NOCoE Launched at TRB Annual Meeting
Website and Technical Services Program Launched
Newsletter Launched

2018 ANNUAL REPORT

- NOCoE Workforce Summit
- 2,000 Newsletter Subscribers
- 1,000 Resources
- 69,350 Website Page Views
- 5 Peer Exchanges
- 18 Webinars
- Site Visits to Iowa and Maryland
- Launched TIM KMS Access
- 1,500 Resources
- 98,000 Website Page Views
- 27 State DOTs support NOCoE via the AASHTO Operations Technical Service Program
- Transportation Technology Tournament Launched
- Inaugural TSMO Awards Feature 60 Submissions
- 4 Peer Exchanges
- 31 Webinars
- NOCoE YouTube Channel Features All webinars
- Site Visits to Washington, Colorado, and Arizona
- Website Update Released
- 108,000 Website Page Views
- 24 State DOTs support NOCoE via the AASHTO Operations Technical Service Program
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NOCoE Vision
The National Operations Center of Excellence (NOCoE) is to be the recognized leader in providing exceptional services to the transportation systems management and operations community to save lives, reduce congestion, and enhance economic vitality.

NOCoE Mission
The NOCoE empowers the TSMO community to succeed by enhancing knowledge, skills, and abilities.

NOCoE Stakeholders and TSMO Professionals:
Since 2014, the American Association of State Highway and Transportation Officials (AASHTO), the Institute of Transportation Engineers (ITE), and the Intelligent Transportation Society of America (ITS America), with support from the Federal Highway Administration (FHWA), have developed and supported the National Operations Center of Excellence (NOCoE). In recognizing that effective Transportation System Management and Operations (TSMO) is a major component of addressing highway system congestion, safety, and reliability, the three associations and FHWA established the goal of developing NOCoE to empower transportation practitioners with resources that enhance their knowledge, skills, and abilities to improve the performance of the existing transportation system.

For the last five years, NOCoE has provided technical leadership to share best practices, research, and professional education and training to practitioners, policymakers, and researchers. With a robust technical program, supported by the three associations and FHWA, NOCoE has helped move the industry forward by ensuring that TSMO practitioners have the knowledge they need to build TSMO programs and implement TSMO strategies.

To ensure the 21st century workforce is capable of meeting the challenges demanded by our industry, NOCoE has made workforce development a priority. For the last three years NOCoE has been engaging academia, industry, and students to communicate the need for a TSMO focused education and to attempt to synchronize the industry workforce needs with academic and educational opportunities.

With the recent launch of the NOCoE TSMO Awards, we’ve begun to shine a light on incredible work being done by the TSMO industry. With the new focus on developing case studies, NOCoE is now capturing this work to ensure the knowledge is shared with the entire industry.

All this, combined with a refresh of the NOCoE website, the development of new communications and research tools within the knowledge center, and the continued strengthening of our technical resources and outreach capabilities, 2018 has proven to be a seminal year for NOCoE. We look forward to continuing to support the efforts to save lives, time, and money.

Sincerely,

Jim Tymon  
Executive Director,  
American Association of State Highway and Transportation Officials

Jeff Paniati  
Executive Director and CEO, Institute of Transportation Engineers

Shailen Bhatt  
President and CEO, Intelligent Transportation Society of America
Key Activities

Peer Exchange: Freight & TSMO  September 2018 | Memphis, TN
Collected freight resources and identified key issues and concerns to be addressed by the TSMO and freight communities. Florida DOT’s Truck Parking project honored during Inaugural TSMO Awards.

Peer Exchange: Performance-Based Contracting  June 2018 | Detroit, MI
Convened private and public sector organizations to discuss lessons learned and best practices in performance-based contracting.

Webinar: Transforming the Transportation Industry with Cooperative Automation Research Mobility Applications (CARMA)  December 2018
In the first of a larger series, NOCoE hosted FHWA in their effort to advance TSMO strategies with automated driving technology and how infrastructure can move traffic more safely and efficiently.

Safety Service Patrol Idea Sharing Network  October 2018
In a new partnership with SafeHighways.org, NOCoE was privileged to host the 11th Safety Service Patrol Idea Sharing Network, with the topic of: Determining Patrol Coverage Areas and When to Expand. This online meeting allows practitioners to gather to discuss key issues faced by safety service patrols.

