

# NOCoE

National Operations Center of Excellence

## 2018 ANNUAL REPORT

### 2015

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

### 2016

- NOCoE Workforce Summit
- 2,000 Newsletter Subscribers
- 1,000 Resources
- 69,350 Website Page Views
- 24 State DOTs support NOCoE via the AASHTO Operations Technical Service Program

### 2017

- 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

### 2018

- 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
- 34 State DOTs support NOCoE via the AASHTO Operations Technical Service Program

## 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*

AMERICAN ASSOCIATION  
OF STATE HIGHWAY AND  
TRANSPORTATION OFFICIALS

AASHTO

ite

ITS AMERICA



U.S. Department  
of Transportation  
**Federal Highway  
Administration**



# ENGAGEMENT WITH TSMO PRACTITIONERS

## 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.

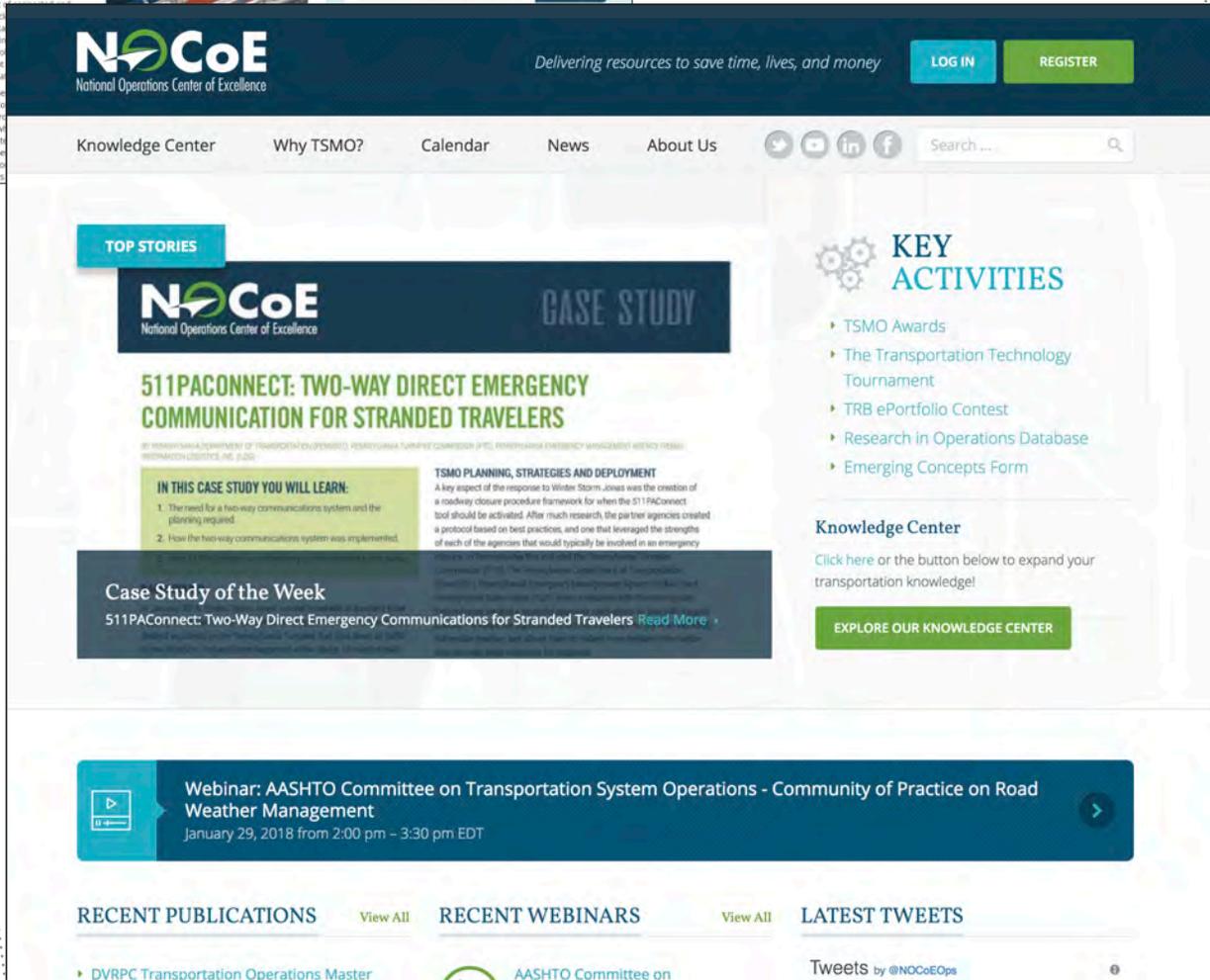
Key learnings from the TSMO agencies included the identification of six characteristics common to all the states NOCoE visited:

