rear end</td>
<td>0.266</td>
<td>0.405</td>
<td>0.126</td>
<td>0.390</td>
<td>0.412</td>
<td>0.565</td>
<td>0.214</td>
</tr>
<tr>
<td>Angle</td>
<td>0.094</td>
<td>0.193</td>
<td>0.387</td>
<td>0.110</td>
<td>0.079</td>
<td>0.130</td>
<td>0.089</td>
</tr>
<tr>
<td>Animal</td>
<td>0.152</td>
<td>0.005</td>
<td>0.006</td>
<td>0.055</td>
<td>0.093</td>
<td>0.008</td>
<td>0.183</td>
</tr>
<tr>
<td>Sideswipe (meeting same direction)</td>
<td>0.095</td>
<td>0.072</td>
<td>0.014</td>
<td>0.052</td>
<td>0.058</td>
<td>0.084</td>
<td>0.082</td>
</tr>
<tr>
<td>Sideswipe (meeting opposite direction)</td>
<td>0.013</td>
<td>0.008</td>
<td>0.008</td>
<td>0.036</td>
<td>0.017</td>
<td>0.005</td>
<td>0.027</td>
</tr>
<tr>
<td>Backing</td>
<td>0.044</td>
<td>0.020</td>
<td>0.027</td>
<td>0.016</td>
<td>0.070</td>
<td>0.007</td>
<td>0.031</td>
</tr>
<tr>
<td>Parked vehicle</td>
<td>0.019</td>
<td>0.007</td>
<td>0.004</td>
<td>0.000</td>
<td>0.038</td>
<td>0.013</td>
<td>0.019</td>
</tr>
<tr>
<td>Head-on</td>
<td>0.006</td>
<td>0.007</td>
<td>0.005</td>
<td>0.000</td>
<td>0.000</td>
<td>0.001</td>
<td>0.009</td>
</tr>
<tr>
<td>Pedestrian</td>
<td>0.007</td>
<td>0.005</td>
<td>0.003</td>
<td>0.0008</td>
<td>0.051</td>
<td>0.003</td>
<td>0.006</td>
</tr>
<tr>
<td>Pedal cycle</td>
<td>0.006</td>
<td>0.005</td>
<td>0.006</td>
<td>0.000</td>
<td>0.000</td>
<td>0.001</td>
<td>0.006</td>
</tr>
<tr>
<td>Other</td>
<td>0.297</td>
<td>0.273</td>
<td>0.414</td>
<td>0.340</td>
<td>0.180</td>
<td>0.183</td>
<td>0.333</td>
</tr>
<tr>
<td>Total</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
</tr>
</tbody>
</table>
Police officer or human control. Police officer/human control are a unique traffic control type that are often associated with specific conditions, such as abnormally high, unbalanced, or widely varying directional and intersecting traffic due to emergencies or planned special events.\textsuperscript{33} Police officer/human control often replace traffic signal controls. Thus, comparing the results presented in Table 2 to those crash types that occur at a traffic signal, angle crashes were approximately just as likely to occur at a traffic signal as at a location with a police officer/human control. Conversely, pedestrian and sideswipe (meeting in the opposite direction) crash types were more likely to occur at police officer/human controlled locations. As police officer/human control are often used to increase safety and traffic flow, these relationships illustrate the use that police officer/human control may have the ability to increase safety by reducing some crash types that are often associated with higher severity; however, at the same time, others may be increased.

Yield sign. Yield sign controlled locations exhibited more angle, head-on, and pedestrian collisions, all often high-severity crash types. Crash types of backing, parked vehicle, sideswipe (any type), and animal were less likely to occur to a significant degree and are also often less severe crash types. Pedal cycle crashes were less likely occur at yield signs; however, it is noted that this form of transportation may be less common at yield sign locations.

Conclusions
This study presented the relationship between crash types and various traffic control devices on a large scale from North Carolina and Ohio crash data obtained from the HSIS database. The results revealed were found to be acceptable and intuitively reasonable.

Further research is needed to consider all locations where crashes could have occurred; all locations where crashes did not occur were not taken into consideration for this study. Additionally, crashes were not normalized for exposure. An improved model would account for the true speeds on a given roadway segment, traffic volumes, number of lanes, and number of locations with each traffic control device, and roadway environment, among other variables.

