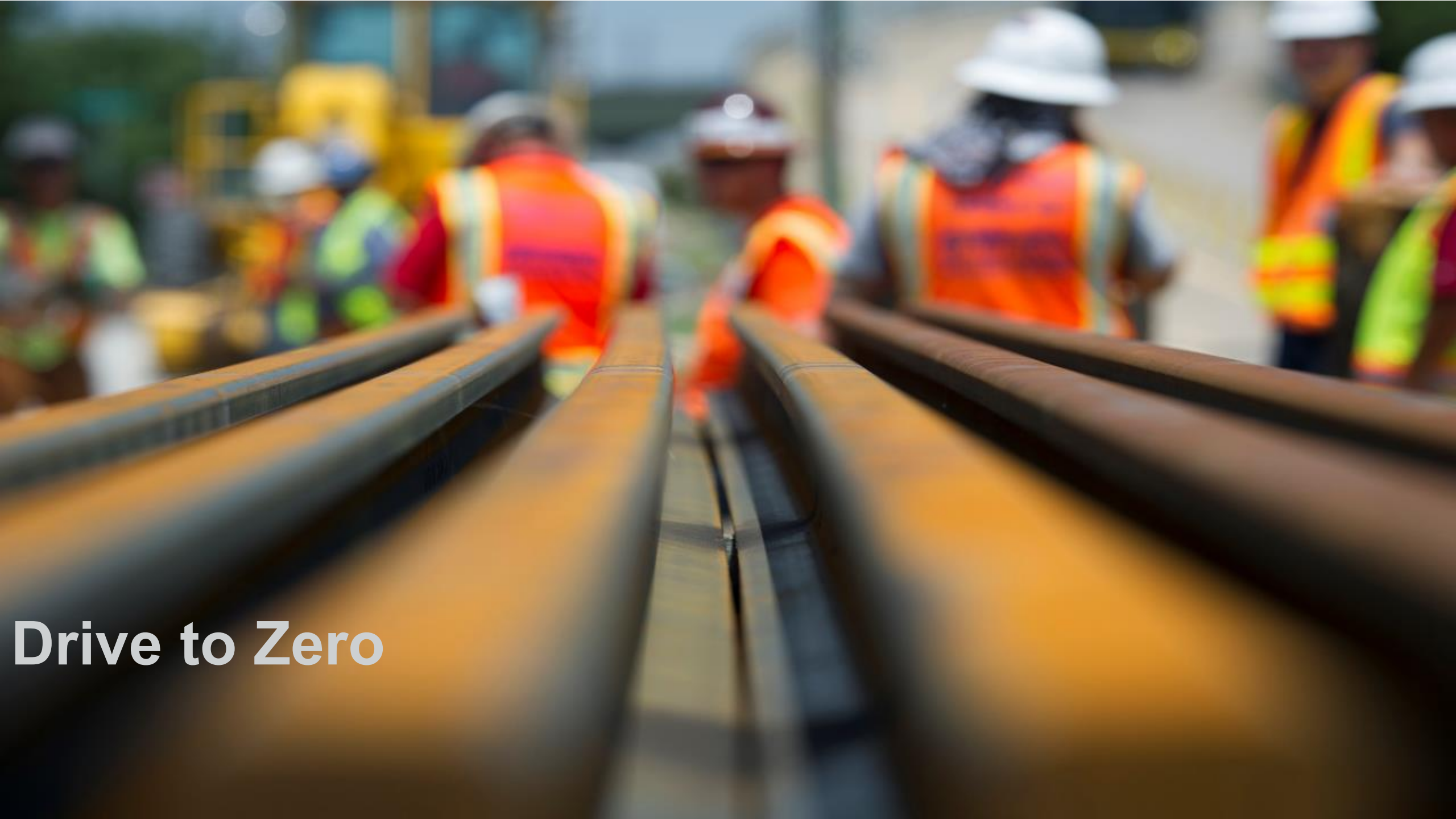
TSMO Train-the-Trainer

Olathe, KS/ September 4-5, 2019

McPherson / Volz


Drive to Zero

Safety Moment

Sitting Disease

Americans spend 7.7 hours a day sitting! This can:

- Compromise the metabolic system
- Increase blood pressure, obesity
- Increase cardiovascular disease and cancer

What can you do?

- Adding two minutes of activity to every hour spent sitting can lower risk of dying by 1/3
    - Get an activity tracker- aim for at least 5,000 steps a day
- 20-8-2 Rule: 20 minutes sitting, 8 minutes standing, 2 minutes moving
    - Walk over to someone's desk instead of emailing or take the stairs instead of the elevator

Agenda Review

Your Facilitators

Matt Volz
Sr. Transportation
Project Manager

Negil McPherson Jr.
Sr. Performance Consultant

Introductions

- Name
- Agency / Company
- Job role
- My Speaking Experience

Why Are We Here?

- Share TSMO knowledge
- Evaluate our progress
- Practice communicating TSMO
- Learn how to address benefits / concerns
- Why is TSMO Important? (video)

Go to this link for video:

https://youtu.be/NkWYIKaUyM0

From TSMO practitioners – Why is TSMO important?

- Austin Yates, Iowa DOT; Lee Smith, Tennessee DOT; Patrick Son, NOCoE; and San Lee, CDOT
- https://youtu.be/NkWYIKaUyM0

TSMO Principles Review

- Randy Johnson, KC Scout/MoDOT
- Mandy Anderson, Garver
- Lindsay Francis, WSP
- Tony Carr, HDR

TSMO in Action

TRAFFIC SIGNAL COORDINATION

GARVER

ITS Heartland Chapter

Coordinated Signal Timing Plans

Key Characteristics

Cost	Technology	Collaboration
Low	Medium	Low

Benefits

- Reduce Congestion
- Reduce Fuel Consumption / Vehicle Emissions
- Reduce Travel Time
- Reduce Number of Stops for Traveling Public

Coordinated Signal Timing Plans

APPROACHES

Time-of-Day Plans

Optimized and operate the same cycle length

Cycle length changes throughout the day

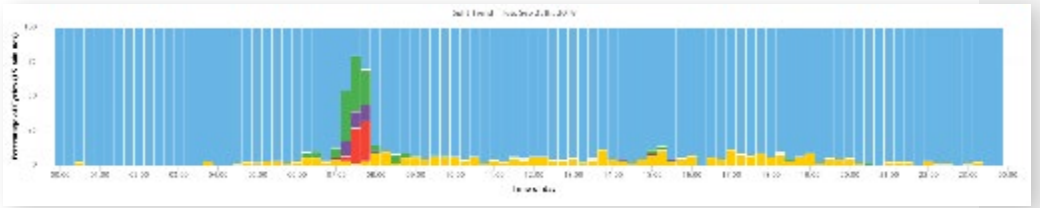
Operate same time period every day

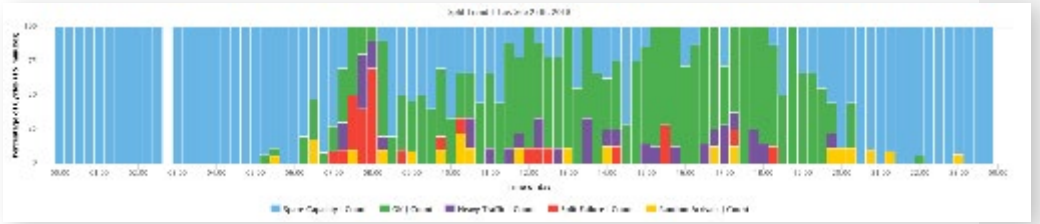
Traffic Responsive

Change based on changes in real-time traffic conditions.

Detection to measure volumes

Timing plans change as traffic increases or decreases





Coordinated Signal Timing Plans

Automated Traffic Signal Performance Measures (ATSPMs)

Continuous performance monitoring capability

Data driven traffic operations

High-resolution (tenth-of-a-second) data from traffic signal controllers and detectors

