



I-95 Corridor Coalition

TSMO STRATEGIC PLANNING SUMMIT
SUMMARY REPORT

November 30, 2016
Philadelphia, PA





CONTENTS

SUMMARY	3
Corridor-wide Priorities	5
TSMO Strategic Planning.....	5
TSMO Operations.....	5
TSMO Funding.....	5
TSMO Value (ROI) Development.....	6
TSMO Performance Measures	6
TSMO Corridor Coordination	6
TSMO Corridor Communication.....	7
Regional Corridor Priorities By Topic	8
ROI Development ((AAR), Safety Patrols, Truck Parking, Stage Towing)	8
Technology Initiatives	9
CADD	9
Work Zones	9
ESRI and GPS Routing.....	9
Wrong Way Driving Systems.....	10
IT.....	10
Data Sharing.....	10
WAZE.....	10
Data Sharing (Others).....	10
OTHER TOPICS.....	11
TRAVELER INFORMATION SERVICES	13
CORRIDOR PRIORITIES BY REGION.....	14
Final Summary	15



SUMMARY

On November 30, 2016, the I-95 Corridor Coalition held a Transportation Systems Management and Operations (TSMO) Strategic Planning Summit in Philadelphia, Pennsylvania. The one-day summit brought together diverse representatives with backgrounds in planning, operations and traveler information to chart the path forward for the new I-95 Corridor Coalition TSMO Program. Perspectives from DOT agencies, Turnpike Authorities, Regional Planning Organizations as well as Law Enforcement were present. Of the Coalition's seventeen member states, only three were unable to attend with twelve states sending representatives to attend in person and two states participating via webinar. The purpose of the summit was to create a list of TSMO topics to be addressed in 2017 and draft a calendar of events (e.g., peer exchange topics, webinar agendas, and research needs).

Historically, TSMO work has been conducted through two program tracks, Travel Information Services and Coordinated Incident Management. With the launch of the new TSMO committee, a summit objective was to identify cross cutting exchanges between these two groups, since both are interrelated in the TSMO arena.

In addition, regional TSMO work has been conducted through five Regional Highway Operations Groups (HOGs) (See Figure 1). A second summit objective was to distinguish between TSMO topics to be addressed at the corridor-wide level and topics to be address on a regional basis.

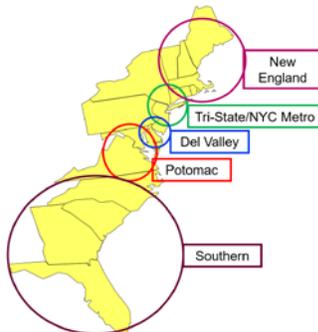


Figure 1. Regional Highway Operations Groups

HOGs	States
New England	Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut
Tri-State	Connecticut, New York, New Jersey
Delaware Valley	New Jersey, Delaware, Pennsylvania
Potomac	Maryland, DC, Virginia
Southern	North Carolina, South Carolina, Georgia, Florida

The result of the one-day summit was a prioritized list of TSMO topics applicable across the corridor and topics specific to individual regions. The corridor-wide topics were highlighted by the majority of summit participants as relevant across the corridor. Corridor-wide priorities included the development of TSMO strategic plans, exchange of agency TSMO practices, identification of funding to support TSMO programs,



calculation of TSMO Return on Investment (ROI), enhancing the use of TIM performance measures and significant events coordination. This report presents a prioritized list of corridor-wide topics and highlights from the summit discussions.

The TSMO topics identified for each of the five HOGs involved technology topics such as CADD integration, Work Zone Queue Management, ESRI mapping and Wrong Way Driving. Additional topics focused on data sharing and public and private partnerships, traveler information strategies and arterial signal coordination and performance measurements. The report contains a summary table of topics across the five regions followed by more detailed documentation of the summit discussions. The regional topics are grouped by Return on Investment (ROI) Development, Technology Initiatives, Data Sharing and Other. This report also includes a section on Traveler Information Services priorities to highlight potential cross cutting exchanges.

