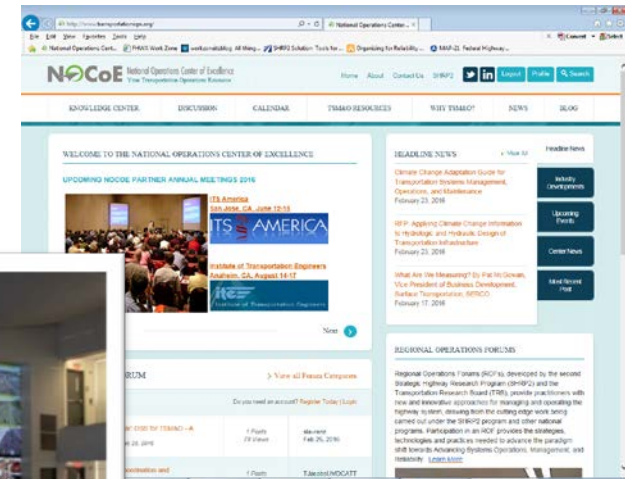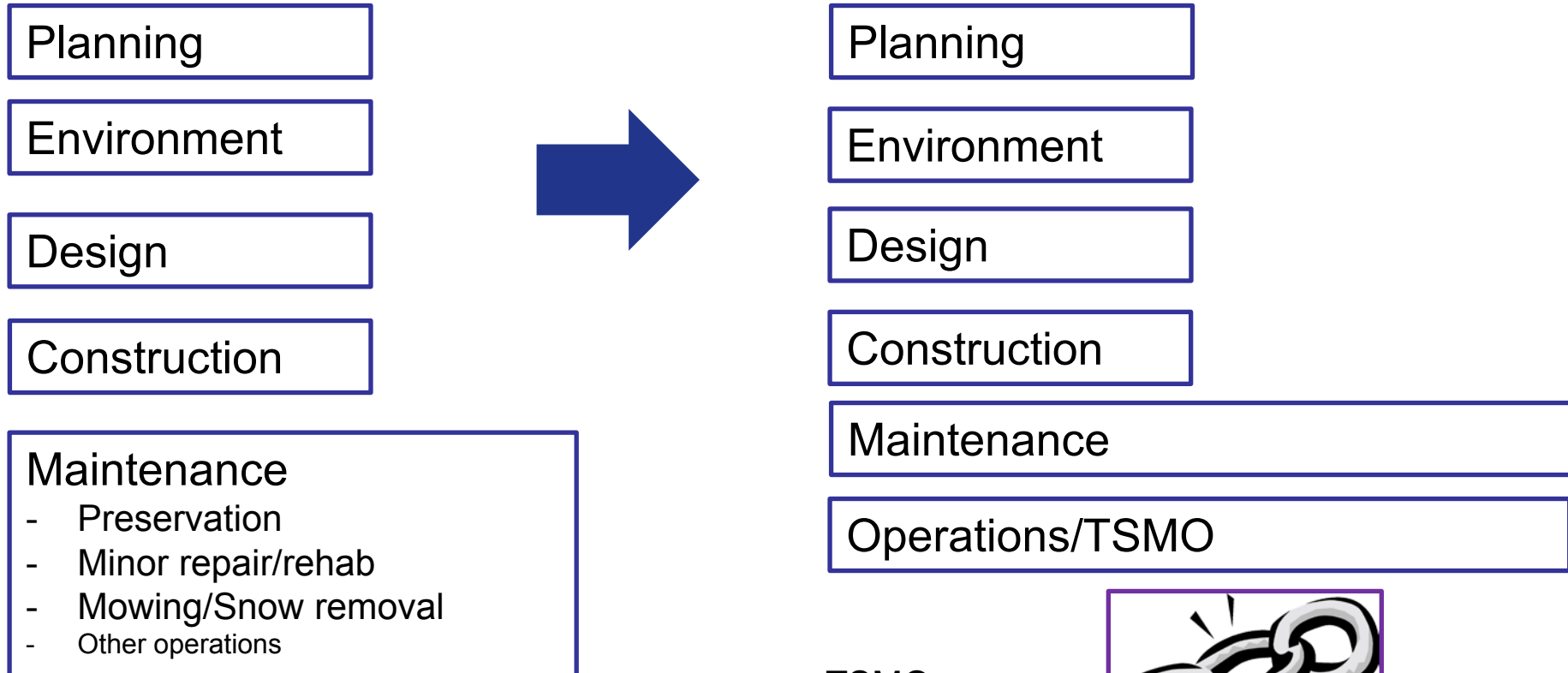# SHRP2 Reliability Implementation