Data analysis techniques

Traffic Signal Operations

Regional Traffic Signal Coordination Program

Adaptive Signal Operation

Commuter Rail Preemption

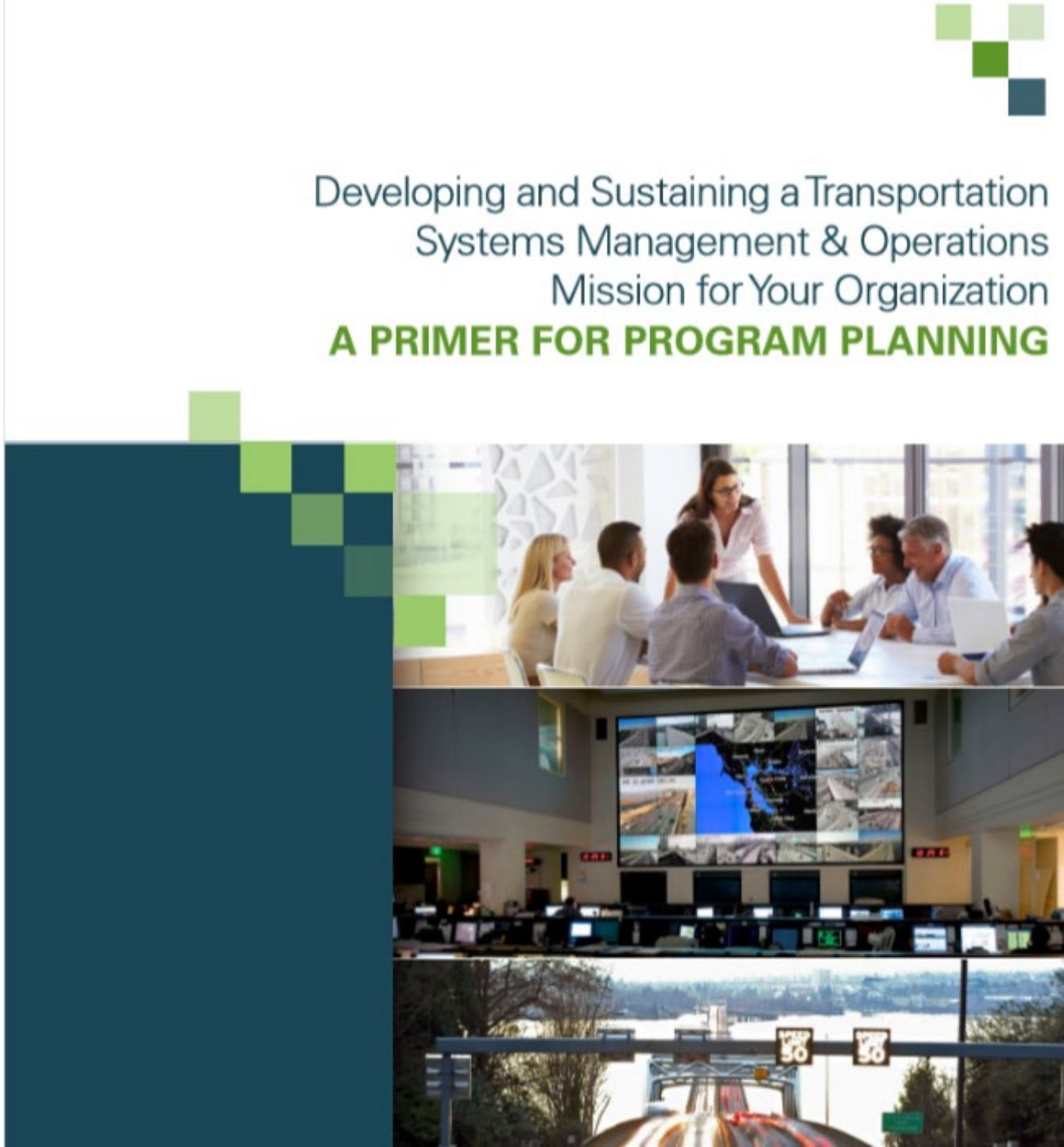
Transit Signal Priority

Corridor Solution

TSMO at Home

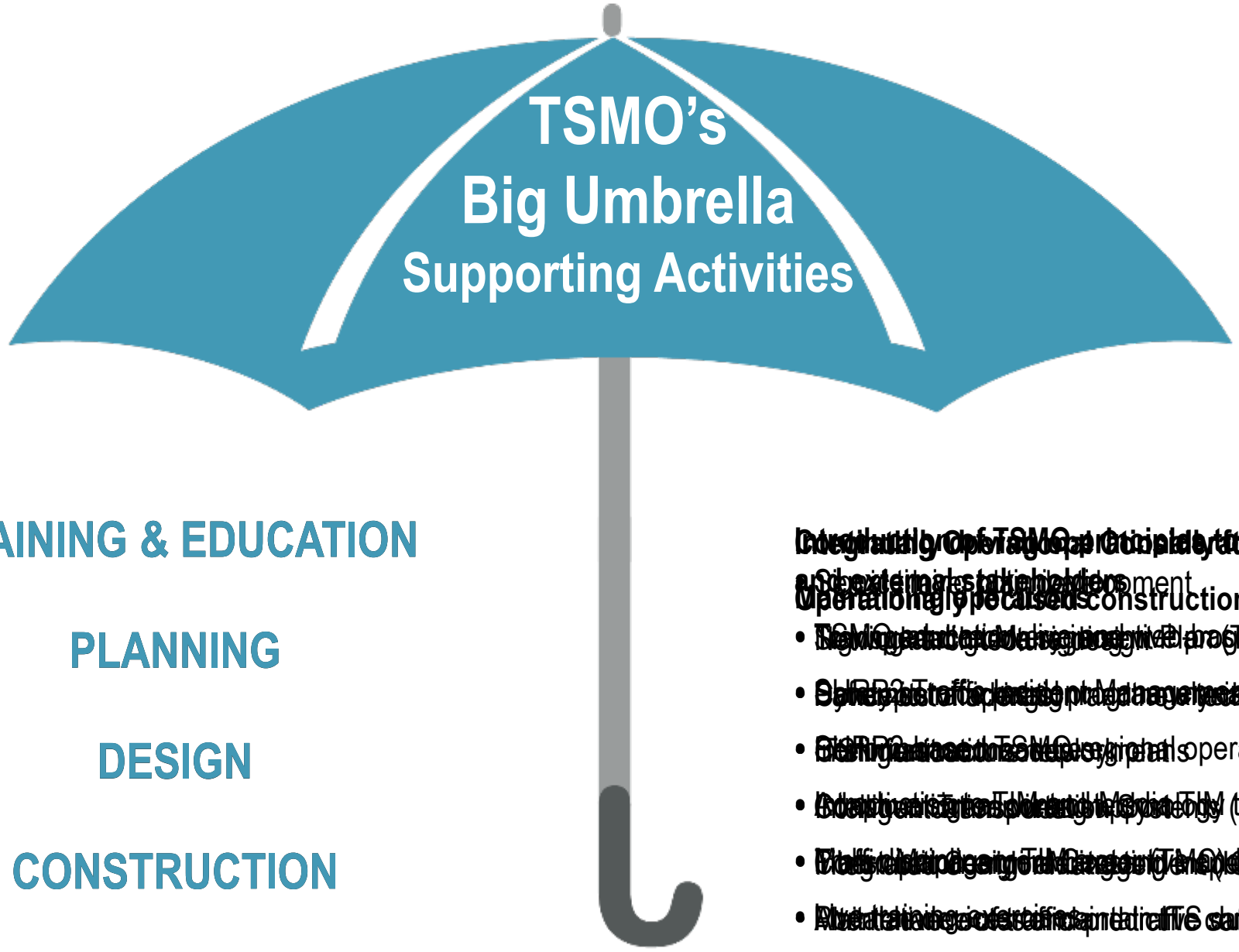
President’s Award - ITS Heartland

TSMO Strategies



TSMO Activities …

- TSMO strategies address goals related to quality of life, such as safety, security and environmental impact.



TRAINING & EDUCATION

PLANNING

DESIGN

CONSTRUCTION

OPERATIONS

- Operationally focused construction staging
- Traffic Incident Management (TIM) training
- Transportation Systems Management and Operations training
- Transportation Asset Management (TAM) plans
- Intelligent Transportation Systems (ITS) master plans
- Traffic Management Center (TMC) upgrades and enhancements
- Active transportation and demand management (ATDM) strategies
- Strategic Connected and Autonomous Transportation (CAT) planning

Traffic Cameras and DMS

Traffic Cameras and DMS

Work Zone Management

Traffic Incident Management (TIM)

Safety Service Patrols and Incident Response Trucks

Planned Special Event Management

Event Planning

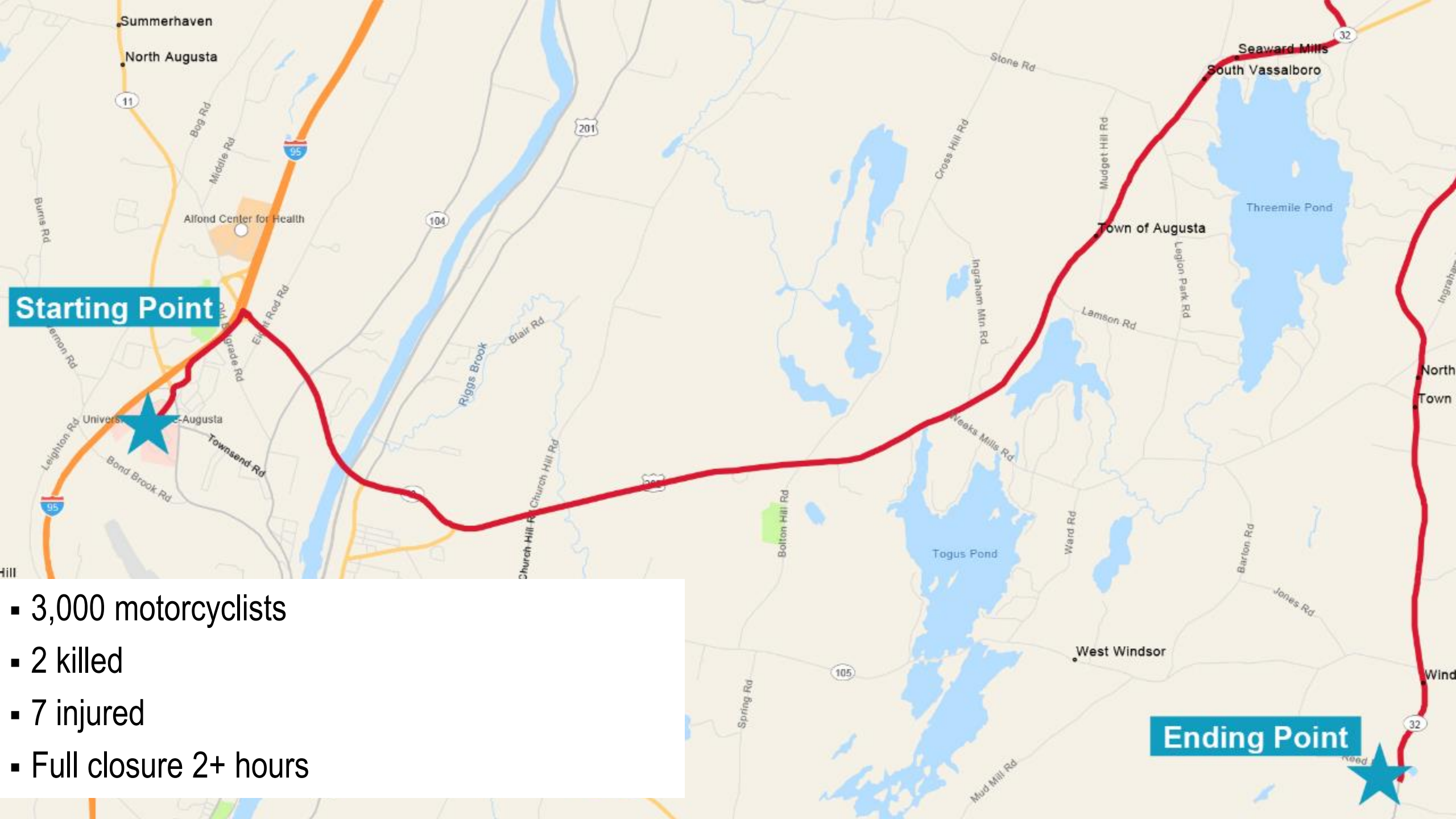
Poor planning led to toy run crash that killed 2, safety officials say

BDN BANGOR DAILY NEWS

Maine State Police | BDN

The National Transportation Safety Board faulted the Augusta Police Department and the United Bikers of Maine for poor communication and planning in a 2017 toy run that left two motorcyclists dead.