2018 TSMO SUMMIT

NOCoE hosted TSMO leaders with experience embedding TSMO into their agency culture in order to identify key actions and challenges in achieving the benefits of fully implemented TSMO. The resulting action plan will inform NOCoE and the broader industry of key activities necessary to advancing the TSMO practice.

Agency Engagements

During the period of May 2017 to October 2018, the National Operations Center of Excellence (NOCoE) visited the Maryland, Iowa, Washington State, Colorado, and Arizona Departments of Transportation (DOT) to interview senior TSMO officials and their teams. The purpose of these visits was to learn how each DOT has defined, organized, and is carrying out its TSMO functions.

Key learnings from the TSMO agencies included the identification of six characteristics common to all the states NOCoE visited:

1. Strong leadership
2. Prioritization, visibility, and availability of resources to do the job
3. The importance of culture in breaking down silos
4. TSMO embodied by a champion at the senior staff level, with or without a defined TSMO division.
5. C3: collaboration, communication, coordination
6. Attention to the workforce of the future

These visits have led to a variety of outcomes, including case studies, webinars, TSMO award submissions, peer exchange topics, and further collaborative opportunities around workforce development. Thank you to our first five states for hosting us in this effort.
IMPROVING HOW WE TRANSFER KNOWLEDGE

Research in Operations Database

TSMO Workforce Resources

WEBSITE RESOURCES

NEW
In 2018, we accomplished several goals to improve how we transfer knowledge:

**Website Refresh:**
Our updated website contains the same knowledge center and resources essential to TSMO practitioners but is delivered in a more direct and succinct fashion.

**Research in Operations Database:** This tool is a centralized, on-line repository for sharing and rating new transportation operations research ideas, supported by AASHTO and managed by AASHTO’s Committee on Transportation System Operations and Transportation Research Board’s Operations Section Committees.

**TSMO Workforce Resources:** New in 2018, this section of our website will continue to grow in the coming years. In addition to the resources it currently contains, we’ll feature guidance on recruiting and retaining TSMO practitioners, model position descriptions, as well as a TSMO trainings database.

**Social Media Growth:** With the increased content from our YouTube channel and the weekly release of NOCoE Case Studies, we’ve increased our social media presence in 2018 to better deliver these resources to the broader transportation community.

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**Social Media Followers**

Twitter:
- 2016: 0
- 2018: 550

Follow us on Twitter to connect with key TSMO resources, case studies, and activities

LinkedIn:
- 2016: 0
- 2018: 310

Follow us on LinkedIn to gain knowledge on how to improve your TSMO program

**Impressions:** 298,000

(LinkedIn and Twitter)

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YouTube Overview (Lifetime Stats)

- 8 MIN. AVG. VIEW DURATION
- 7,268 VIEWS
- 57,729 WATCH TIME MINUTES
ADVANCING THE TSMO PRACTICE

NOCoE opened the inaugural TSMO Awards to nominations in the summer of 2018. Over 60 submissions were received across four categories demonstrating the impact TSMO programs and projects are having across the country. Winners and runner-up were announced in four categories and an Overall TSMO Award Winner was announced at the 2019 TRB Annual Meeting.

**Best TSMO Project**

**Arizona DOT US-60 Restripe Project**

*Reduced crashes by 70%*

**Runner-Up**

Arizona DOT Wrong-Way Vehicle Detection

**Improving an Agency’s TSMO Capabilities**

**ITS Heartland’s TSMO University**

*Trained more than 100 people in TSMO*

**Runner-Up**

Florida DOT Truck Parking Availability

**Ali Zaghari of Caltrans Named 2019 TSMO Champion**

Mr. Zaghari has embraced and implemented innovative TSMO strategies that have provided exceptional benefit to travelers in California, and to the transportation industry as a whole. During his career at the California Department of Transportation (Caltrans), Mr. Zaghari created TSMO tools for traffic engineering practitioners that have become essential to providing better utilization and management of California’s urban freeway systems. Mr. Zaghari has forged partnerships with transportation decision-makers across the region and is a respected member of the traffic engineering community.
**Major Incident or Special Event**