Tracy Scriba, FHWA
SHRP2 and TSMO Workshop
8/5/16

Evolution

Growing recognition of the key role of Operations and Active Management

Planning

Environment

Design

Construction

Maintenance
- Preservation
- Minor repair/rehab
- Mowing/Snow removal
- Other operations

→

Planning

Environment

Design

Construction

Maintenance

Operations/TSMO

TSMO as a "missing link"

Supporting the Evolution to Advance Operations/TSMO

- Culture change

- Organizational capabilities
  - Structures
  - Staff

- Decisionmaking that includes operations/reliability
  - Business processes
  - Analytical tools
  - Performance measures

- More collaboration with partners
  - Data
  - EMS
  - Public and private sector

What is SHRP2?

- Nationally-coordinated program to advance surface transportation
  - Research
  - Develop - tools, technologies, data sets, approaches
  - Implement

- Addresses 4 areas
  - Safety, Renewal, Capacity, and Reliability
  - Numerous projects in each area

- Jointly led by FHWA, TRB, AASHTO

  Goal: Save lives. Save money. Save time.

SHRP2 Reliability Solutions to Advance TSM&O

1. Creating strong **organizational capabilities** for reliability and TSM&O

2. Providing tools to support **measurement, analysis, and effective decision-making** that considers TSM&O

3. Advancing TSM&O strategies/practices to better **manage the transportation system**

4. Transfer knowledge to share technical resources and peer experience to **develop TSM&O expertise**

SHRP2 Reliability Focus Area

SHRP2SOLUTIONS
STRATEGIC HIGHWAY RESEARCH PROGRAM

Implementation Snapshot

Product	Implementation
Traffic Incident Management Training (L12/32)	Nationwide deployment
Organizational TSMO Capability Assessments (L01/06)	IAP Round 1
CEO Outreach on Operations & Reliability (L31)	Available nationwide
Enhanced Knowledge Transfer System (L17)	Nationwide deployment
Reliability Data Archive (L13A)	Available nationwide
Reliability Data & Analysis Tools (L02/05/07/08/C11)	IAP Round 4 IAP Round 7
Reliability in Simulation & Planning Models (L04)	Limited pilots, IAP Round 7
Communicating Reliability Traveler Info (L14)	Limited pilots, guidance
Business processes/e-Tool to improve reliability (L01/34)	Available nationwide
Regional Operations Forums (L36)	Nationwide deployment IAP Round 7
Work Zone Impact Estimation/Coordination Tool (R11)	IAP Round 6
Freight Data and Modeling (C20)	IAP Round 3

Most Used Reliability Products to date

- TIM Responder Training – 200,000 in 50 States, DC, Puerto Rico

- Knowledge Transfer System/NOCoE – 1,700+ users/month

- Regional Operations Forum – 49 States, DC, Puerto Rico

- CMM Assessment Tool for TSMO – 50 sites in 28 States

- TSMO Program Area CMMs – 28 sites in 16 States

*Sites can be States, MPOs, DOT districts, or regions/metro areas

Most Active States

- Florida
- California
- Maryland
- Tennessee
- Washington
- Arizona/Maricopa County
- Colorado

1. Implementation Highlights - Organizing for Reliability/CMM Tools

- **Widespread interest in CMM – 50 sites**
  - CMM assessments, action plans, carrying out plans

- **Results of workshops leading to:**
  - TSMO program plans
  - Updates to ITS architectures
  - Business case materials
  - TSMO performance measures plan/program
  - Workforce development/training
  - Restructuring DOTs for TSMO

- **Findings are being shared**
  - Peer exchanges between States
  - Virtual peer exchanges
  - Planning for a few more peer exchanges in coming year