Finally, there was also universal agreement across the summit participants that the TSMO Regional HOGs need to be reinvigorated. Maryland representatives commented that it is very important to be in a room to talk about issues face to face. The recommendation of the summit participants was to hold five HOGs meetings in 2017 at the following times:

Month	HOGs Region
April	Tri-State
May	Delaware Valley
June (beginning)	Potomac
September	New England
October	Southern

The next steps for the Coalition will be to reach out to the regional Co-Chairs of these regions to start the planning of these exchanges and identify other means to tackle the topics documented in this report.



CORRIDOR-WIDE PRIORITIES

New England	Tri-State	Delaware Valley	Potomac	Southern
TSMO Corridor Strategic Plan				
TSMO Strategic Plan				
How do States operate under TSMO?				
Funding Sources				
TSMO Value ROI				
Standardizing Performance Measures along the corridor				
Significant Events Coordination & Communication				

TSMO STRATEGIC PLANNING

Preparation of a TSMO Strategic Plan was recommended by all regions. Two types of plans were discussed:

- ✓ An I-95 corridor-specific TSMO Strategic Plan where the goal would be to develop a corridor plan that has *common initiatives among the member states*.
- ✓ A generic TSMO Strategic Plan – a template that can be used for states to develop their own TSMO plan was recommended by three of five regions.
- ✓ Both Maryland and Penn Turnpike had finished TSMO Strategic Plans that would be willing to share with other corridor members.
- ✓ North Carolina has an older strategic plan that is in need of updating.
- ✓ Another recommendation is to look at both the Iowa and Ohio plans as samples.

TSMO OPERATIONS

There was discussion on how certain states are more mature in their core TSMO operations than others. Mature operations have defined processes and protocols that start with the planning initiative and continue through to the operations and maintenance components of the TSMO program.

- ✓ The request was made to develop an information exchange where these types of processes and protocols relative to how states manage their operations could be discussed.

TSMO FUNDING

A request was made by all regions to provide an information exchange on different types of funding that might be available for TSMO Operations.

- ✓ What types of federal funds are available?
- ✓ What types of TSMO projects qualify for certain types of funding?
- ✓ How can TSMO Maintenance Operations qualify for TSMO funding?
- ✓ For example, New York is looking for ways to help in the budget process.
- ✓ Delaware is interested in how states get their money for the TSMO budget.



TSMO VALUE (ROI) DEVELOPMENT

The discussion on funding led to more discussion on how to build a TSMO Return on Investment (ROI). The request was made by all regions to develop a ROI template that corridor member states could use to build on.

- ✓ In order to better show value of the TSMO program it would be highly beneficial to look at how to develop a template ROI document that states could use to help show the value of their program to Executive Leadership.
- ✓ Develop a business case that promotes the sustainability of the program because there is a lot of change in staff and leadership. In order to continue throughout this change, there needs to be a standard template that can be used to show value.
- ✓ Should the ROI look to contain a standard inventory of programs and their status?
- ✓ Is there a way to develop a dollar per lane-mile that is spent on TSMO as part of this ROI?
- ✓ Can we develop a point system that would be used to score TSMO projects that compete for federal funding through the Ten-Year programs that most departments work with? North Carolina has started this – maybe they could share their system to be used as a draft?
- ✓ Beyond the ROI, should there be an effort to develop a TSMO brief or primer that can be used for Executive Leadership to help bridge the cultural gap that can occur? Can the corridor help with this type of development?
- ✓ In North Carolina, their Chief is now the AASHTO committee head for TSMO.

TSMO PERFORMANCE MEASURES

The request to develop a set of standard type performance measures for Incident Management was requested by all regions.