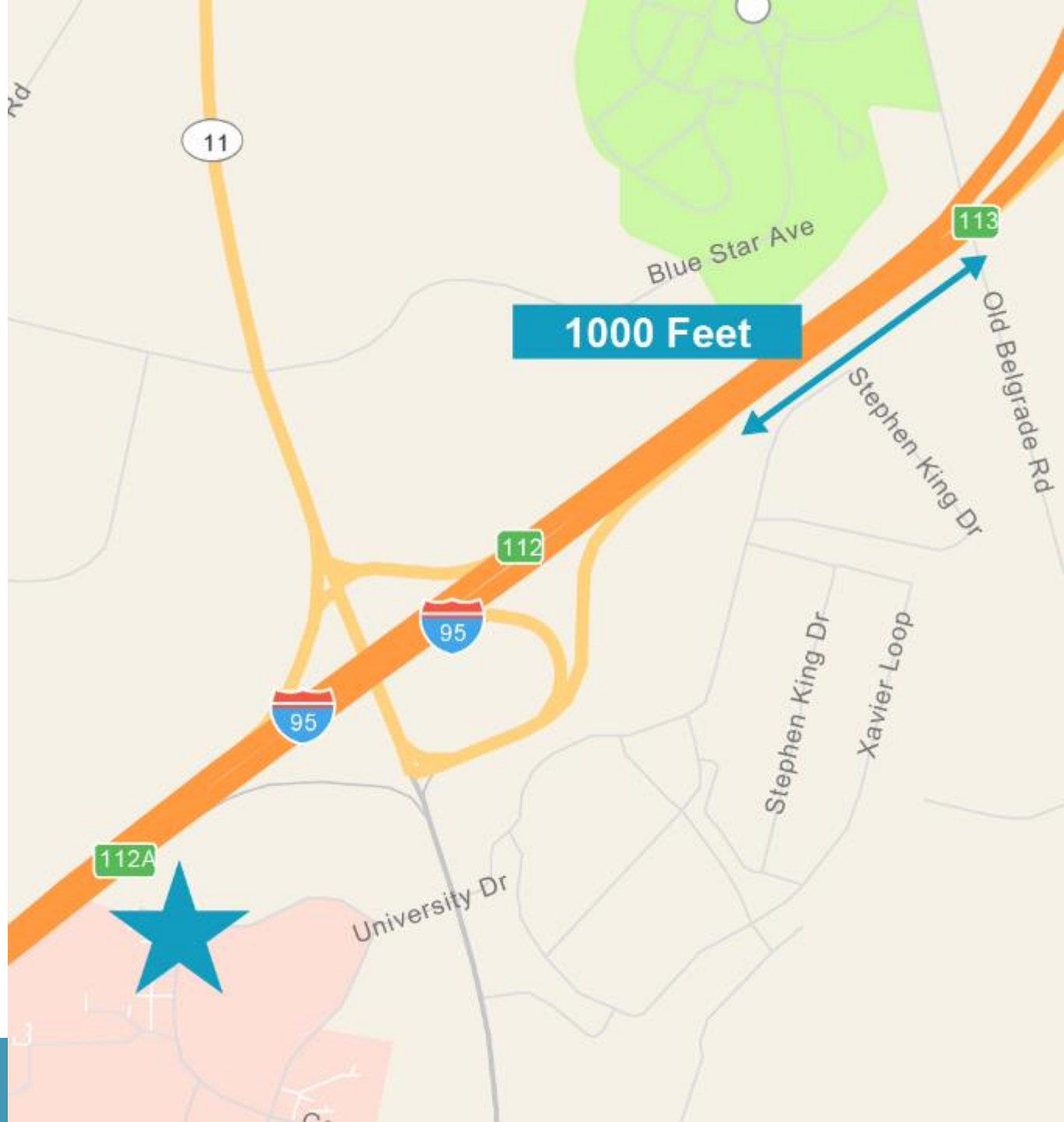
Photo Credit: News Center Maine



- 3,000 motorcyclists
- 2 killed
- 7 injured
- Full closure 2+ hours

Event Planning

- Issues:
  - Planning
  - Geometrics
  - Traffic Control
  - Advance Warning
  - Speed
  - Alt. Routes
  - Coordination
  - Permits
  - Barriers



Road Weather Management

Road Weather Management

Road Weather Management

Traveler Information

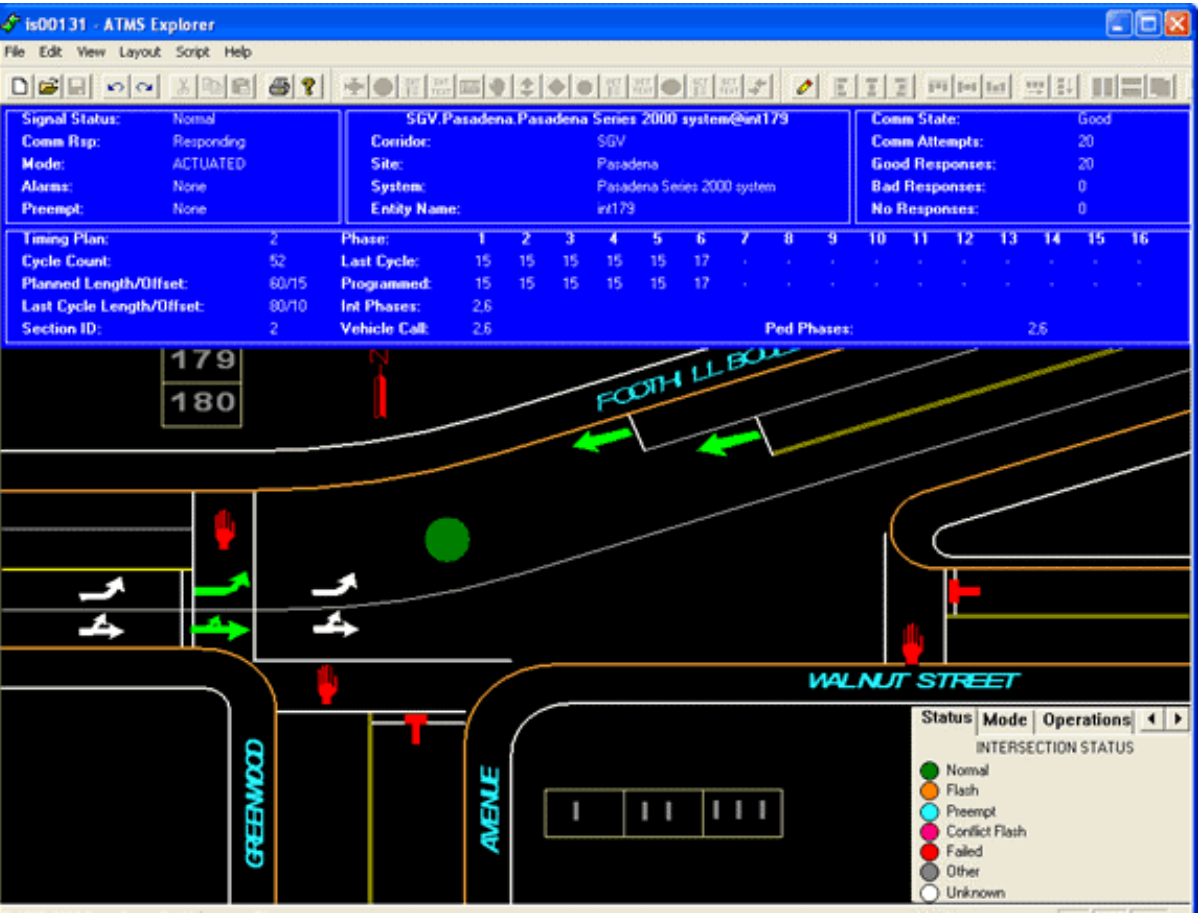
Example Benefits

- 511 customer satisfaction of 68% - 92%
- Route-specific travel times: 5% -13% increase in on-time performance (i.e., reliability)

Ramp Management

Active Transportation and Demand Management (ATDM)

TMC Improvements



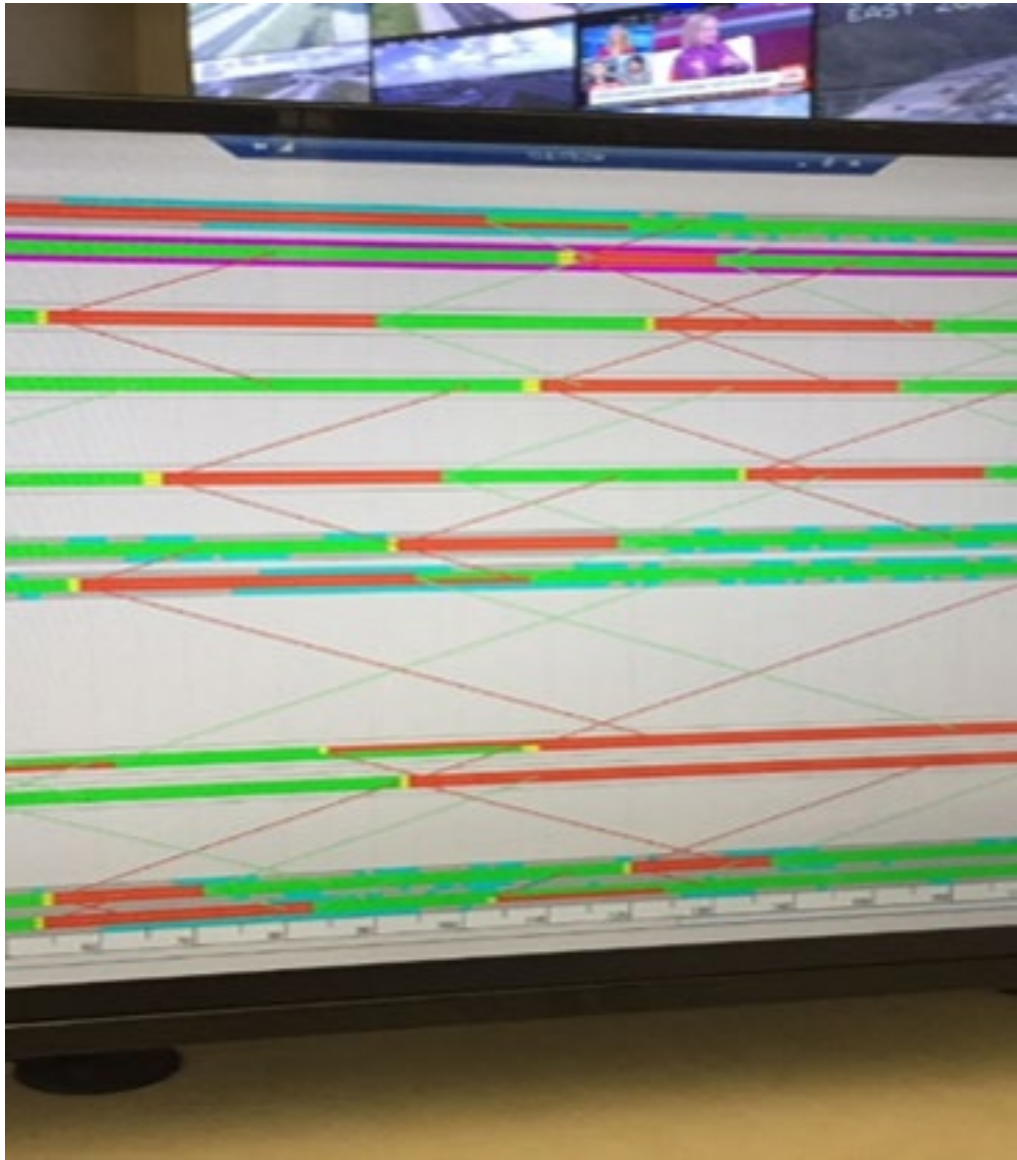
Integrated Corridor Management

Example Benefits

- ICM along I-15 in San Diego: estimated B/C ratio of 9.7:1
- Simulation of ICM: B/C ratios of 7.1:1 to 25.1:1