1. CMM Implementation Sites
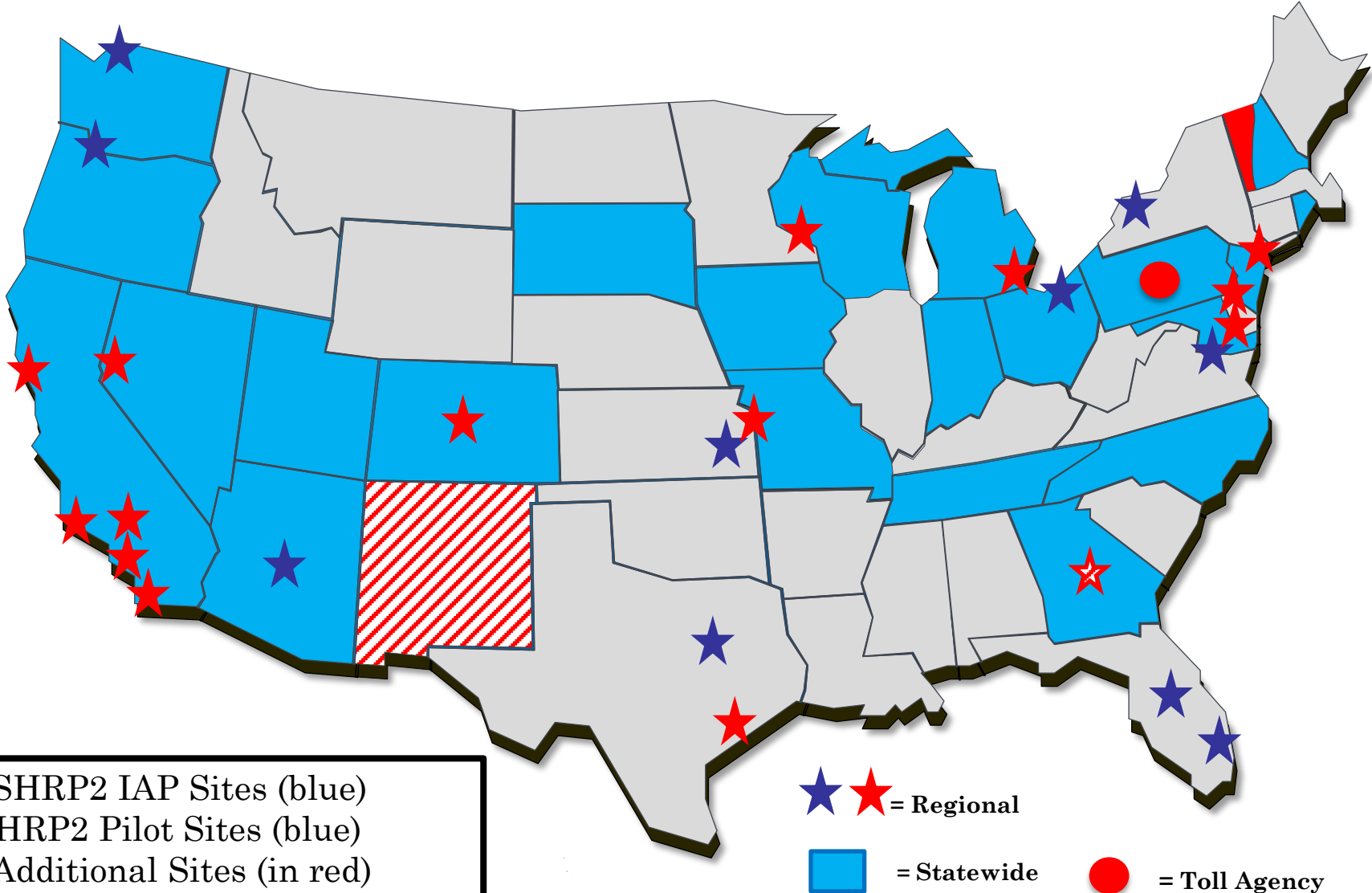
27 SHRP2 IAP Sites (blue)
5 SHRP2 Pilot Sites (blue)
16 Additional Sites (in red)
2 Scheduled for Aug/Sept

★ ★ = Regional

■ = Statewide ● = Toll Agency

1. Implementation Highlights - Organizing for Reliability/CMM Tools

- **Expanding the CMM approach to other areas (L34B)**
  - Traffic management (ICM) – 8 sites
  - Work zones – 4 sites
  - TIM – 5 sites
  - Road weather – 3 sites
  - Planned special events – 4 sites
  - Traffic signals – 4 sites
  - Others under consideration (Asset Management, CV/V2I)

- **Incorporating Reliability in the CMP**
  - Primer developed, 12 workshops held
  - Discussing follow-up recommendations

1. Upcoming L01/L06 Activities

	2016	2017
Main IAP site implementation support (L06)	X	
Re-assessment and interviews	X	X
Final report on L06 sites		X
Continue providing CMM assessments	X	X
Peer exchanges	X	X
Continue providing other CMMs (L34B)	X	X
Business process primer (L01)	X	
Business process workshops w/e-tool (L01/34)	X	X