- ✓ There is an EDC initiative with FHWA for three standard TIM measures that may be the start of a plan to develop standard measures along the corridor.
- ✓ New York noted that it is important to get consistent Incident Management data and it would be good to look at what everyone across the corridor is doing.
- ✓ PANYNJ is struggling with performance measures. Challenges have been getting accurate clearance times and then knowing what to do with them once they get them. They use their Operations Center as an intermediary in reaching out to Transcom.
- ✓ Many different variables were listed as potential performance measures such as Clearance Time and Hot Spot Locations. These data variables will need to be vetted with each region through their Peer Exchange.

TSMO CORRIDOR COORDINATION

There was great discussion on the role of the I-95 Corridor relative to Significant Event Coordination. All regions requested that Significant Event Coordination be a component of continual discussion.

- ✓ Members such as VDOT and Maryland felt that one major role that the Coalition should play is to be involved in major events that happen along the corridor.
- ✓ The Coalition should insert itself and be involved in conference calls relative to major events along the corridor.



- ✓ Sharing VMS policies between states is helpful in event coordination. Can the Coalition help to promote this?
- ✓ Coordination should include both planned events such as the Papal Visit as well as unplanned like Hurricane Matthew.
- ✓ NCDOT noted that maybe there could be some sort of planning done for those unplanned events – does this mean there should be specific drills relative to DOT responsibilities in emergency operations and if so, could the Coalition help with this type of initiative?
- ✓ VDOT requested that the communications call numbers be updated. These are the TMC centers all along the corridor. It was noted that during the Hurricane Matthew, it would have been helpful to have used this type of tool during the event. Does this speak to the need for more routine training?
- ✓ Should this “Barking Tree” be tied to actual Incident Severity and if so, how should this be set up to trigger?
- ✓ Rhode Island asked if there should be some type of event trigger developed that would signal at what level does the Coalition becomes involved in the event coordination?
- ✓ New York suggested that the Coalition can be seen in the role of facilitator in a significant event. Keeping track of what is going on and transferring information back and forth.

TSMO CORRIDOR COMMUNICATION

- ✓ There is a need to reinvigorate the TSMO Regional Peer Exchanges.
- ✓ Maryland commented that it is very important to be in a room to talk about issues face to face.
- ✓ There is a definite need to have contacts along the corridor and the state points of contact should be kept up to date - not just the communication tree but contact emails should be kept up to date.
- ✓ Gene Donaldson recommended that states document process and lessons learned from major events and then share them with members. For example, what did NC do with Hurricane Matthew.



REGIONAL CORRIDOR PRIORITIES BY TOPIC

ROI DEVELOPMENT ((AAR), SAFETY PATROLS, TRUCK PARKING, STAGE TOWING)

New England	Tri-State	Delaware Valley	Potomac	Southern
AAR ROI	AAR ROI	AAR ROI		AAR ROI
Safety Patrol ROI		Safety Patrol ROI		Safety Patrol ROI
		Truck Parking ROI	Truck Parking ROI	Truck Parking ROI
		Stage Towing ROI	Stage Towing ROI	
	Academic ROI	Academic ROI		

- ✓ Maryland has developed a method in which to determine economic impact based on incidents. They did work with Michael Pack and came up with figures on economic impact. All the other regions expressed an interest in learning of this process and Maryland is willing to share their process.
- ✓ Maryland discussed how they were able to take their \$32-million-dollar program and show a \$1.3B ROI which led to a doubling of their field of operations. The B/C analysis shows the value of the TIM program.
- ✓ There was much discussion about the Safety Patrol programs.
- ✓ How can performance measures be better defined for the SSP?
- ✓ How do you capture preventative SSP benefits? We capture the mobility and operational costs but how do we quantify the preventative benefits? Can the Coalition work to develop this type of ROI?
- ✓ For Truck Parking and Park and Ride Lots is there a long way to go to come up with ROI on this. VDOT noted that they are looking at other states to see who they have come up with an analysis and how they quantify the benefit.
- ✓ Same request for stage towing – how do we capture an ROI for staging towing during certain times?
- ✓ There is a need to work with Quick Clearance and meeting with state police in working out a tow list.
- ✓ There is a need to find a better way to confirm that the right equipment is going to the right place, etc.
- ✓ Maryland stated that this is the group that can pull in the resources and share information on things like emergency patrols and experiences with truck parking.
- ✓ There was discussion on the use of interns and how these resources can be lower cost resources and helpful to getting specific projects completed. NH completed an ROI in 2012 that could be used as an example to share with members.



