

Committee on Transportation Systems Operations (CTSO)

ACTION PLAN

October 1, 2019 – September 30, 2020

GOAL 1: Advance the state of practice and deployment of operation systems.

STRATEGY 1.1: Build Institutional Capacity to Support Operations

Task #	Task Description	Assigned to:	Coordinating Committees/Councils	Due Date	Comments	Associated AASHTO Goal #
1	Workshop/Webinar Focused on Recruiting, Training, and Retention for Skilled Technical Staff	Operations Subcommittee Working Group on Operations Strategies	Agency Administration Managing Committee, Committee on Human Resources	9/30/2020		1. Provide Value to Members

STRATEGY 1.2: Support the mainstreaming and integration of operations within AASHTO member departments and partner agencies

Task #	Task Description	Assigned to:	Coordinating Committees/Councils	Due Date	Comments	Associated AASHTO Goal #
1	Coordination with ATSSA & IMSA on: <ul style="list-style-type: none"> • TSMO Program & Planning Best Practice Exchange. • Coordination with TRB RTSMO • ITS Asset Management 	Operations Subcommittee Working Group on	Asset Management Subcommittee	9/30/2020		1. Provide Value to Members

	<ul style="list-style-type: none"> • ICM Studies • ITS in Project Development Workshop 	Operations Strategies				
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STRATEGY 1.3: Support Agencies' Research and Information Needs

Task #	Task Description	Assigned to:	Coordinating Committees/Councils	Due Date	Comments	Associated AASHTO Goal #
1	Conduct annual survey to prioritize a list of operations topics from CTSO members	Operations Subcommittee Working Group on Operations Strategies		9/30/2020		1. Provide Value to Members
2	Collaborate with other groups on research	Research Coordinators	<u>Various</u>	ongoing		1. Provide Value to Members

STRATEGY 1.4: Establish standards of practice

Task #	Task Description	Assigned to:	Coordinating Committees/Councils	Due Date	Comments	Associated AASHTO Goal #
1	Coordinate between members from Operations Subcommittee Working Group on Operations Strategies and the panel for the NCHRP Project to develop an Operations Guidebook	Operations Subcommittee Working Group on		ongoing		1. Provide Value to Members

		Operations Strategies				
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STRATEGY 1.5: Share Knowledge

Task #	Task Description	Assigned to:	Coordinating Committees/Councils	Due Date	Comments	Associated AASHTO Goal #
1	Explore Interactive Information Exchange Opportunities	Operations Subcommittee Working Group on Operations Strategies		9/30/2020		1. Provide Value to Members

STRATEGY 1.6: Liaise to other AASHTO committees for multimodal and interdisciplinary integration

Task #	Task Description	Assigned to:	Coordinating Committees/Councils	Due Date	Comments	Associated AASHTO Goal #
1	Identify other AASHTO committees with which CTSO should liaise	CTSO Steering Committee	<u>Various</u>	9/30/2020		1. Provide Value to Members
2	Appoint liaisons to those committees	CTSO Steering Committee	<u>Various</u>	9/30/2020		1. Provide Value to Members

Advance the state of practice and performance of work zones nationally

GOAL 2:

STRATEGY

2.1:

Participate in the AASHTO Cross-cutting Work Zone Task Force

Task #	Task Description	Assigned to:	Coordinating Committees/Councils	Due Date	Comments	Associated AASHTO Goal #
1	Identify one or more liaisons to AASHTO Task Force on Work Zones and support participation	Operations Subcommittee Working Group on Operations Implementation	Safety, Traffic Engineering, Design, Construction	ongoing		4. Communicate the Value of Transportation

STRATEGY

2.2

Survey State DOTs to Understand Work Zone State of Practice

Task #	Task Description	Assigned to:	Coordinating Committees/Councils	Due Date	Comments	Associated AASHTO Goal #
1	Survey State DOTs to describe their current state of practice for work zones to help identify gaps and prioritize future activities for this group. Topics may include what data are they assembling, how they are assembling it, what are they doing with the data, any gaps, etc.)	Operations Subcommittee Working Group on Operations Implementation	Committee on Construction	ongoing		1. Provide Value to Members