1. Upcoming L01/L06 Activities

	2016	2017
Guidance on developing the business case for institutional change	X	X
Summits	X	X
Applying the CMM to V2I	X	X
TSMO program planning roundtable	X	
TSMO outreach and marketing	X	X
Workforce Summit follow-up	X	X

2 & 3. Implementation Highlights – Lots of Pilots

Tools, Data, Traveler Info

- Reliability Data & Analysis Tools - 8 pilots + 13 lead adopter
- Reliability in Operations/Planning Models – 2 pilots + 5 pilots
- Freight Demand Modeling & Data Improvement – 11 pilots
- WISE: Work zone Impacts & Strategies Estimator – 4 pilots
- Communicating Reliability Traveler Information – 3 pilots

Findings to date

- Data challenges
- Concept of Reliability not clearly understood
- Tool refinement needs

2. Upcoming Activities from Pilots

- Case studies/fact sheets on pilot results
- Reliability data guide
- Primer on Reliability
- Guidance and workshops/peer exchange
- Assess need for product refinements

3. Implementation Highlights – TIM Responder Training
- As of July 25, 2016

Train-the-Trainer Sessions
- **244** sessions with **8,250** participants

In-Person Responder Training
- **7,465** sessions with **178,905** participants

Web-Based Training (WBT)
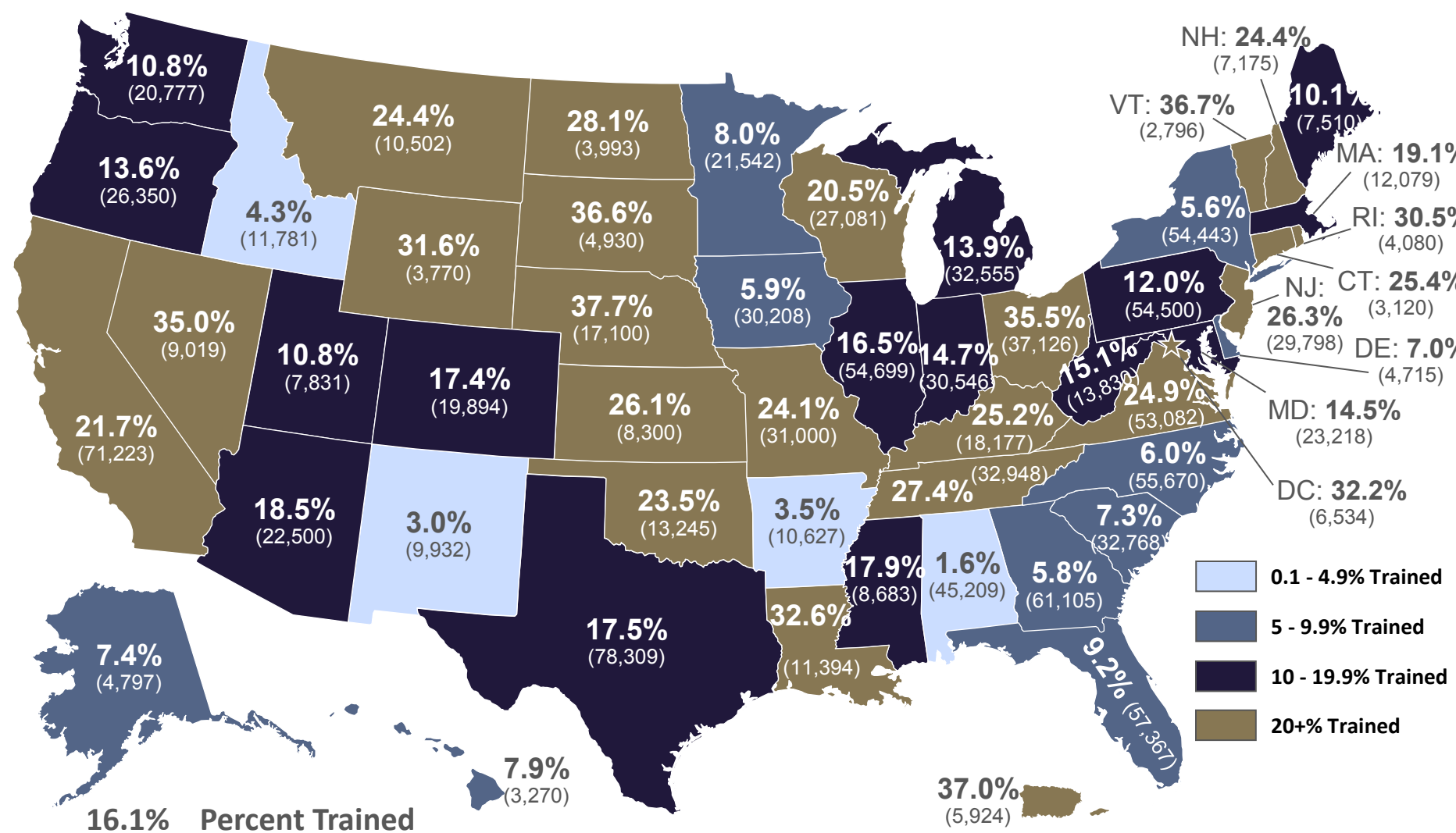- **10,876** participants