Overall, the results of this study can guide transportation professionals to create more informed safety decisions, complementing current safety processes and practices. The countermeasure selection process can be a more informed process with the results presenting the critical crash types at common traffic control devices, especially at locations with little crash history or data available.

Acknowledgements
The authors would like to thank the Highway Safety Information System for their assistance in providing the data used in this study.

References

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The transportation engineering profession is devoted to providing a transportation system that is safe and secure for all users. The system, however, is often abused by those seeking to maximize their own gain—whether through operating grossly overweight trucks to increase shipping profits or to engage in illicit activities such as human trafficking. The Polaris Project, an international organization devoted to combatting human trafficking, identifies the transportation industry as one of the most important components of the human trafficking enterprise.¹ Data from the IBM Traffic Analysis Hub indicate that of the 3,019 trafficking events recorded in the United States from March 2020 to February 2021, almost 2,400 involved a form of surface transportation (i.e., car, truck, or bus), with the remaining involving air travel or seaports and waterways.²
This article defines human trafficking, highlights where human trafficking intersects with the transportation system, and describes how we as transportation professionals can play a role in disrupting this terrible crime.

**What is Human Trafficking?**

Human trafficking comprises the recruitment, harboring, transportation, provision, obtaining, patronizing, or soliciting of a person through force, fraud, or coercion for the purpose of financial gain through labor and/or sex, essentially as slaves. Indeed, the 2018 Global Survey Index reported that more than 400,000 people were living in conditions of modern slavery in the United States alone in 2016.

Traffickers prey upon individuals of all ages, races, nationalities, gender identities, and disabilities, irrespective of their socioeconomic status. While human trafficking is an international scourge, the U.S. federal government recognizes its impacts domestically and has set out its position with the Trafficking Victims Protection Act (2000), which serves as the national framework for the overall national response to this wide-ranging problem.

**How Does Human Trafficking Happen?**

The five primary stages of human trafficking are 1) recruitment, 2) movement, 3) exploitation, 4) escape, and 5) healing. Elements of the transportation system (roadways, terminals, stations, vehicles, etc.) are involved in all five stages, reinforcing the fact that the transportation system is one of the first touch points where victims of human trafficking can be recognized by owners, operators, managers, and users. As such, all sectors of the transportation industry—governments, private sector providers, and the traveling public—can play a proactive role in combatting human trafficking.

**Recruitment.** In some cases, victims know, or are even related to, their trafficker. In other situations, however, traffickers involve strangers through coercion, abduction, and even through gradually grooming victims (e.g., creating dependencies). Traffickers often make first physical contact at transit stations, ports of entry, and rest areas, even if they initially connected with the victim online. Common targets for trafficking are runaway youths and adults from impoverished areas of the U.S.

**Movement.** Movement is not necessary for a crime to be considered human trafficking. However, traffickers often see value in moving their victims. They transport and relocate victims to maintain revenue streams (i.e., introduce them to new markets), prevent them from establishing local connections, and avoid detection by law enforcement. A trafficker may also move victims to take advantage of special circumstances, including sporting events and natural disasters. Labor trafficking victims are relocated to and from work sites. Modes of transportation during the recruitment, exploitation, and escape will vary greatly depending upon factors such as immigration status, age, etc., of those being trafficked.

**Exploitation.** Sex trafficking victims are often forced to work at truck stops and rest areas, in part due to their relative geographic isolation in often rural areas and, unfortunately, concentration of potential clientele. The isolation not only helps traffickers evade detection, but also makes it more difficult for victims to escape. Labor trafficking victims are often forced to work in agriculture, domestic service, and even on construction sites, which sometimes even includes transportation-related work zones. Indeed, labor trafficking is difficult to detect because victims so often appear to be integrated into the normal workforce of society.

**Escape.** Access to transportation can play a major role in helping victims escape. Conversely, a lack of transportation access can present a significant barrier to potential freedom. Trafficking victims often do not have access to private vehicles, making transit the most accessible option. The Polaris Project reported that 26 percent of surveyed survivors used public transportation to escape. Many victims, however, cannot afford even a nominal bus fare. Transportation options that require IDs are also prohibitive, as traffickers often confiscate victims’ identification.

**Healing.** Victims and survivors of human trafficking may experience mental or physical traumas that last for years. Trauma can affect how the brain processes information, and forming the routines of a new life is difficult, especially with limited resources. Some transportation agencies issue free or discounted transit passes to victim service providers who in turn provide them to human trafficking victims and survivors. Such resources can facilitate the transition to a new job or housing.