Alternative Intersections

Signal Timing | Adaptive Signal Control



Turn Lanes

Peak Period Shoulder Lane

Median/Pedestrian Refuge

Road Diets

Before

After

Restriping

Access Management

Managed Lanes

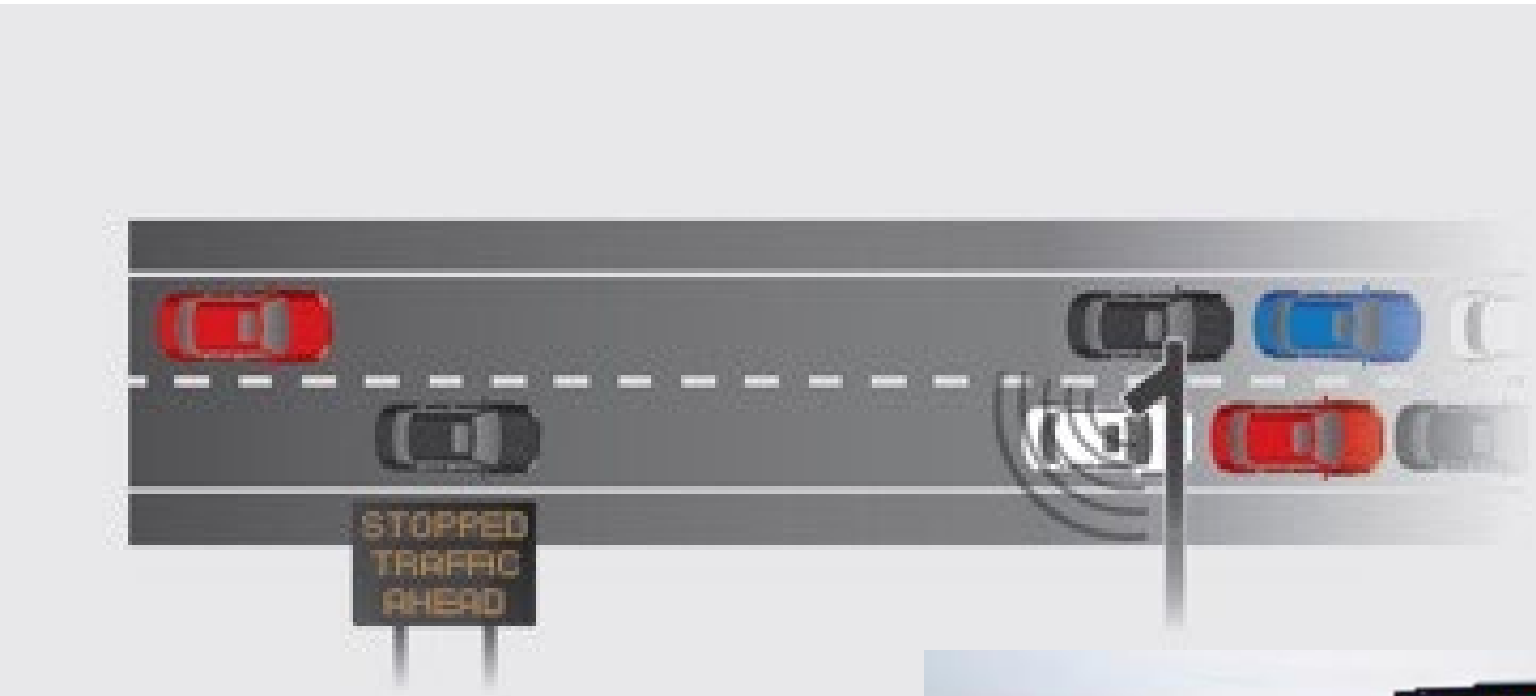
Example Benefits

In Minneapolis (HOV lanes converted to HOT lanes)

- Peak hour corridor throughput increased 5%
- No change / slight increase in speeds
- General reduction in speed differentials (HOT/GP lanes)

Variable Speed Limits

Queue/Advance Warning Systems



Intersection Warning Systems

Infrastructure

TSMO Benefits

Strategy	Benefits
▪ Traffic Light Retiming	▪ Delay reduced 8-25%
▪ Ramp Metering	▪ Speeds increased 24%
▪ Freeway Incident Management	▪ Incident duration reduced 39-51%
▪ Traveler Information	▪ On-time reliability improved 5-16%

Lunch

How Far Have We Come

- Opportunities to promote TSMO
- TSMO Culture Changes / Actions
- TSMO Collaboration (R. Webb)
- ROLF Report from Iowa (June)
- TSMO Progress Nationally

MARC
Mid-America Regional Council

OPERATION GREENLIGHT
Turning Stop Lights into Go Lights

ITS Heartland Chapter

Kansas

NEBRASKA

IOWA DOT

MoDOT

FHWA

FAST FACTS

700+ Traffic Signals

200+ Roadway Miles

1.6 Million Trips/Day

50/50 Local Agency/ Federal Funding

$600 Local Agency Annual Cost Per Signal

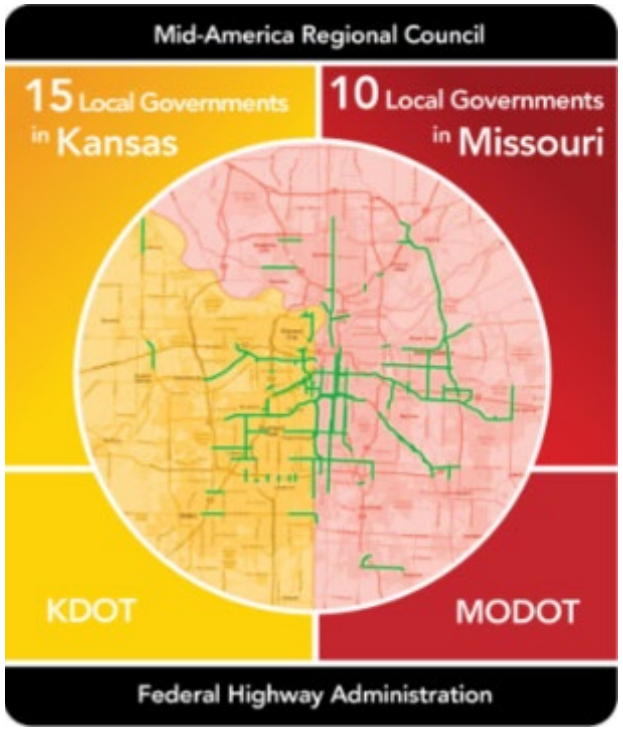
FHWA (MO & KS)

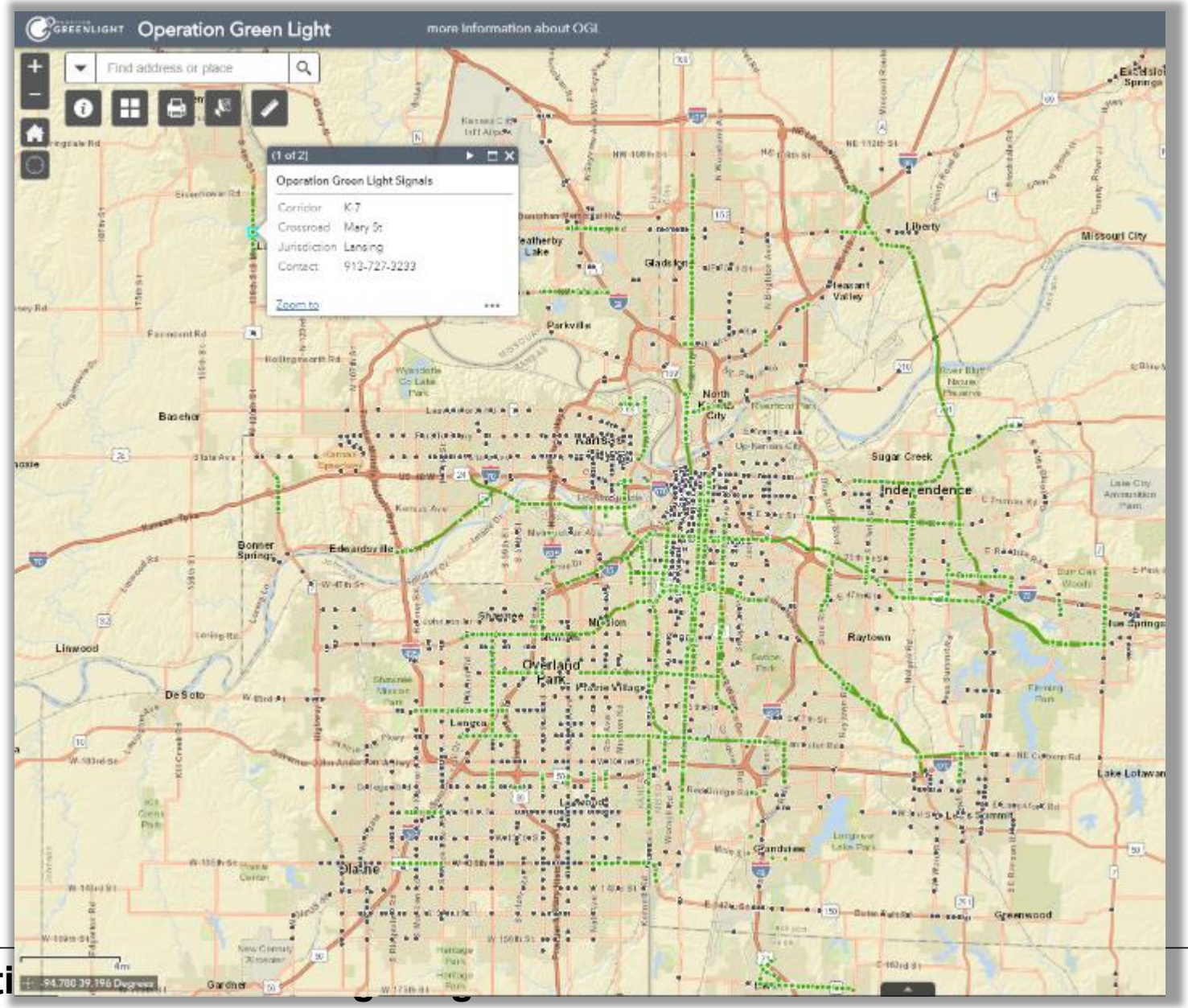
KANSAS

KDOT
Bonner Springs
Fairway
Lansing
Leavenworth
Leawood
Lenexa
Merriam
Mission
Mission Woods
Prairie Village
Olathe
Overland Park
Shawnee
Unified Government-WyCoKCK
Westwood

MISSOURI

MoDOT
Belton
Blue Springs
Gladstone
Grandview
Independence
Kansas City
Lee's Summit
Liberty
North Kansas City
Raymore