TECHNOLOGY INITIATIVES

New England	Tri-State	Delaware Valley	Potomac	Southern
CADD Integration	CADD Integration	CADD Integration		CADD Integration
	Work Zones (Safety, Protocols)	Work Zones (Queue Management)		
	ESRI Integration and Mapping	ESRI Integration and Mapping	ESRI Integration and Mapping	
		Wrong Way Driving Warning Systems		Wrong Way Driving Warning Systems
	Engaging IT	Engaging IT		

CADD

- ✓ There was a lot of discussion relative to the topic of CADD Integration.
- ✓ Many systems are old and there is the question of how do we integrate with old systems?
- ✓ Georgia has questioned is it worth the integration effort with an old system?
- ✓ NJDOT did an analysis of TMC confirmed data versus Crash Data Reports and found that the TMC is being notified of approximately 8% of total crashes.
- ✓ Maryland found a similar statistic.
- ✓ The problem also rolls back to the initial police report for accidents.
- ✓ For the PA TPK there is the question of using a long versus a short form for reportable events which changes the available data.
- ✓ There can be a communication gap where state police become too busy to notify TMC's of existing crashes.
- ✓ States agreed that this would be a great peer exchange topic.

Work Zones

- ✓ Based on the questionnaire for Construction Work Zone Management, Work Zones are becoming a topic for discussion.
- ✓ How to better determine queue management, what are current protocols being used for planned events and how do we make work zones safer are all possible topics for a peer exchange.

ESRI and GPS Routing

- ✓ There was discussion relative to ESRI mapping for detour and diversion routing and how to work with GPS vendors in order to provide better traveler information to the public.
- ✓ In NC with Hurricane Matthew, there were issues with GPS sending people back to their original routes even though the roads were closed.
- ✓ How do we get vendors to work with us better for road closures and detours?
- ✓ Is this a role that the Coalition can play for the member states?
- ✓ Can the Coalition leverage its members and help to streamline partnership agreements – and learn how to work more closely with Google and other navigation vendors.
Have the Coalition work with manufacturers and app developers to keep routing updated.



Wrong Way Driving Systems (WWS)

- ✓ Work is being done on Wrong Way Systems – Rhode Island installed a WWS last year and can provide lessons learned to those states who listed this as a peer exchange topic.

IT

- ✓ There was discussion about the state of IT and its involvement in TSMO operations. This topic needs more discussion in the two regions that listed this as a peer exchange topic.

DATA SHARING

New England	Tri-State	Delaware Valley	Potomac	Southern
Data Sharing (WAZE)	Data Sharing (WAZE)	Data Sharing (WAZE)	Data Sharing (WAZE)	
	Public Private Data Sharing	Public Private Data Sharing		Data Rich and Data Poor – how do we use it?
	Data Sharing for High Incident Locations		Maine to Fla. Portal Data Sharing	Data Sharing with GPS/emergency detour routing

WAZE

There was a lot of discussion about WAZE and how this application is changing the face of Traveler Information.

- ✓ Many states are either in the process of developing agreements or are actually using WAZE (i.e. Delaware, Georgia, Pennsylvania, Virginia, MassDOT, North Carolina and NJ Turnpike).
- ✓ MassDOT noted that they are piloting WAZE and evaluating its accuracy.
- ✓ PA Turnpike determines what to put out and what not to put out.
- ✓ There has been cross border collaboration between some states in order to update WAZE for real time situational awareness.
- ✓ WAZE is a two-way exchange of data – they want DOT event data because DOT's close their events.
- ✓ Rhode Island is working on an agreement with WAZE – and noted that maybe the Coalition could work on a corridor type agreement with WAZE.
- ✓ WAZE can help to show road closures.
- ✓ There needs to be a sensitivity as to when WAZE routes through local streets. Working directly with WAZE can alleviate this issue.
- ✓ A good task for the Coalition would be to determine how to best develop the WAZE partnership and then provide that as a data exchange.