**What Role Can Transportation Play in Disruption?**

Safety and security are fundamental goals in the transportation profession. There are four primary roles a state or local department of transportation (DOT) can play in the disruption of human trafficking:

1. **Identify potential indicators.** Transportation professionals are in a unique position to identify potential indicators of human trafficking. These indicators can include unusual behavior, unusual attire, or a reluctance to make eye contact. Transportation professionals can be trained to recognize these indicators and report them to appropriate authorities.

2. **Establish partnerships.** Transportation professionals can establish partnerships with victim service providers, law enforcement, and other stakeholders to better coordinate efforts to disrupt human trafficking.

3. **Provide education and training.** Transportation professionals can provide education and training to their colleagues about the signs of human trafficking and how to respond to it. This can help to increase awareness and improve the effectiveness of transportation professionals in identifying and responding to human trafficking.

4. **Provide resources.** Transportation professionals can provide resources to victims of human trafficking, such as transportation to job interviews or medical appointments.

**Figure 1. Example from Texas DOT**

**Figure 2. Example from the U.S. Department of Transportation**
trafficking: 1) provide awareness, 2) conduct training, 3) partner/assist regionally, and 4) collect frontline empirical data.

**Provide Awareness.** A state or local DOT can display human trafficking awareness posters (see Figures 1-3) that include contact details for resources such as the Human Trafficking Hotline: +1-888-373-8888.

There are minimal costs associated with displaying awareness materials within state and locally owned facilities. To save on printing costs, DOTs can request anti-trafficking materials from the U.S. Department of Homeland Security (DHS) Blue Campaign, a federal human trafficking awareness campaign. Poster, pamphlets, and wallet-sized cards can be requested at no cost. Other resources are available on the Blue Campaign website and can be downloaded and duplicated. Every January is National Slavery and Human Trafficking Awareness and Prevention Month, and organizations often choose that time to hold awareness events. Posters should be printed in the language(s) most appropriate for the community in which they are displayed. Handout materials are useful for public meetings and hearings on local projects. Employees can also carry small resource cards or place them inside agency vehicles.

It is important that anti-trafficking materials do not include sensationalized imagery, possibly detracting the community from recognizing realistic situations of human trafficking. The posters and handout materials should have contact information for those needing help and those reporting suspected behaviors. U.S. states like Alabama and Florida have passed laws requiring the display of materials at many transportation facilities.

**Conduct Routine Training.** The United States Department of Transportation (USDOT) is committed to advancing counter-trafficking efforts. In 2012, a new directive required all 55,000 employees to receive human trafficking training every three years. State transportation departments can require human trafficking education through CDL licensing/renewal and can develop internal training that outlines the signs of sex and labor trafficking. Training sessions can also be incorporated into routine safety compliance meetings. DHS enforces laws relating to the movement of trafficked goods and people, and has jurisdiction over airport security, some surface transportation security, and other areas. Continuing with its commitment to end trafficking, the DHS Blue Campaign released the Transportation Toolkit in 2016; it offers resources for training employees in the trucking, aviation, rail, and maritime industries.

To disrupt the intersection of trafficking and transportation, teaching customer-facing employees to recognize signs of human trafficking is vital. Human trafficking looks different in various work environments. State, local, and tribal DOT personnel must be familiar with potential situations of sex trafficking and forced labor. For example, crews working in an urban environment may notice suspicious activities around a lodging establishment, and a crew on a rural road may recognize different red flags on a farm field. The questionable activity will vary depending upon the location of the trafficking activity. DOT employees need clear protocols for reporting suspicious activity and to know that they are protected in case they misidentify signs of human trafficking. A 2020 study, conducted by United Against Slavery, surveyed flight attendants in the United States. Of those participating, 68 percent indicated that they had concerns about misidentifying signs of human trafficking and 11 percent of those indicated that they would not report signs of trafficking because of such concerns. It is important that all frontline transportation workers have the confidence that they can learn more.