ITS Heartland Chapter

Kansas

NEBRASKA
Good Life. Great Journey.
DEPARTMENT OF TRANSPORTATION

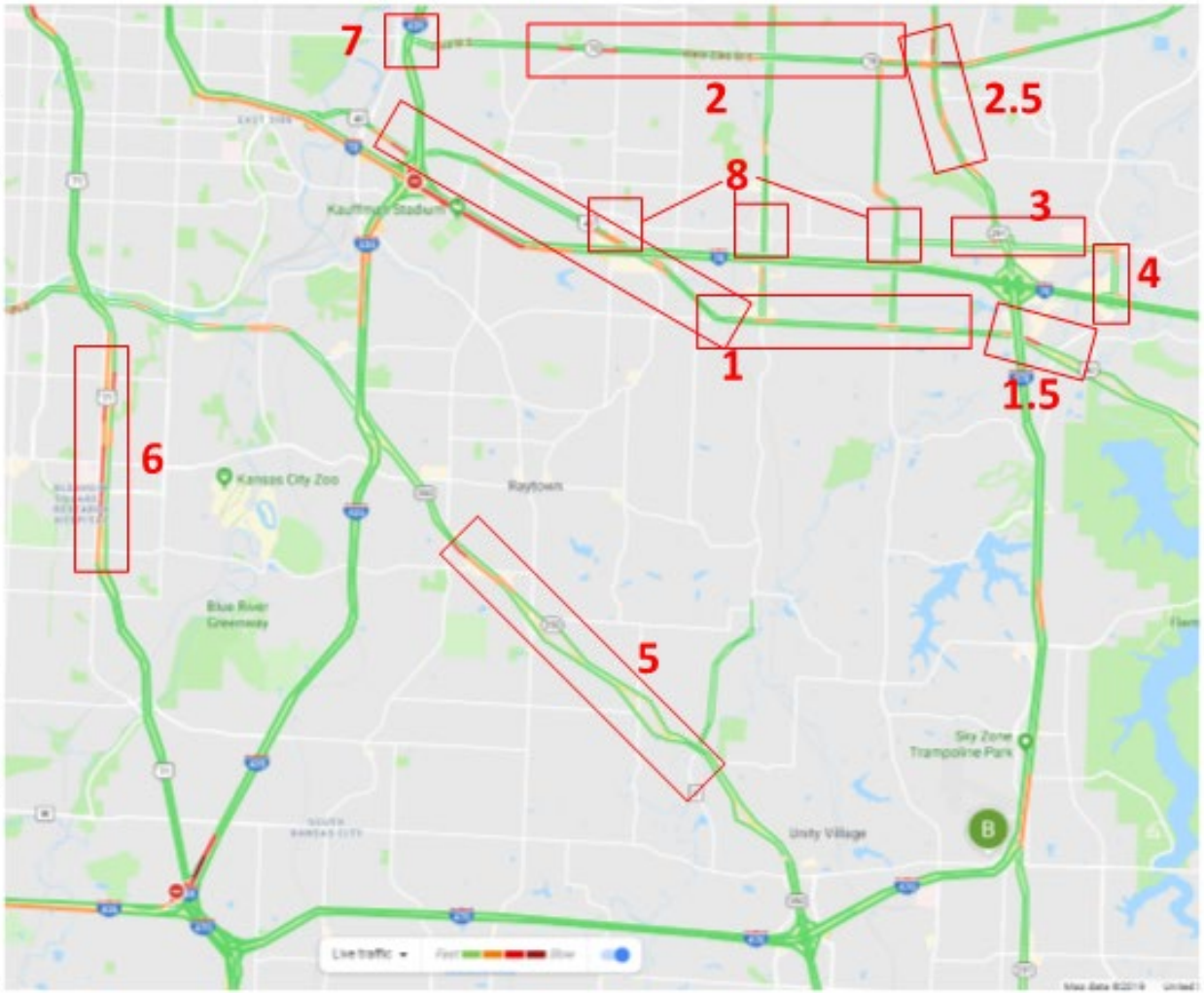
IOWADOT

MoDOT

ODOT

FHWA

1. US-40 PM Peak plan is #37 except at 470 ramps and Lees Summit Rd which are plan #3. Might need to adjust splits at I-70 as PMPK normally has heavy EBLT onto EB 70.
1.5. US-40 From Cliff to LBP runs a Saturday plan, largest cycle length (except "Event Ingress" which I don't recommend using).
2. M-78 from Maywood to Lees Summit PM Peak plan is #3 except Noland and Hyvee are #37
2.5 Hub and 291 down to 32nd St, PMPK is plan #4. Consider adjusting splits at 78 & 291 to take time from SB and give it to NBLT if NBLT is over capacity.
3. 39th St runs a Saturday plan, largest cycle length.
4. Little Blue Pkwy, PM Peak is plan 37 except at I-70 it's 9. Might adjust splits at 39th & LBP or put in free and adjust if NBLT is over capacity.
5. M-350 PM Peak is very directional EB, plan #8 except at Noland it's #40. AM Peak is very directional WB, plan 7 except at Noland it's #22. If both directions are heavy do PMPK.
6. US-71 PM Peak is plan #2.
7. M-78 & 435. If NBLT is heavy place in free. If more is needed we need the dummy phase 4 to be usable.
8. 39th, expect Heavy E-W Adjust?



FHWA Perspective

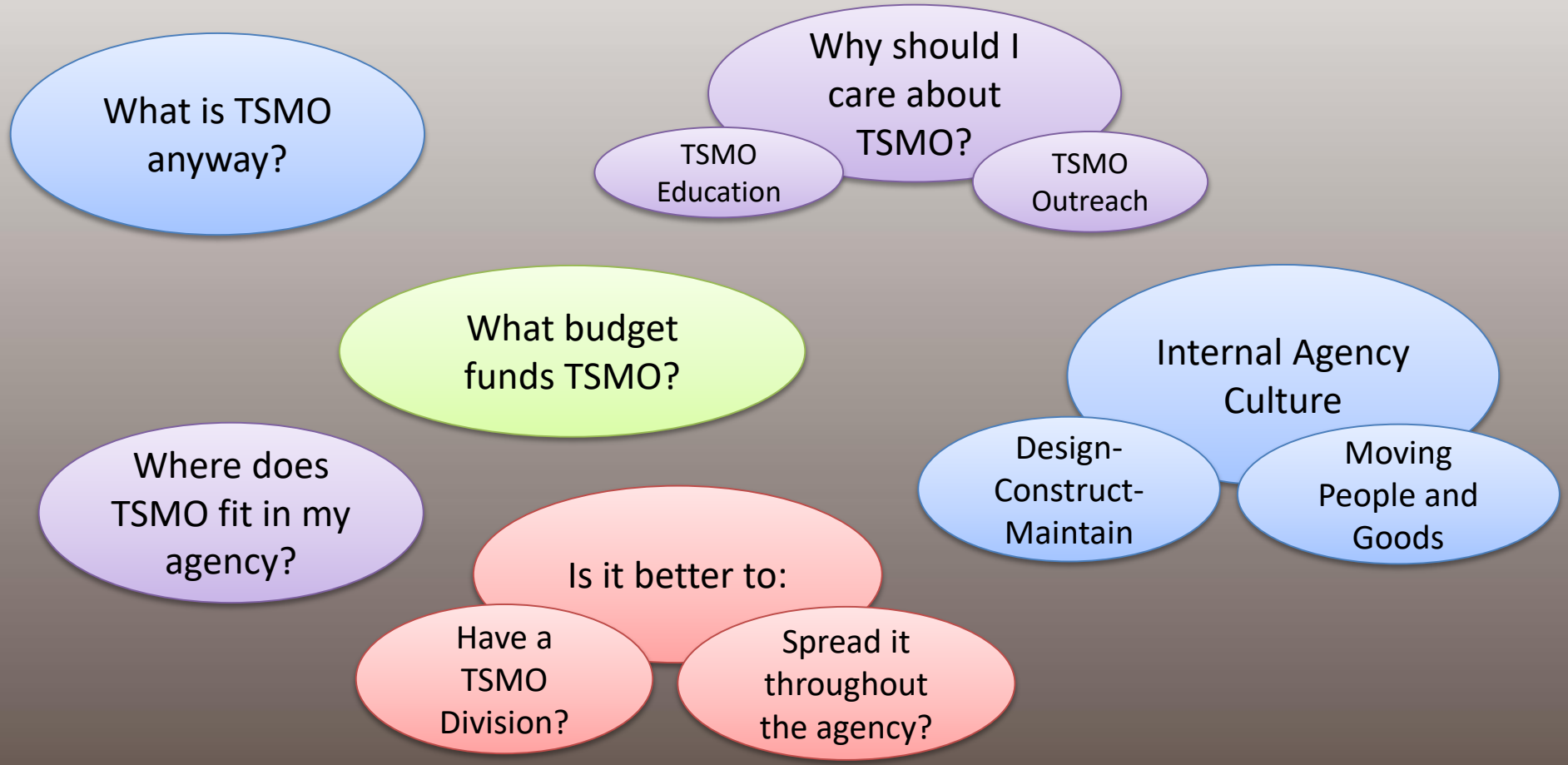
- Tracy Scriba, Team Leader - FHWA Office of Planning & Organizing for Operations

Advancing Transportation Systems Management and Operations (TSMO)

Tracy Scriba
Federal Highway Administration (FHWA)
ITS Heartland Meeting
September 2019

U.S. Department of Transportation
Federal Highway Administration

Challenges Communicating and Integrating TSMO



Effective TSMO Strategies: What Makes the Difference?

What is the key factor for explaining the success (or lack of success) of TSMO strategies at transportation agencies?

- It's not all about **$$$$** or technology deployment.
- It's about whether effective TSMO processes and organizational capabilities are in place.