- 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.



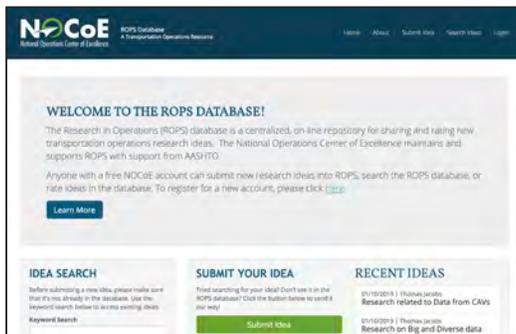
# IMPROVING HOW WE TRANSFER KNOWLEDGE



NEW

WEBSITE RESOURCES

## Research in Operations Database



## TSMO Workforce Resources



## SOCIAL MEDIA FOLLOWERS



2016  
0

2018  
550

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



2016  
0

2018  
310

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

Impressions: **298,000**  
(LinkedIn and Twitter)



## YouTube Overview (Lifetime Stats)



**8 MIN.**  
AVG. VIEW DURATION



**7,268**  
VIEWS



**57,729**  
WATCH TIME MINUTES

## 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.



# 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-routing to safely evacuate the public

Runner-Up

Pennsylvania DOT 511 PA Connect



## 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

## Transforming Submissions into TSMO Knowledge and Case Studies

**NACOe** National Operations Center of Excellence

**CASE STUDY**

**NCDOT HURRICANE FLORENCE PREPARATION & RESPONSE**

By: [Author Name]

**INTRODUCTION**

As a result of Hurricane Florence, the National Operations Center of Excellence (NOCOe) was activated to support North Carolina's Department of Transportation (NCDOT) in its preparation and response to the hurricane. This case study details the NCDOT's use of real-time re-routing to safely evacuate the public during the hurricane's approach and landfall.

**PLANNING AND PREPARATION**

The NCDOT's 511 PA Connect system was used to provide real-time information to the public about the hurricane's path and the status of the transportation system. This system was used to provide real-time information to the public about the hurricane's path and the status of the transportation system.

**RESULTS AND CONCLUSIONS**

The NCDOT's use of real-time re-routing was successful in safely evacuating the public during the hurricane's approach and landfall. This system was used to provide real-time information to the public about the hurricane's path and the status of the transportation system.

**KEY TAKEAWAYS**

The NCDOT's use of real-time re-routing was a key factor in its successful response to Hurricane Florence. This system was used to provide real-time information to the public about the hurricane's path and the status of the transportation system.

**NACOe** National Operations Center of Excellence

**CASE STUDY**

**US-60 AND I-10 INTERCHANGE TRANSFORMATION USING TSMO SIGNAGE AND RESTRIPE CAPABILITIES**

By: [Author Name]

**INTRODUCTION**

The US-60 and I-10 interchange in Phoenix, Arizona, was transformed to support the construction of a new interchange. This case study details the use of TSMO signage and restripe capabilities to manage traffic during the construction project.