The Michigan State Police developed a compelling training video that shows how easy it can be to miss the signs of human trafficking. [https://www.youtube.com/watch?v=44EvOqCMtIE](https://www.youtube.com/watch?v=44EvOqCMtIE). Even though this video is designed to train service industry employees, similar videos can be developed that have specific information for DOT employees, like this one produced by the Missouri DOT: [www.modot.org/fighthumantrafficking](http://www.modot.org/fighthumantrafficking).
Combating Human Trafficking in Transportation Impact Award

The staggering number of movements across the globe, whether within a country, across borders, or online, make interdiction of trafficking nearly impossible without a data-driven predictive analysis to guide how governments allocate resources and energy in the space. That analysis requires comprehensive frontline data collected from across the transportation industry, as well as from sex and labor trafficking survivors and direct victim service providers; data that until now, have not been available to the counter-trafficking community.

United Against Slavery (UAS) became the first-ever recipient of the U.S. Department of Transportation Combating Human Trafficking in Transportation Impact Award. Under that award, UAS will launch the 2021 National Outreach Survey for Transportation (NOST) that comprises more than 70 contributors working diligently to ensure measurable outcomes from the study. Every mode of transportation can leverage data collection and predictive analysis to inform awareness and training programs, focus legislation, improve enforcement and preventative actions, and improve survivor resource allocation to drive more effective progress over the next decade.

The survey will launch on July 5, 2021, concluding on September 3. Following data analysis and peer review, we will publish the final reports the week of April 18, 2022 to coincide with National Victim’s Crime Week in the United States. UAS encourages the participation from ITE members to complete the survey during the 60-day open window. Please visit https://www.unitedagainstslavery.org/2021nost-ite to take the 2021 NOST.

report signs of human trafficking without facing retaliation if they are incorrect. Proper training should offer policies and procedures that would minimize the employee’s exposure to the situation and avoid putting the employee or potential victim in danger.

There are many options for beginning to develop and deliver agency-wide human trafficking training, and many states are making progress. Texas, for example, has passed laws requiring state DOT employees to be trained in awareness and indicators of human trafficking.

Agencies like the Michigan, Pennsylvania, and Iowa DOTS have already developed training modules for their employees. Effective training engages and incorporates a blend of subject matter experts, videos, and presentations that include the following topics:

- A clear definition of human trafficking
- A list of the signs of human trafficking complemented with specific regional examples
- Appropriate actions to take once suspicious activity is observed
- Actions NOT to take when suspicious activity is observed
- Routine updates

**Partner/Assist Regionally.** The DOT district offices may collaborate with local and tribal agencies on training and sharing of information. A DOT district office also can participate in regional anti-trafficking coalitions where possible. Several DOTs are partnering with groups and initiatives such as Truckers Against Trafficking, ECPAT USA, Businesses Ending Slavery and Trafficking, the Association of General Contractors, universities, and other state DOTS.

In addition to the training noted earlier, Iowa DOT is currently working with Truckers Against Trafficking and local victims services along with its state Attorney General and Motor Vehicle Enforcement offices to collaborate on anti-trafficking activities.

These partnerships develop and grow because effective disruption to human trafficking happens at the regional and local level. Many communities such as, Waco, TX, USA, have created coalitions to bring together an array of organizations and multidisciplinary teams, such as The Heart of Texas Human Trafficking Coalition (www.hothtc.org). USDOT lists the transportation entities in each state that have pledged to combat human trafficking and provides a place where transportation agency stakeholders can learn entry points for collaboration, at www.transportation.gov/TLAHT.

**Collect Frontline Empirical Data.** In addition to awareness, training, and partnering, organizations like the Transportation Research Board of the National Academies of Science, Engineering and Medicine (TRB) and the Institute of Transportation Engineers (ITE) are realizing the importance of collecting and synthesizing good data. For example, the USDOT awarded the first-ever USDOT Combating Human Trafficking in Transportation Impact Award to United Against Slavery to conduct the 2021 National Outreach Survey for Transportation focused on the survey respondent’s experiences, knowledge, perceived challenges, and recommendations of counter-trafficking efforts in their frontline work across industry (See sidebar for more detail). This follows on a Congressionally mandated study conducted by the USDOT which urged data collection by the transportation sector to help combat human trafficking. TRB is running multiple studies on human trafficking in the transportation sector. While the USDOT study is in its early stages, NCHRP 20-121, State DOT Contributions to the Study, Investigation, and Interdiction of Human Trafficking has reviewed the topic in depth to facilitate state DOT programming, would collate research results using the themes used in the USDOT study including leadership and funding, partnerships, social responsibility, employee reporting protocol, education and training, and public awareness and outreach, among others.