Data Sharing (Others)

- ✓ Several states had comments relative to the need for data sharing with the public sector.
- ✓ There is a need to develop arrangements for public-private partnerships.



- ✓ There needs to be more discussion on how to do this. This is not just agency to agency but public to private.
- ✓ Delaware noted that while agencies have data that they put out to the public what they really have is data that they need to use internally in order to operate their systems.
- ✓ If we have internal data, it can be used for predictive analysis like what Tennessee is doing.
- ✓ There was discussion relative to developing a portal for the Corridor.
- ✓ There was also a request to look at how states could share methods for determining high incident locations.
- ✓ A possible initiative for the Coalition is to look at how CHART captures its data for reporting and provide feedback and guidance to others states in how this is done.
- ✓ Some states are looking to blend information into one data sharing portal rather than having standalone sites.

OTHER TOPICS

New England	Tri-State	Delaware Valley	Potomac	Southern
		Heavy Towing	Heavy Towing	Heavy Towing
	Social Media Monitoring	Social Media Monitoring		
ICM		Weather Operations		ICM
	Standards			Procurement Standards
	TSMO Primer _ "Touchdown for TSMO"		TSMO Inventory planning	ITS Maintenance
	How do States operate Public Transit			

- ✓ States like North Carolina and Georgia are struggling with ICM strategies. This is a good topic for further exchanges. ICM's differ between urban and rural areas within states.
- ✓ There is a need to better manage ITS and demand through ICM.
- ✓ For heavy duty towing, Maryland does not have control of the list of heavy duty tow trucks during incidents. They have a conceptual MOU with towers but they do not have incentives.
- ✓ States have expressed interest in holding a peer exchange on heavy towing and how to manage heavy towing programs.
- ✓ Another hot topic is the concept of social media monitoring. PA Turnpike had challenges with winter weather conditions and learned the value of social media monitoring. The challenge is to monitor better and be more proactive in reporting conditions.
- ✓ Road and Weather (R&W) Operational Programs and how they work with Weather Responsive Traffic Management (WRTM) is another topic for peer exchanges to improve how road condition reporting is being managed.



- ✓ Working with RWIS and DMS and how weather systems trigger weather messaging is a developing WRTM strategy.
- ✓ MassDOT recently launched a very successful Real Time Travel Management (RTTM) system to bring travel times to 700+ miles of state roadway. The public loves it.
- ✓ States have challenges with DMS Safety Messaging.
- ✓ States are working regionally to develop standard messaging so that travelers receive a seamless message as they cross borders from state to state.
- ✓ Massachusetts is using corridor management in the implementation of its messaging in order to reduce congestion.
- ✓ Maintaining ITS assets can be a challenge. There is a need to account for M&O for ITS infrastructure.
- ✓ Delaware noted that the Coalition has done some pooled fund studies (PFS). Maybe the states would work together to develop a PFS and have it managed through the Coalition.
- ✓ States such as NJ, DE and DC are working on their arterials and signal timings.
- ✓ Others such as NC are looking at ways to obtain arterial data.