**CHALLENGES**

The construction project presented several challenges, including the need to manage traffic during the construction project. This case study details the use of TSMO signage and restripe capabilities to manage traffic during the construction project.

**SOLUTIONS**

The use of TSMO signage and restripe capabilities was a key factor in the successful completion of the construction project. This case study details the use of TSMO signage and restripe capabilities to manage traffic during the construction project.

**RESULTS AND CONCLUSIONS**

The use of TSMO signage and restripe capabilities was successful in managing traffic during the construction project. This case study details the use of TSMO signage and restripe capabilities to manage traffic during the construction project.

**NACOe** National Operations Center of Excellence

**CASE STUDY**

**ITS HEARTLAND'S TSMO UNIVERSITY EDUCATIONAL PROGRAM**

By: [Author Name]

**INTRODUCTION**

The ITS Heartland region has implemented a TSMO University educational program to provide training and education to transportation professionals. This case study details the program's structure and impact.

**PROGRAM STRUCTURE**

The program consists of several modules, including TSMO Fundamentals, TSMO Implementation, and TSMO Best Practices. This case study details the program's structure and impact.

**IMPACT**

The program has had a significant impact on the transportation industry, providing valuable training and education to professionals. This case study details the program's structure and impact.

**CONCLUSIONS**

The ITS Heartland TSMO University educational program is a successful model for providing training and education to transportation professionals. This case study details the program's structure and impact.

**NACOe** National Operations Center of Excellence

**CASE STUDY**

**OREGON TIM: USE OF SOCIAL MEDIA TO ENGAGE RESPONDERS & PROMOTE SAFETY LAWS & PRACTICES**

By: [Author Name]

**INTRODUCTION**

The Oregon Traffic Incident Management (TIM) program has used social media to engage responders and promote safety laws and practices. This case study details the program's use of social media.

**SOCIAL MEDIA STRATEGY**

The program has used social media to engage responders and promote safety laws and practices. This case study details the program's use of social media.

**RESULTS AND CONCLUSIONS**

The use of social media has been successful in engaging responders and promoting safety laws and practices. This case study details the program's use of social media.



# 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.

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

## 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 KARBALAEALI

*Degree/School(s)*

Ph.D. in Transportation Engineering, Louisiana State University



*What are you up to currently? Or what's next?*

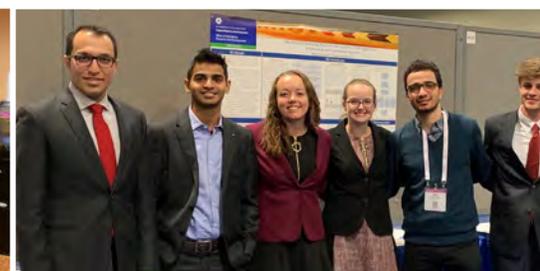
Transportation Engineer,  
Fehr & Peers DC

*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:



**COMMITTEE ON TRANSPORTATION SYSTEM OPERATIONS**



**TSMO COUNCIL**

## STAFF



**Patrick Son**  
*Managing Director*



**Niloo Parvinashtiani**  
*Technical Services Associate*



**Sarah Abel**  
*Technical Programs Manager*



**John Conrad**  
*Senior Consultant*



**Adam Hopps**  
*Communications and Program Manager*



**Thomas Kern**  
*Senior Consultant*



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## HOW TO GET YOUR TEAM INVOLVED



**Work With Our Managing Director** on How We Can Help Your Agency



**Participate in a Peer Exchange** to Learn How Other Agencies are Tackling Transportation Challenges



**Utilize Our Knowledge Center** for Thousands of Resources on Improving Your Transportation System



**Browse our On-Demand Learning** for Technology Transfer Opportunities



**Sign Up for Our Newsletter** for Up-to-Date Information

# NOCoE

National Operations Center of Excellence

We were born from American'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](mailto:pson@transportationops.org)



**Visit our website for resources:**  
[transportationops.org](http://transportationops.org)