Integrating and Mainstreaming TSMO into Agencies

- TSMO program development
- Building TSMO into agency processes
- Developing agency culture that supports/values TSMO
- Communicating value of TSMO/business case
- Considering reliability
- Developing workforce capabilities for TSMO
- Developing effective partnerships/collaboration – internal and external

Many Connections are Needed

Connecting Operations to Other Core Agency Programs

- Establish relationships across units
- Understand what's important from both perspectives
- Talk a common language
- Build TSMO into agency processes
- Joint training and workshops
- Collaborate on TSMO program development

TSMO Fact Sheets

https://ops.fhwa.dot.gov/plan4ops/focus_areas/integrating/tsmo_factsheets.htm

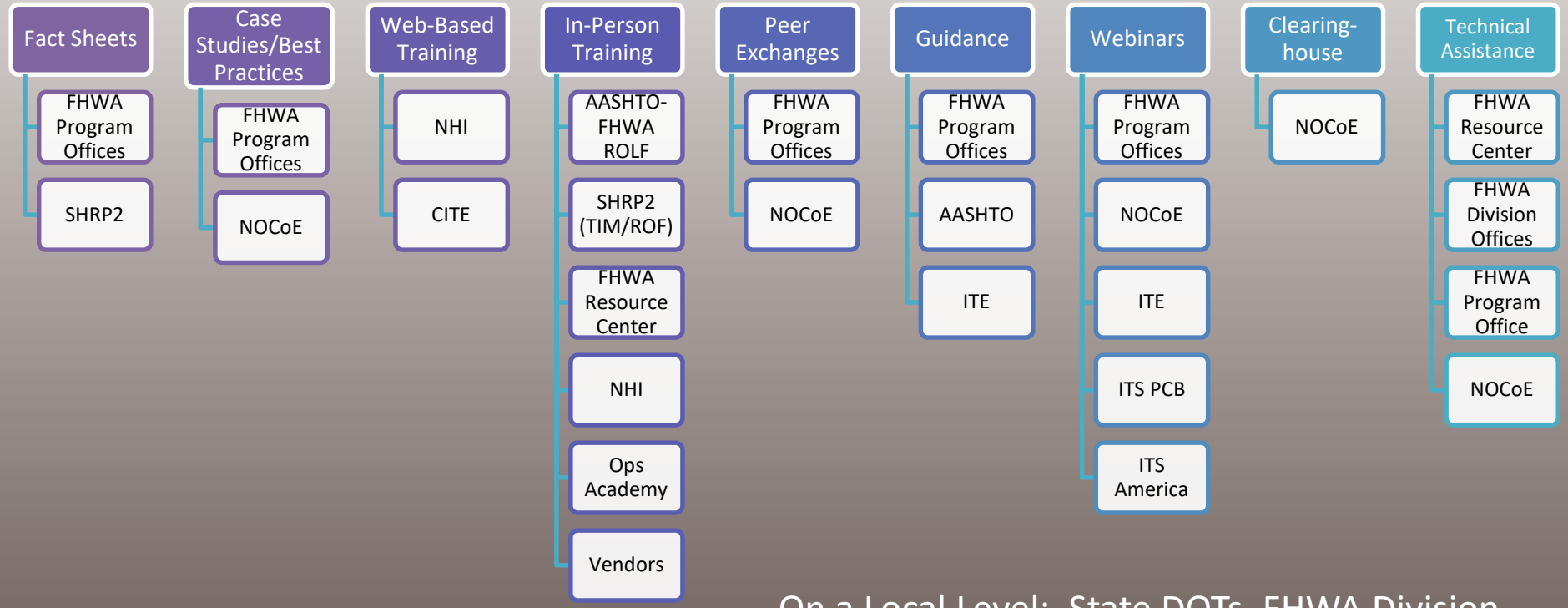
Federal Education Efforts for TSMO

U.S. Department of Transportation
Federal Highway Administration

Why TSMO Education

- Strong foundation for TSMO is critical
- Understanding of TSMO is still developing, and evolving
- Regular need for new workforce capacity
- Education efforts play important role

TSMO Capacity Building Ecosystem



On a Local Level: State DOTs, FHWA Division Offices, Local Technical Assistance Programs

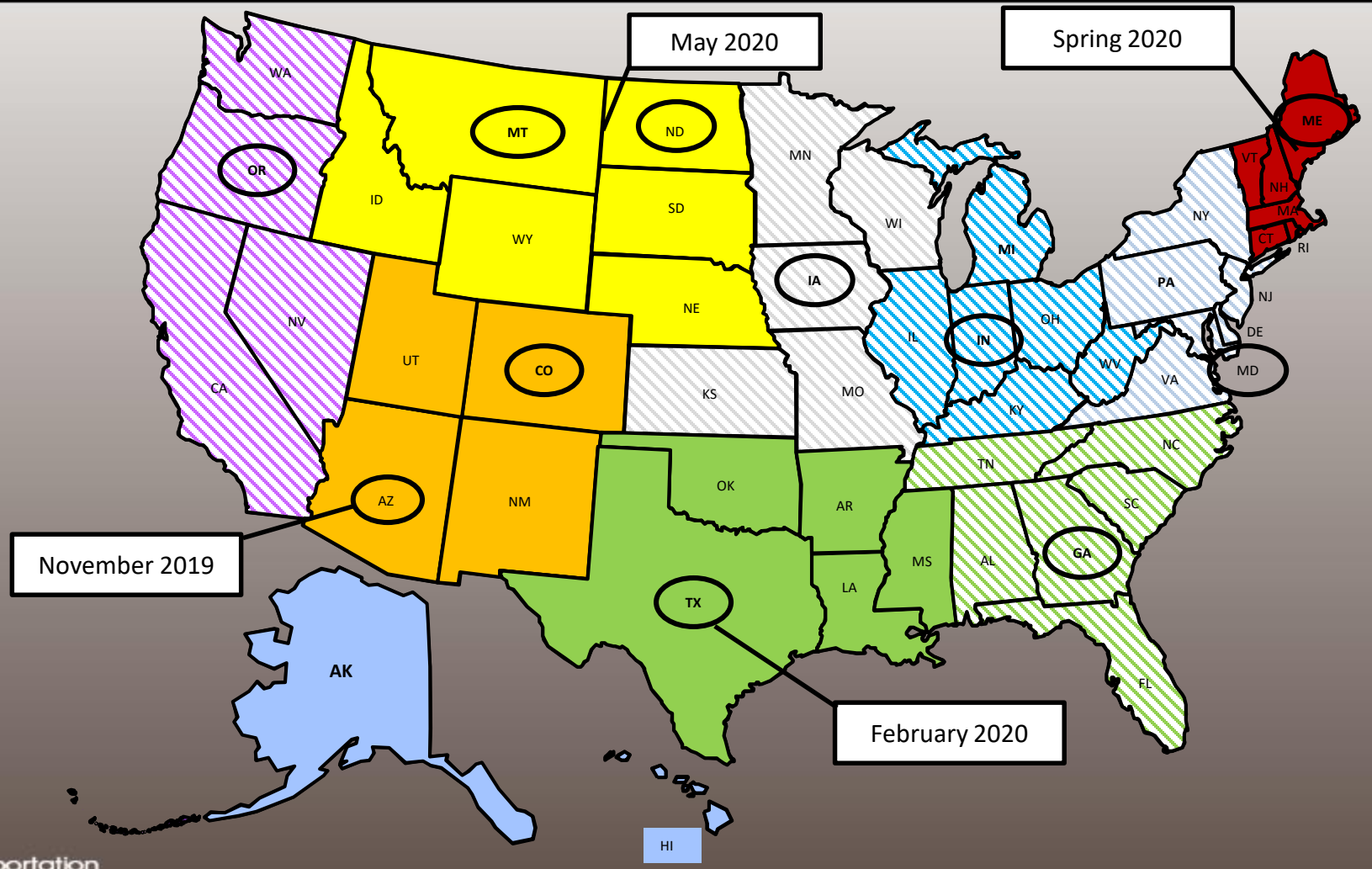
Multi-faceted FHWA TSMO Education Efforts

- Regional Operations Leadership Forum
- Factsheet series
- TSMO outreach kit and videos
- TSMO workshops
- Traffic incident responder training

Regional Operations Leadership Forums - Purpose

- Create TSMO champions
- Help States and their partner agencies:
  - Mainstream TSMO into agency culture
  - Strengthen TSMO programs
  - Enable intergenerational TSMO leadership
  - Develop a multi-state regional community of practice

Regional Operations Leadership Forums – Status



U.S. Department of Transportation
Federal Highway Administration

Multimedia TSMO Outreach Tools

- TSMO outreach toolkit
- Short videos
- Success stories

TSMO Workshop Opportunities

- Contemporary Approaches to Travel Demand Management
- TSMO Program Planning
- Planning for Travel Time Reliability

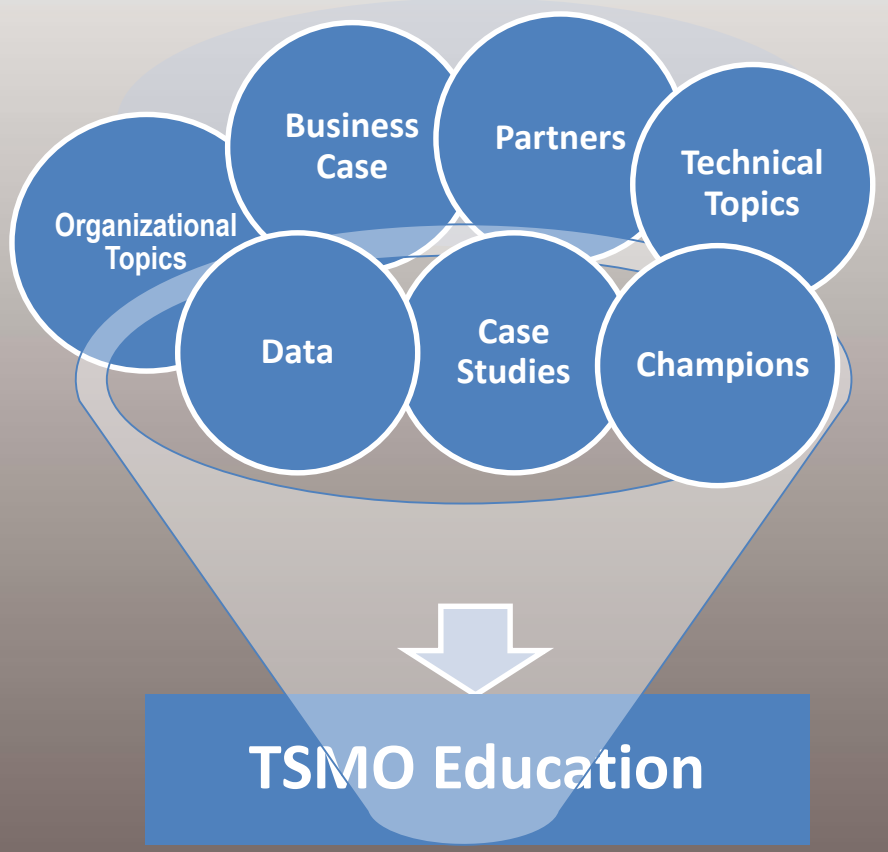
Strategies: Traffic Incident Management Responder Training

- More than 425,000 responders trained to date
- Train-the-trainer model
- Material in more than 40 public safety training academies in 26 States
- Graduating responders help change the state of the practice for incident response

Photo: 123rf.com

TSMO Education

Leverages combined efforts of many



Is sustained

Contact Information

Tracy Scriba

Team Leader, Planning and Organizing for Operations

FHWA Office of Operations

tracy.scriba@dot.gov

Our Role in TSMO
Advancement / Education / Implementation

- Public Sector
- Private Sector
- Academia

Our Role in TSMO
Advancement / Education / Implementation

Small Group Discussion

- Divide into three groups by role
  1. Public Sector
  2. Private Sector
  3. Academia
- Actions?
- Advocacy?
- Priorities?
- Mindset Shift?