TRAVELER INFORMATION SERVICES

In an effort to also discuss traveler information services and tie these strategies to other operational strategies, the group was asked to prioritize what Traveler Information (TIS) services would be topics for future discussion. Those topics are listed below. They are not separated by regions. These were global topics that crossed all regions. Some key comments that came out of the summit were as follows:

- ✓ There are challenges with getting information out in emergency operations. In North Carolina during Hurricane Matthew, 511 calls were initially routed from the IVR to live operators at the Travel & Tourism Call Center. Field Hardware flooded and 511 calls were managed by NCDOT until the hardware was fixed. An additional live call center with NCDOT employees was needed a few days into the storm. Between the IVR, the Travel and Tourism Call Center and the NCDOT Call Center 120,000 Hurricane Matthew traveler info calls were answered in a 10-day period.
- ✓ When there are emergencies, the public comes to the DOT's for critical information.
- ✓ A concern that was shared involved the rise of shared mobility services. With new third party vendors, it is becoming more difficult to discern what is valid data.
- ✓ We are in an age of information overload with so much information coming at us that we worry that we will miss something.
- ✓ We focus so much on technology and rely on those services getting it right.
- ✓ There is a trend that we are seeing in traveler information that is looking at incidents versus longer term traveler information. Delaware has an app that has a different feed for construction restrictions versus the random advisories.
- ✓ Road Condition Reporting particularly as weather events become more prominent is becoming of particular interest as an exchange topic.
- ✓ There will be more follow up relative to the Final Rule on Performance Measures & Congestion.

Technology
What is trending in 511?
What is trending in Traveler Information besides 511?
What is the use of 511 vs other technologies?
Learn more about mobile apps that detect pedestrian crossings, school zones and high collision location.
GPS Routing in Emergency Operations & Special Events – how to change provider maps for major events?
Use of Traveler Information
How do we use 511 for Evacuation Planning?
What is involved with “Social Media Monitoring”? How can it be best used?
Maximizing the use of 511 for Significant Events Planning & Coordination
How can we best post work zone information?
Data Sharing
Sharing event/work zone/weather data across borders
Sharing data across all transportation modes
Data sharing – public - public partnerships
Data sharing – public – private partnerships (How do we share our data with vendors?)
Performance Measures
Conducting an ROI on Travel Times
Conduct an ROI on Truck Parking



CORRIDOR PRIORITIES BY REGION

New England	Tri-State	Delaware Valley	Potomac	Southern
AAR ROI	AAR ROI	AAR ROI		AAR ROI
Safety Patrol ROI		Safety Patrol ROI		Safety Patrol ROI
		Truck Parking ROI	Truck Parking ROI	Truck Parking ROI
		Stage Towing ROI	Stage Towing ROI	
	Academic ROI	Academic ROI		
CADD Integration	CADD Integration	CADD Integration		CADD Integration
	Work Zones (Safety, Protocols)	Work Zones (Queue Management)		
	ESRI Integration and Mapping	ESRI Integration and Mapping	ESRI Integration and Mapping	
		Wrong Way Driving Warning Systems		Wrong Way Driving Warning Systems
	Engaging IT	Engaging IT		
Data Sharing (WAZE)	Data Sharing (WAZE)	Data Sharing (WAZE)	Data Sharing (WAZE)	
	Public Private Data Sharing	Public Private Data Sharing		Data Rich/Data Poor – how do we use it?
	Data Sharing for High Incident Locations		Maine to Fla. Portal Data Sharing	Data Sharing with GPS/emergency detour routing
		Heavy Towing	Heavy Towing	Heavy Towing
	Social Media Monitoring	Social Media Monitoring		
ICM		Weather Operations		ICM
	Standards			Procurement Standards
	TSMO Primer _"Touchdown for TSMO"		TSMO Inventory planning	ITS Maintenance
	How do States operate Public Transit			



FINAL SUMMARY

- ✓ The strength of the Coalition is that it provides continuing support and follow up after other events or initiatives are held.
- ✓ There is a focus to create more cross-cutting activities that include both Traffic Incident Management Strategies along with Traveler Information.
- ✓ The Summit brought up three important cross-cutting topics that involved technology, data sharing and performance measures.
- ✓ The Coalition is working to provide a distinction between itself and the NOCoE in that we provide logistics and technical support to our members.
- ✓ The challenge of workforce staffing is a subject that is not being addressed directly by the Coalition. Several attendees noted the need to address staffing and resources as a future topic but it is a subject that is more appropriately addressed by the NOCoE.