State DOTS will need to define their role in partnerships and the scope of their involvement. While not yet in final form, early data have suggested that state DOTS could support law enforcement by...
supplying certain knowledge, data, and expertise, such as surveillance information from rest areas and welcome areas, license plate images, and information on suspected trafficker sites at or near transportation assets. NCHRP 20-121 will include sample tools as well as recommendations for future research.

As more transportation officials partner with local coalitions, information can be shared that provides a two-fold benefit: the transportation industry will have a greater understanding of counter-trafficking tools that frontline workers need and frontline workers can better advise the transportation industry in developing robust data collection efforts, awareness materials, and training modules. Human trafficking is an elusive crime. Collecting accurate data on trafficking is extremely difficult, but necessary to better understand how to address it and to inform data-driven decisions.

What YOU Can Do
The simplest way to help is to increase your own awareness, and those you work with, to identify and report signs of human trafficking. To get more involved, increase your commitment by searching for and joining an existing coalition in your area or region, or consider joining other interested agencies to form a group. A transportation agency does not have to lead the charge, but it is important for the DOT to be represented and offer their perspective, their available resources, and their public spaces for awareness materials. While we strive to provide a safe, inclusive transportation system that improves mobility and accessibility, we are all responsible for ensuring that the system does not allow people to be harmed by it.

References
Recommended Actions to Help Transportation Agencies Implement the Highway Safety Manual

By Darren J. Torbic, Ph.D. (M)

Performance-based processes that use data-driven safety performance measures offer potential for state and local transportation agencies to reduce the number of traffic fatalities and serious injuries that occur on the nation’s highways and to make informed decisions to reduce project and operating costs. The American Association of State Highway and Transportation Officials (AASHTO) Highway Safety Manual (HSM) provides safety knowledge and tools to facilitate improved decision making based on safety performance. The HSM enables transportation agencies to use performance-based statistical approaches when designing for the safety performance of a facility, rather than simply adhering to traditional design policies and standards, such as the AASHTO A Policy on Geometric Design of Highways and Streets and the Manual on Uniform Traffic Control Devices.
The HSM helps transportation agencies provide the highest level of safety performance within the financial resources available. While other initiatives have focused on analytical examples of implementation of the HSM, AASHTO, and the Federal Highway Administration (FHWA) (through the National Cooperative Highway Research Program [NCHRP]) sponsored a domestic scan to identify leading practices in the use of the HSM for planning, design, and operations. The scan provided an opportunity to discuss processes and work force components not usually addressed in HSM implementation-related presentations or meetings.

**Project Objective and Scope**

The objectives of scan were to a) evaluate the processes, job aids/tools, workforce training, and manner in which state transportation agencies have implemented and integrated the HSM into performance-based processes in planning, design, and operations; b) learn the practices of state transportation agencies which have most comprehensively implemented the HSM; and c) disseminate information about leading practices in use of the HSM to other transportation agencies to help them reduce the number of traffic fatalities and serious injuries on all public roads and make informed decisions to reduce project and operating costs.

While the goal of the project was to learn about leading practices in the use of the HSM, discussions with participating agencies focused on broader concepts of performance-based approaches to quantifying safety performance. In many cases, the state transportation agencies implemented procedures as described in the HSM, but in other cases the agencies used concepts, principles, and performance-based statistical approaches described in the HSM and incorporated them into tools or projects in various ways to inform decisions. Thus, the scope of this scan extends beyond analysis procedures directly described in the HSM and addresses in a broader sense performance-based advanced safety analysis procedures (PBASAPs) to facilitate improved decision making. Discussions with state transportation agencies during the scan centered around seven topic areas of interest:

1. Status/Policy
2. Training
3. Technical Functions
4. Data
5. Culture
6. Information Dissemination
7. Achieving Performance

Prior to meeting with the state transportation agencies, the Scan Team distributed a list of questions to the participating agencies to prepare for the scan.

The primary audience for the results of the scan are state transportation agencies; but local transportation agencies, metropolitan planning organizations (MPOs), FHWA, and AASHTO will also benefit. Transportation agencies and MPOs in the early stages of implementing the HSM (or contemplating how to implement the HSM) will be able to use the results of this scan to help them integrate data-driven, performance-based processes into their policies and programs. In addition, AASHTO and FHWA will be able to use the results of this scan to assist agencies in implementing the HSM.