**North Carolina DOT Hurricane Florence Preparation**

*Used real-time re-outing to safely evacuate the public*

**Runner-Up**

Pennsylvania DOT 511 PA Connect

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**Public Communications**

**Oregon DOT TIM Responders: Use of Social Media**

*Leveraged social media to train responders and educate the public on traffic incident management*

**Runner-Up**

Michigan DOT TSMO Implementation communications

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**Transforming Submissions into TSMO Knowledge and Case Studies**

1. **CASE STUDY**
   - **US 40 and I-10 Interchange Traffic Flow Using TSMO Signage and Restripe Capabilities**
   - **Description**: This case study details the implementation of TSMO signage and restripe capabilities at the US 40 and I-10 interchange to manage traffic flow. It includes the design, installation, and impact analysis of the TSMO solutions to enhance safety and efficiency.

2. **CASE STUDY**
   - **ITS Heartland’s TSMO University Educational Program**
   - **Description**: This educational program focuses on empowering ITS Heartland’s members with the necessary skills and knowledge to apply TSMO principles in their respective regions. The program includes monthly webinars, in-person trainings, and a curriculum developed in collaboration with SHRP2.

3. **CASE STUDY**
   - **Oregon DOT TIM Responders: Use of Social Media**
   - **Description**: This case study highlights the innovative use of social media by Oregon DOT to effectively communicate with TIM responders. It discusses strategies for reaching a broader audience, capturing high turnover rates, and promoting the benefits of using social media for training.

4. **CASE STUDY**
   - **NC DOT Hurricane Florence Preparation & Response**
   - **Description**: This case study provides insights into the North Carolina DOT’s response to Hurricane Florence, emphasizing the use of real-time re-outing to safely evacuate the public. It outlines the strategies and technologies utilized during the preparation and response phases.

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Building the 21st Century TSMO Workforce

Transportation Technology Tournament

Commencing in February of 2018, the Transportation Technology Tournament was a joint effort of the U.S. DOT’s Intelligent Transportation Systems Joint Program Office’s Professional Capacity Building program and the National Operations Center of Excellence to help push the future workforce to understand the communications, teamwork, planning, and interdisciplinary skills required to work in the transportation industry. Nine participant teams were asked to work with a local or state DOT to identify a real-world challenge that the DOT is facing and to use ITS technologies and TSMO strategies to develop a solution or set of solutions to address that challenge.

<table>
<thead>
<tr>
<th>College/University</th>
<th>Proposed Solution</th>
<th>Participating Agency</th>
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<tbody>
<tr>
<td>University of Texas (Winner)</td>
<td>Using Third-Party Navigation Applications to Improve Transportation Operations Planning for Special Events</td>
<td>District DOT</td>
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<tr>
<td></td>
<td>Two part solution to: (1) develop a real-time application for tracking current road closures and (2) using historical data to mitigate congestion during special events.</td>
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<td>Cal Poly - San Luis Obispo (Runner Up)</td>
<td>Pedestrian Safety</td>
<td>City of Detroit and Michigan DOT</td>
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<td></td>
<td>A suite of coordinated ITS solutions to improve safety of pedestrians, including DSRC, high-res cameras, roadside units, and in-vehicle sensors.</td>
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<tr>
<td>Florida International University (Finalist)</td>
<td>Pedestrian Safety in South Florida</td>
<td>City of Gainesville, Florida</td>
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<td></td>
<td>Smart phone and connected vehicle applications to exchange information between vehicles, drivers, bicyclists, pedestrians, and infrastructure</td>
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<tr>
<td>North Dakota State University (Finalist)</td>
<td>Enhancing Traffic Operations and Safety by Providing Train Information Near Highway Rail Grade Crossings</td>
<td>City of Moorhead, Minnesota</td>
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<td>A traveler information application to show real-time status of trains at rail grade crossings, including signaling to the driver if crossing is safe</td>
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<tr>
<td>University of South Florida</td>
<td>Pedestrian Safety Along Arterials</td>
<td>Florida DOT</td>
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<td></td>
<td>Adaptive street lighting system to increase illuminations for pedestrian pathways.</td>
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<tr>
<td>Texas A&amp;M University, Team #1</td>
<td>Using Third-Party Navigation Applications to Improve Transportation Operations Planning for Special Events</td>
<td>District DOT</td>
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<td>Updating the ITS architecture to incorporate outside data and feedback into the system</td>
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<tr>
<td>Texas A&amp;M University, Team #2</td>
<td>Reversible and Restricted Lane Operations on Arterial Streets</td>
<td>District DOT</td>
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<td>Interconnected communication and alerting system, dynamic message signs, in-pavement LED lightings and in-vehicle navigation applications.</td>
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<tr>
<td>Oregon State University</td>
<td>Pedestrian Safety in Portland</td>
<td>City of Portland</td>
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<tr>
<td></td>
<td>Adaptive signal and lighting solutions to address illegal crossings and nighttime crossings</td>
<td></td>
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<tr>
<td>University of Nevada - Reno</td>
<td>Updating Safety Service Patrol Routes Using Historical Data to Optimize Response Times</td>
<td>District DOT</td>
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<td></td>
<td>Refocus incidents by region, using historical data, to be better guide response routes.</td>
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ePortfolio Contest: 
Showcasing TSMO Knowledge, Skills, and Abilities