Break

How People Learn

Adult Learning Principles

Small Group Discussion

- Review adult learning article
- Identify how adults learn best
- Describe situations encouraging adult learning
- Keys to understanding/assessing adult behavior

Facilitator Responsibilities

- Focus on learners
- Encourage discussion
- Manage difficult situations
- Organize learning environment

Facilitator Responsibilities

Small Group Discussion

- Review photo
- Discuss benefit(s) or drawback(s) of room set-up
- Debrief answers with large group


Branch by Release (Mainline)
Prep
Code

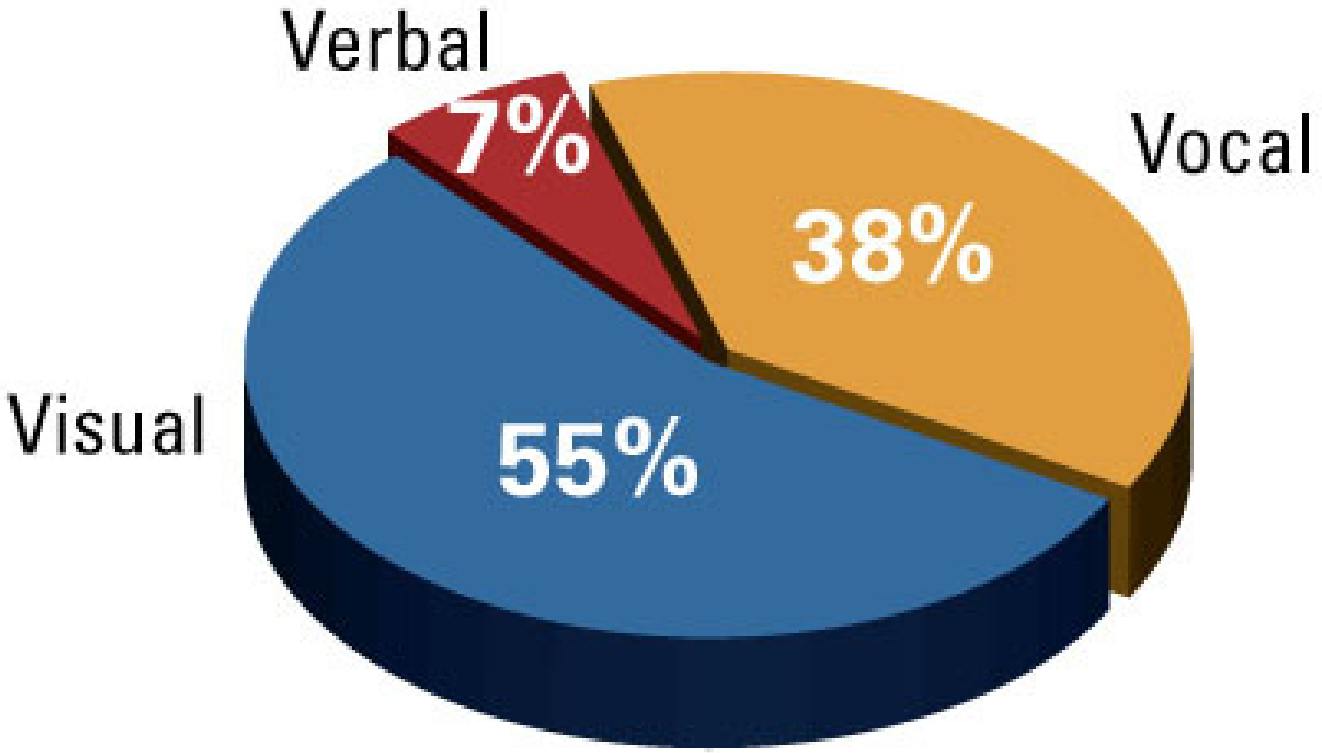
Powerful Training is…

- Effective
- Efficient
- Engaging
- Learner-centered
- Performance-based

Performance is

(Ability + Knowledge) * Inspiration = Success

Communication Channels

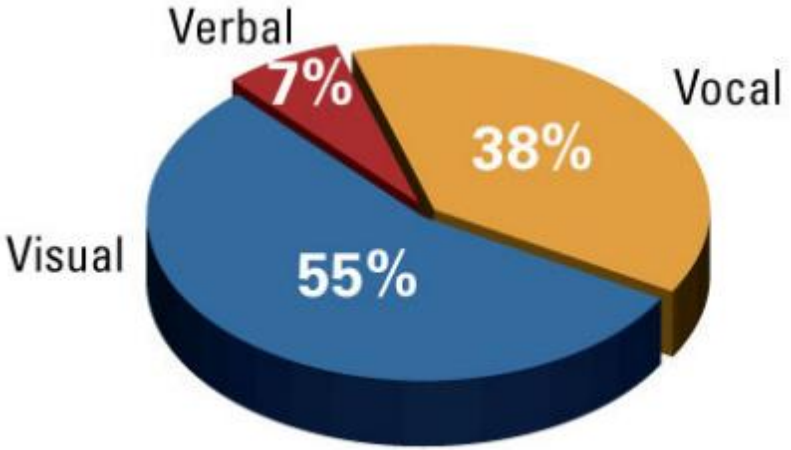


** Based on research by Albert Mehrabian, Ph.D., Professor Emeritus, UCLA. See his book, Silent Messages.*

Communication Channels

Visual Channel

- Controlling nerves
- Eye contact
- Posture and movement
- Gestures and facial expressions
- Personal appearance



Posture and Movement

- Are visual messages
- Decreases nervousness
- Aids proper breathing
- Promotes voice projection

Gestures / Facial Expressions

- Clarify and support message
- Dramatize ideas
- Emphasize feelings
- Reduce nervousness
- Stimulate participation

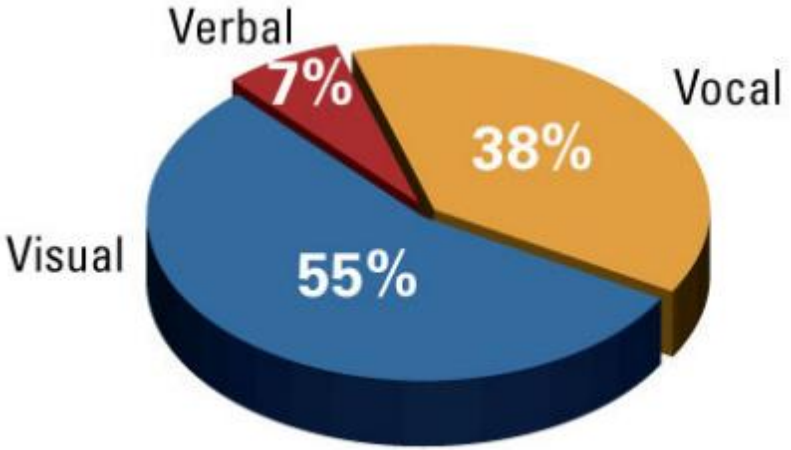
Effective Gestures

- Involves hands to support message
- Are personal and natural
- Are made smoothly
- Last long enough to connect with participants

Vocal Channel

How you sound

- Voice volume and projection
- Speaking rate
- Voice dynamics
- Articulation



Voice Dynamics

Effective

- Confident, spontaneous, upbeat tone
- Inflection conveys meaning
- Tone reflects spirit of message

Ineffective

- Speaking without meaning, inflection, or emotion

Verbal Channel

Content or “the words you use”

- Use facilitator notes
- Use personal stories
- Manage podiums and other props
- Use AV effectively

Speaking Opportunity

Speaking Opportunity

A Favorite Story

- Topic: work, family, school, vacation, hobbies
- Story: humorous, informative, lessons learned
- Open, middle, and close
- 2 min or less

End of Day 1

- Final Comments
- Hotel Check-in
- Dinner instructions
- Day 2 start

TSMO Train-the-Trainer

Olathe, KS / September 5, 2019

McPherson / Volz


Royals
Commerce Bank
StateFarm NEIGHBORHOOD
Royals
5
LOS
GIGANTES

Drive to Zero

Safety Moment

Driving in Construction Zones

Between 1982 and 2014, **24,745** people lost their lives in work zone crashes. Here are some tips to stay safe when entering work zones:

- Be patient
- Expect the unexpected
- Buckle up
- Pay attention to all signs and flaggers

  (Don’t assume there are no workers present even if you don’t see them)
- Watch for detours and lane diversions

  (Merge promptly at lane closures)
- Leave plenty of following distance between vehicles

  (Most accidents in construction zones are rear-end collisions)

Agenda Review

- Day 1 Review
- TSMO Culture
- Peer State TSMO Program
- Conveying the TSMO Message
- Review/Update TSMO Materials
- Speaking Opportunity/ TSMO Topics
- TSMO-related Q/A
- Next steps for Advancing TSMO

Day 1 Review

- TSMO Principles
- FHWA Perspective
- Our Role in TSMO Advocacy
- Learning Styles
- Speaking Opportunity
- NOCoE Awards Video

What is TSMO Culture?

- Acceptance of TSMO in agency's mission
- Institutionalization of TSMO into agency activities
- Values, assumptions, knowledge and expectations for TSMO within an agency
- Key aspects of culture
  - Leadership/championing TSMO
  - TSMO program status
  - Staff recruitment, retention and training

TSMO Culture in Public Agency

Burt Morey
Deputy Secretary
Kansas Department of Transportation

Peer State TSMO

Brent Cain
TSMO Division Director
Arizona Department of Transportation

Break

Conveying the TSMO Message
Public. Politicians. Media

The “TOM” Project

Tom Hein
Wichita Metro Public Information Officer
Wichita TMC Manager
Kansas Department of Transportation

THE TOM PROJECT

An integrated program of projects, strategies, services, technologies and processes that can help mitigate congestion, improve safety and increase the efficiency of our transportation system


ROAD
CLOSED
416


EAST
18


2017 TOTAL SOLAR ECLIPSE
CAMPING
AND
FESTIVAL
OREGON
SOLARFEST
OregonSolarFest.com
BOOK NOW


K-STATE
K-ST


STOP
18


218


RELIABLE
Carriers, Inc.
407-859-0876
734-453-6677


EXIT 222A
INTERSTATE
435
EAST
1/2 MILE
SCHOOL BUS


VE
RIGHT NOW-SKYTRACKER
MULTIPLE VEHICLE CRASH
I-35 & SOUTHWEST BLVD

TRANSPORTATION SYSTEMS MANAGEMENT & OPERATIONS

An integrated program of projects, strategies, services, technologies and processes that can help mitigate congestion, improve safety and increase the efficiency of our transportation system

TSMO

An integrated program of projects, **strategies**, services, technologies and processes that can help mitigate **congestion,** improve **safety** and increase the **efficiency** of our transportation system

TSMO

Integrated strategies to optimize the performance of existing infrastructure through the implementation of multimodal and intermodal, cross-jurisdictional systems, services and projects.