**Lead States**

In 2017, the Scan Team met with 10 U.S. state transportation agencies to evaluate how the agencies have implemented and integrated the HSM into performance-based processes in the areas of planning, design, and operations. The 10 state transportation agencies that participated in the scan are considered leaders in HSM implementation. Five agencies hosted the Scan Team, while five agencies traveled to meet with the Scan Team remotely at one of the host agency locations (Figure 1). The agencies that participated in the scan included:

- Alabama Department of Transportation (ALDOT)
- Florida Department of Transportation (FDOT)
- Illinois Department of Transportation (IDOT)
- Louisiana Department of Transportation and Development (LADOTD)
- Maine Department of Transportation (MaineDOT)
- Michigan Department of Transportation (MDOT)
- Missouri Department of Transportation (MoDOT)
- Ohio Department of Transportation (ODOT)
- Virginia Department of Transportation (VDOT)
- Washington State Department of Transportation (WSDOT)

Staff from central and regional/district offices and from different departments and disciplines (i.e., safety, planning, design, operations, and environment) within the lead agencies participated in the meetings, as well as staff from several MPOs.

**Recommended Actions by State and Local Transportation Agencies**

Based on the lessons learned from the lead agencies in HSM implementation, the following actions are recommended for state transportation agencies to help implement and integrate HSM methods and performance-based, advanced safety analysis procedures (PBASAPs) within their agencies. Many of the recommendations may also apply to regional and local transportation agencies. The recommended actions are aligned with the seven topic areas of interest from the scan, namely: status/policy, training, technical functions, data, culture, information dissemination, and achieving performance.

**Topic No. 1: Status/Policy**

1. An HSM champion is needed to advocate and seek support to incorporate HSM methods and PBASAPs within programs and departments in the agency. The champion should communicate a vision, purpose, and need for HSM implementation within the agency.

2. Executives and upper management should be provided training to understand the value of reliable and accurate data, the need for data integration, and quantitative safety analysis both within and outside of the safety program. The training may garner support and prioritization of agency policies concerning data collection, maintenance, and PBASAPs.

3. Agencies should develop an HSM implementation plan and/or an HSM implementation team that meets periodically (i.e., quarterly) to guide the direction of HSM implementation within the agency and review the status of HSM implementation.
4. Agencies should support participation of their staff on AASHTO and Transportation Research Board (TRB) committees and subcommittees that oversee the research and implementation of the HSM and PBASAPs. Through their participation on these committees and subcommittees, staff will better understand the importance of reliable and accurate data, training needs, and limitations and applications of various methods and procedures, and be better prepared to implement research results.

5. Agencies should adopt the Toward Zero Deaths National Strategy on Highway Safety or other zero-based traffic safety initiatives, if they have not already done so, because it provides a platform for implementing and integrating HSM methods and PBASAPs within agencies.

6. Agencies should identify incremental steps to implement certain aspects or applications of the HSM within their agencies and, over time, look to more fully integrate HSM procedures within their policies and programs. Such steps could be incorporated into an HSM implementation plan (see above).

7. Agencies should develop executive orders, policies and procedures, and guidance documents to facilitate the implementation of HSM methods. Such policies and guidance should address the tort liability implications of using the term “safety” in planning, programming, and project development; align project purpose and needs statements with safety evaluation, analysis, and diagnosis activities; and put into place agreements with oversight agencies (e.g., stewardship agreement).

**Topic No. 2: Training**

Agencies should develop a robust HSM training program that:

1. Provides various levels and types of HSM training for target audiences.

2. Demonstrates tools that implement HSM procedures and instructs users on how to properly use the tools to analyze safety and interpret the results.

3. Addresses the type of data used in the HSM, such as site characteristics, traffic volume and crash data; presents PBASAPs; and demonstrates how users can access their agency’s data for analyses.

4. Uses a variety of training methods such as in-person sessions, webinars, and web-based tutorials that users can access as-needed.

5. Is updated regularly to incorporate new material and address gaps in knowledge related to application of HSM procedures for planning, programming, and project development.

6. Incorporates in-house staff to deliver at least part of the training to increase trust and acceptance, provide insight on how the HSM can be applied within the agency, and provide support following training.

**Topic No. 3: Technical Function**

1. Agencies should provide guidance on the recommended level of safety analysis expected for projects based on the purpose and need statement, type and level of funding, level of complexity, and other criteria to increase consistency among projects.