This yearly competition is open to any student looking to start a career in TSMO. Students are asked to submit their ePortfolio to demonstrate their desire to work in the TSMO industry and to demonstrate their communications and creativity skills to prospective employers. Entrants should develop or update their current ePortfolios to ensure they clearly demonstrate an interest in TSMO and showcase their academic or professional experience relevant to a potential TSMO position. This can include experience outside of transportation and engineering, including communications, data science, economics, and many other disciplines.

NOCoE’s Future TSMO Leaders

ANGELA KITALI

Degree/School(s)
I received my M.S. in Civil Engineering from the University of North Florida; and my B.S. in Civil Engineering from the University of Dar es Salaam in Tanzania.

What are you up to currently? Or what’s next?
I am a Ph.D. Candidate in the Department of Civil and Environmental Engineering at Florida International University (FIU). My research focuses on transportation safety modeling, real-time traffic data analysis, traffic incident management, and traffic micro-simulation.

What Your Career Goals Are
I am passionate about research and sharing knowledge, that’s something that I envision to continue doing in the future.

How Did NOCoE Assist you in these goals?
NOCoE has introduced me to the cutting-edge research and state-of-the-practice in TSMO strategies and ITS technologies. It has given me several opportunities to come up with new and innovative ideas to existing real-world problems. NOCoE has inspired me (and several other students) to excel and think outside the box and has played a crucial role in preparing me for the professional journey that lies ahead of me.

SOGAND KARBALAIEALI

Degree/School(s)
Ph.D. in Transportation Engineering, Louisana State University

What are you up to currently? Or what’s next?
Transportation Engineer, Fehr & Peers DC

What Your Career Goals Are
My career goal is to improve accessible and equitable mobility by leveraging automated vehicles technology.

How Did NOCoE Assist you in these goals?
NOCoE provided me with a great opportunity to attend TRB2018 and connected me to the transportation experts. Later, Patrick Son, NOCoE Managing Director, mentored me for my public speech in 3MT LSU. And recently, ITE’s NOCoE representative, Eric Rensel advised me on ITE activities and involvement.
NOCOE EXISTS BECAUSE OF:

STAFF

Patrick Son
Managing Director

Sarah Abel
Technical Programs Manager

Adam Hopps
Communications and Program Manager

Niloo Parvinashtiani
Technical Services Associate

John Conrad
Senior Consultant

Thomas Kern
Senior Consultant
A SPECIAL THANKS TO . . .

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Roger Millar, Secretary, Washington State DOT
William T. Panos, Director, Wyoming DOT
Kris Milster, Director of Government Accounts, Traffic Tech Services
Eric Rensel, Vice President, Gannett Fleming
Abbas Mohaddes, President and COO, Econolite
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Association Staff
Gummada Murthy, AASHTO
Pat Zelinski, AASHTO
Jeff Lindley, ITE
Carlos Alban, ITS America
We were born from America's leading transportation groups, AASHTO, ITE, ITS America, with support from FHWA, who identified a need to share transformative transportation operations practices as they evolve. We collect best practices and connect practitioners with transportation management strategies and experts to save lives, time, and money.

**Contact our Managing Director:**
Patrick Son, P.E.
202-624-5478
pson@transportationops.org

**Visit our website for resources:**
transportationops.org