TSMO TOOLS

TSMO TOOLS

- Work Zone Management
- Traffic Incident Management
- Traveler Information
- Special Event Management
- Road Weather
- Freight Management
- Traffic Signal Coordination
- Service Patrols
- Ramp Management
- Managed Lanes
- Transit Management
- Active Traffic Management
- Integrated Corridor Management

WORK ZONE MANAGEMENT

TRAFFIC INCIDENT MANAGEMENT

Wichita >700 trained

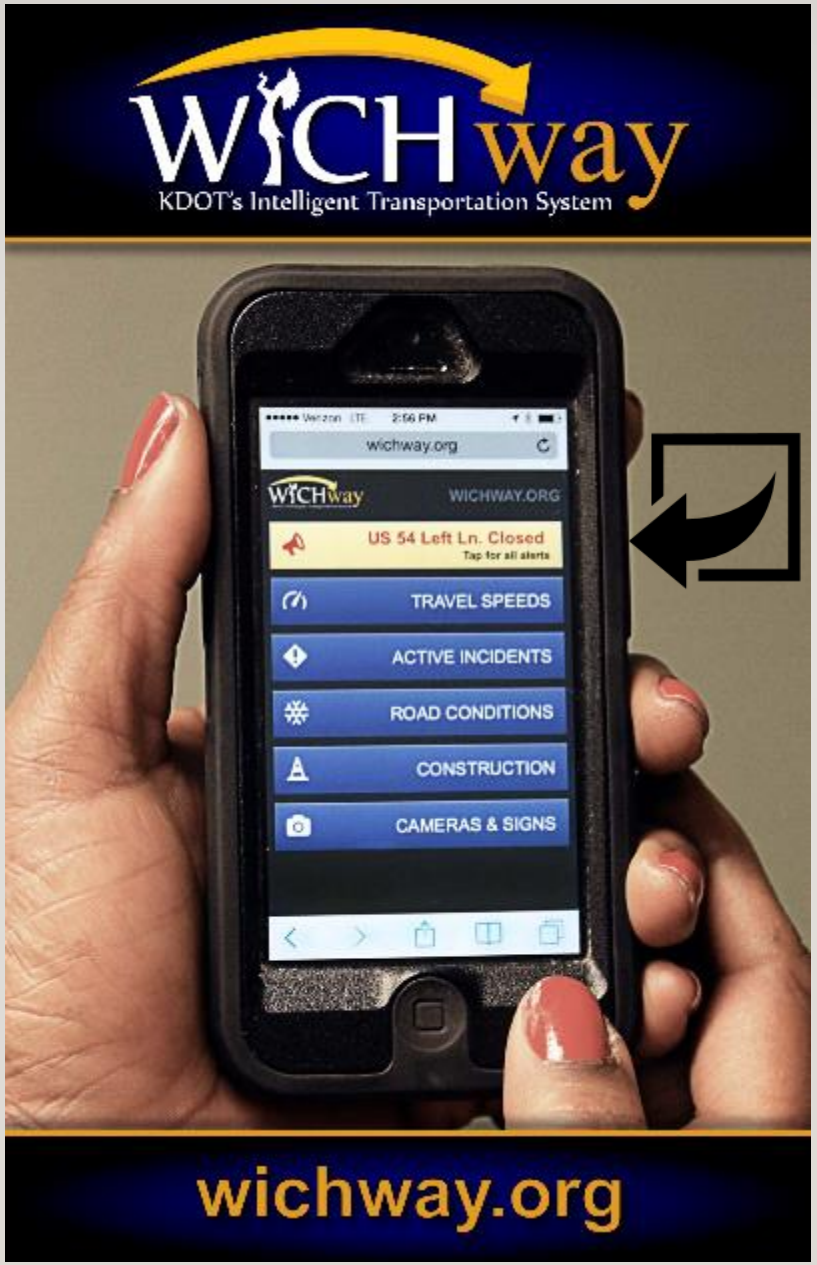
Statewide 3,496

National 312,401


ACCIDENT AHEAD
US-54 AND I-235
EXPECT DELAY
68 29


WICHway
KDOT's Intelligent Transportation System
US 54 Left Ln. Closed
INTERACTIVE MAPS
TRAVEL SPEEDS
ROAD CONDITIONS
CAMERAS & SIGNS
ROAD CONSTRUCTION
CAMERAS TOUR
SIGNS TOUR
ACCIDENT AHEAD
AT I-235
USE LEFT LANE
wichway.org


K96 at Rock
WICHway


WICHway
KDOT's Intelligent Transportation System
wichway.org
WICHWAY.ORG
US 54 Left Ln. Closed
Tap for all alerts
TRAVEL SPEEDS
ACTIVE INCIDENTS
ROAD CONDITIONS
CONSTRUCTION
CAMERAS & SIGNS
wichway.org

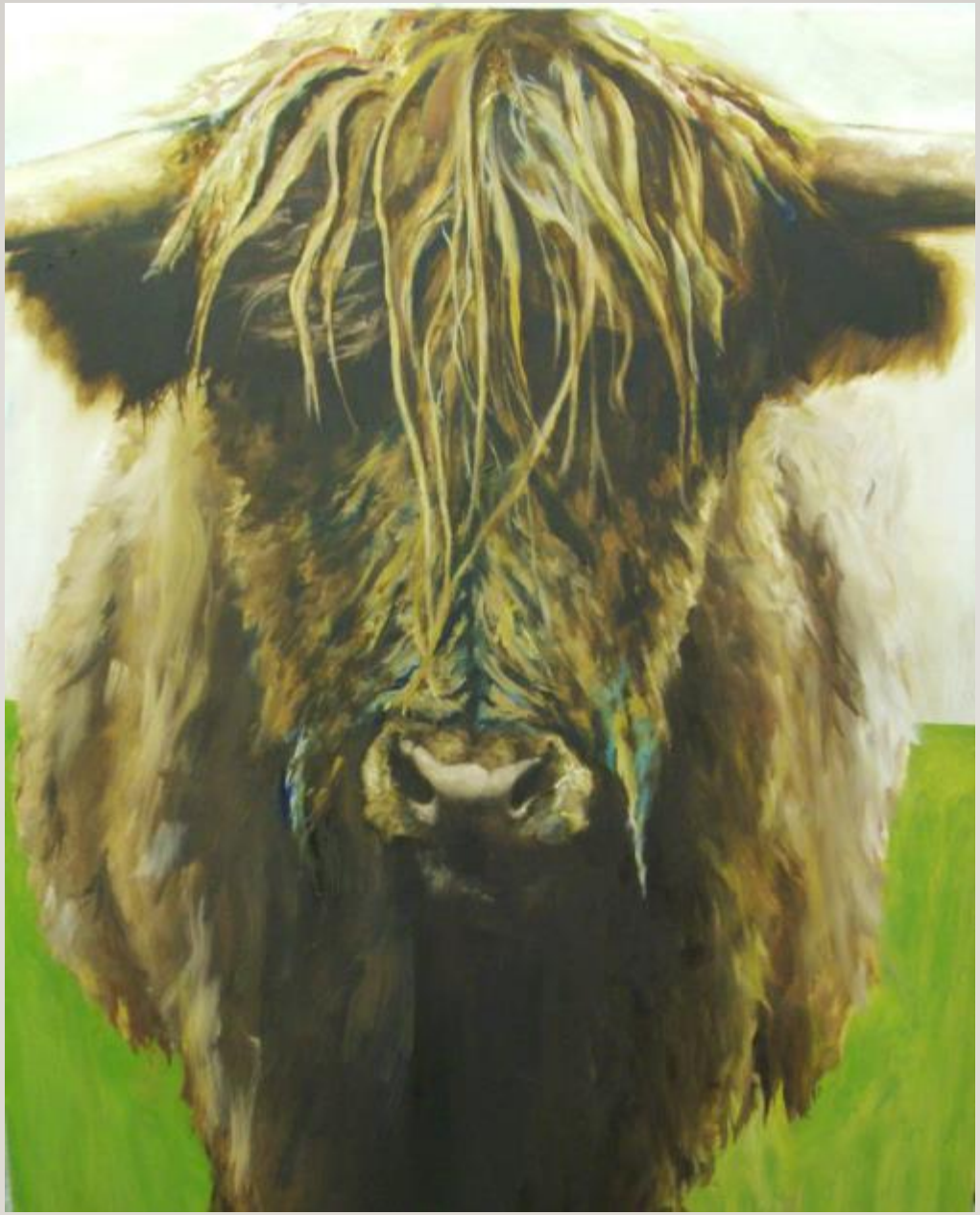
TRANSPORTATION SYSTEMS OPERATION & MANAGEMENT

- **Work Zone Management**
- **Traffic Incident Management**
- **Traveler Information**
- **Special Event Management**
- **Road Weather**
- **Freight Management**
- **Traffic Signal Coordination**
- **Service Patrols**
- **Ramp Management**
- **Managed Lanes**
- **Transit Management**
- **Active Traffic Management**
- **Integrated Corridor Management**

BENEFITS OF TSMO

- **Reliability**
- **Safety**
- **Environmental**
- **Performance management**
- **Better informed public/driver**
- **Cost savings**
- **Alternatives to building**
- **Improved internal communications**
- **Improved event/incident mgmt.**
- **Improved road weather/maintenance management**

WWW.ITSHEARTLAND.ORG



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T	ransportation
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M	aking
A	djustments
T	o
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E	veryone
W	orldwide

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N	otifying
E	very
G	ood
I	ntelligent
L	istener

N	egating
E	vil
G	arnering
I	ncreased
L	ove

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THE TOM PROJECT

Prep Time

Speaking Opportunity

Speaking Opportunity

TSMO-Specific Materials

- Identify mock audience
  - Executive Level
  - Mid-level Operations Staff
  - Field Contractor
- Deliver TSMO presentation
- Answer questions, if asked
- 2 min or less

Lunch

Facilitation Techniques

- Managing your notes
- A/V
- Managing Discussions / Questions
- Intervention strategies

Encourage Discussion

- Ask effective questions
- Use listening skills
- Use flipchart or whiteboard
- Think “parking lot”
- Be careful with laser pointers

Questions Provoke Learning

- Ask open-ended questions
- After posing question
  - Be selectively quiet (pause)
  - Listen
  - Allow participants think time
- Avoid being judgmental
- Never embarrass participants

Managing Questions

- Repeat the question
- Answer question for room (not just the individual)
- Involve entire audience
- Thank question “asker”
- Use your interpersonal skills

Responding to Participants

- Paraphrase

"So, what you're saying is…"

- Reflect feelings

"You feel that…"

- Summarize and request confirmation

"Let me see if I understand, you…"

Intervention Strategies

- Level 1: Do Nothing
- Level 2: Off-line Conversation
- Level 3: Impersonal Group Time
- Level 4: Off-line Confrontation
- Level 5: In-group Confrontation

Intervention Strategies

Table Exercise

- Review situation
- Identify most effective strategy
- Communicate answer to large group

Mid-Day Knowledge Check

Table Exercise

- Identify top five key takeaways (Review notes)
- Share answer with group, when called upon

Next Steps

- Action items and next steps
- Putting the training in action
- Audiences to target
- Adding TSMO to the transportation discussion

End of Day 2

- Final Comments
- If you have follow-up questions