2. Agencies should put processes in place to better understand project scope, definition, and design approach and incorporate safety performance quantification at the earliest stage of planning, programming, and project development so it can be effectively utilized and project delays are minimized.

3. Agencies should recognize the value of evaluation, analysis, and diagnosis of safety performance needs across disciplines that have a responsibility for safety performance and decision making.

4. Agencies should evaluate existing tools and software that apply HSM methods and PBASAPs and select or develop tools/software to meet their needs, making it easier for personnel to understand, implement, and apply HSM methods and PBASAPs as part of their job responsibilities.

5. Agencies should consider supplementing their traditional, crash-based safety management approach with a systemic approach to address crash types that are widely dispersed across the highway network and are not well suited for remedy using a traditional, site-based (i.e., hotspot) safety management approach.

6. State transportation agencies should work with local agencies and MPOs to provide prioritized lists of sites with potential for safety improvement based on advanced safety analyses and reliable performance measures, and assist them in developing their own local road safety plans.

**Topic No. 4: Data**

1. Agencies should develop a short-term and long-term vision for acquiring and using safety data. First, they should identify ways to use readily available data to achieve early implementation of HSM methods and PBASAPs. Next, they should identify incremental steps for collecting additional data and integrating it into HSM methods and PBASAPs.

2. Agencies should develop a safety data business plan to guide their safety data management practices.

3. Agencies should establish and enforce data governance policies that address data needs in each business area.

**Topic No. 5: Culture**

1. Agencies should use HSM training programs and marketing material to educate their staff concerning the difference between nominal and substantive safety and limitations associated with using crash rate as the primary measure of safety performance.

2. Agencies should seek approaches and opportunities to achieve a cultural shift to institute performance-based processes within
their respective agencies. Changes in culture can be driven by a) establishing executive orders and policy directives that provide the foundation for integrating performance-based processes throughout the agencies’ programs and departments; b) implementing a process for leading change; c) establishing an HSM implementation team and/or plan; and d) making safety analyses simpler and more accessible to internal and external staff.

**Topic No. 6: Information Dissemination**

1. Agencies should use a variety of approaches (i.e., top-down, bottom-up, peer-to-peer) to communicate internally to implement HSM methods and PBASAPs.
2. When communicating safety analysis results to external stakeholders, agencies should use simple language; present information using visual aids such as maps; target the discussion to the specific audience; avoid discussing crash costs; and discuss all aspects of the project including safety, operations, design, environment, and context.
3. Staff whose primary responsibility is safety should periodically meet with their agency’s legal counsel to understand liability concerns associated with HSM methods and PBASAPs.

**Topic No. 7: Achieving Performance**

1. Agencies should set clear goals and objectives for HSM implementation and establish measures for tracking the success of their HSM implementation.

**Conclusions**

The HSM provides safety knowledge and tools to facilitate improved decision making based on safety performance and can help transportation agencies provide the highest level of safety performance within the financial resources available to reduce the number of traffic fatalities and serious injuries on all public roads. By following one or more of the recommended actions listed above, transportation agencies will be able to further enhance the implementation of the HSM and other PBASAPs within their agencies to improve safety across the nation’s streets and highways.

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The final report from the scan titled *Leading Practices in the Use of the Highway Safety Manual for Planning, Design, and Operations* is available online at onlinepubs.trb.org/onlinepubs/nchrp/docs/NCHRP20-68A_16-01.pdf. The final report provides more details about the transportation agencies that participated in the scan and provides examples of policy statements, implementation tools, etc. that these agencies have developed to implement the HSM within their respective agency.

**References**


**Darren Torbic, Ph.D. (M)** recently joined the Texas A&M Transportation Institute (TTI) as a research scientist. Prior to joining TTI, Dr. Torbic worked as a principal traffic engineer at MRIGlobal and a research assistant at The Pennsylvania Transportation Institute at The Pennsylvania State University. Dr. Torbic has more than 26 years of research experience in the areas of highway safety, geometric design, traffic engineering, and bicycle and pedestrian transportation. He has served as principal investigator (PI) on 20 research projects for NCHRP, FHWA, and AASHTO. Dr. Torbic is the author or co-author of more than 70 technical papers or research reports.
Answer to “Where in the World” on page 10: Located north of Tehran, Iran, Tabiat Bridge is the largest pedestrian bridge in Iran at 270 meters (886 feet) in length. Photo submitted by Niloo Parvinashtiani, P.E. (M).
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