Total Trained: 198,031

* 200,000 surpassed at start of August

3. TIM Training Program Implementation Progress
Percent Trained - As of July 25, 2016
Goal of 20%

NH: **24.4%** (7,175)
VT: **36.7%** (2,796)
MA: **19.1%** (12,079)
RI: **30.5%** (4,080)
CT: **25.4%** (3,120)
NJ: **26.3%** (29,798)
DE: **7.0%** (4,715)
MD: **14.5%** (23,218)
DC: **32.2%** (6,534)

10.8% (20,777)
13.6% (26,350)
4.3% (11,781)
24.4% (10,502)
28.1% (3,993)
8.0% (21,542)
20.5% (27,081)
13.9% (32,555)
5.6% (54,443)
31.6% (3,770)
36.6% (4,930)
5.9% (30,208)
12.0% (54,500)
35.0% (9,019)
10.8% (7,831)
17.4% (19,894)
37.7% (17,100)
16.5% (54,699)
14.7% (30,546)
35.5% (37,126)
15.1% (13,830)
24.9% (53,082)
21.7% (71,223)
26.1% (8,300)
24.1% (31,000)
25.2% (18,177)
27.4% (32,948)
6.0% (55,670)
18.5% (22,500)
3.0% (9,932)
23.5% (13,245)
3.5% (10,627)
7.3% (32,768)
17.9% (8,683)
1.6% (45,209)
5.8% (61,105)
17.5% (78,309)
32.6% (11,394)
9.2% (57,367)
7.4% (4,797)
7.9% (3,270)
37.0% (5,924)

Legend:
- 0.1 - 4.9% Trained
- 5 - 9.9% Trained
- 10 - 19.9% Trained
- 20+% Trained

16.1% Percent Trained

(1,229,032) Total Responders To Be Trained

4. Implementation Highlights – Knowledge Transfer

Regional Operations Forums (L36)

- Deployed nationwide – 4 regional + 4 sub-regional held in 2015-16

- Created shortened version and with CMM

- Follow-up regional peer exchanges (NOCoE)

- Round 7 IAP offering – 6 sites involving 10 States

- Sustainability assessment

- Support NOCoE Workforce Summit outcomes

National Operations Center of Excellence

- Enhanced website
- Ongoing collaboration

NOCoE

Observations - Successes

- Products and emphasis are making a difference
  - "Tipping point"
  - TSMO Program development
  - Momentum/efforts to advance capabilities, modify processes, change culture
- Value of peer exchange
- Value of partnerships

Observations – Common Challenges

- Making the business case for TMSO
- Justifying funding
- Staffing (amount, turnover, development/training)
- Changing senior leadership/turnover
- Non-supportive business processes

Other Upcoming SHRP2/TSMO Efforts

- Technical assistance on TSMO funding with Federal-Aid
- Compilation/update of TSMO stats
- Explore TSMO training alternatives/partnerships
- Identifying long term home for products
- Institutionalization/sustainability of deployment
- Evaluation (outputs, outcomes, impacts)
- Lead implementer site visits
- Share success stories/lessons learned

More Information

- **FHWA Office of Operations**
  www.ops.fhwa.dot.gov/

- **Go SHRP2**
  www.fhwa.dot.gov/goSHRP2

- **SHRP2 on NOCoE**

  http://www.transportationops.org/shrp2 -products-and-implementation

- **SHRP2 Milestones - quarterly newsletter**

- **SHRP2 Moving Us Forward - annual report of implementation highlights**