STRATEGY

2.3:

Outreach to External Stakeholders

Task #	Task Description	Assigned to:	Coordinating Committees/Councils	Due Date	Comments	Associated AASHTO Goal #
1	Outreach with external stakeholders (e.g. ATSSA)	Operations Subcommittee Working Group on Operations Implementation		ongoing		4. Communicate the Value of Transportation

STRATEGY 2.4: Peer Exchange Webinars

Task #	Task Description	Assigned to:	Coordinating Committees/Councils	Due Date	Comments	Associated AASHTO Goal #
1	Webinar on WZDI Pilot Sites, to understand how they are meeting the WZDI data parameters, the systems supporting them, and staffing/procedural changes that were implemented.	Operations Subcommittee Working Group on Operations Implementation		ongoing		4. Communicate the Value of Transportation

GOAL 3: Facilitate the safe, efficient movement of freight by truck and promote national coordination of federal freight movement mandates.

STRATEGY 3.1: Provides leadership for AASHTO with regard to highway transport and commercial vehicle safety, size and weight issues

Task #	Task Description	Assigned to:	Coordinating Committees/Councils	Due Date	Comments	Associated AASHTO Goal #
1	Recommend one policy or initiative that addresses highway safety, interstate and in-state movement, emergency movement, or federal policies/rulings/changes that affect freight movements	Operations Subcommittee Working Group on Freight Operations	Committee on Safety , Committee on Transportation System Security and Resilience	ongoing		3. Be a Leader in National Transportation Policy Development

STRATEGY 3.2: Coordinate with truck manufacturing and freight movement industry

Task #	Task Description	Assigned to:	Coordinating Committees/Councils	Due Date	Comments	Associated AASHTO Goal #
1	Hold a meeting or conference call with industry representatives to discuss coordination on vehicle design, standards, or practices associated with commercial motor vehicle operations	Operations Subcommittee Working Group on Freight Operations: Co-Chairs		ongoing		3. Be a Leader in National Transportation Policy Development

STRATEGY 3.3: Share best practices and promote deployment of emerging technologies for safe and efficient freight operations

Task #	Task Description	Assigned to:	Coordinating Committees/Councils	Due Date	Comments	Associated AASHTO Goal #
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1	Share best or emerging practices during quarterly conference calls	Operations Subcommittee Working Group on Freight Operations		ongoing		1. Provide Value to Members
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STRATEGY 3.4: Collaborate with regional highway transport committees

Task #	Task Description	Assigned to:	Coordinating Committees/Councils	Due Date	Comments	Associated AASHTO Goal #
1	Identify at least one liaison with each regional highway transport committee	Operations Subcommittee Working Group on Freight Operations: Co-Chairs		9/30/2019	Relationships established with all 4 regional SCOHT chairs	3. Be a Leader in National Transportation Policy Development

GOAL 4: Implement best practices related to TSMO system integration, operability, standards, and cybersecurity.

STRATEGY 4.1: Develop best practices and actions related to TSMO technology, systems integration and interoperability

Task #	Task Description	Assigned to:	Coordinating Committees/Councils	Due Date	Comments	Associated AASHTO Goal #
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1	Develop and disseminate a survey to State DOTs identifying core challenges associated with TSMO technology integration and interoperability.	Technology Subcommittee Working Group on ITS		9/30/2019	Working Group on Systems Integration administered survey in mid-2018. Priority topics identified have been realigned with ITS and CAV working group action items after the realignment of the Systems Integration work group.	3. Be a Leader in National Transportation Policy Development
2	Summarize results based upon the highest priority, most prominent challenges associated with integration and interoperability.	Technology Subcommittee Working Group on ITS: Co-Chairs		Completed	see above	1. Provide Value to Members

STRATEGY 4.2: Educate State DOTs on available documentation on the use of the Security Credential Management System (SCMS) for connected and automated vehicle deployments and other cybersecurity practices

Task #	Task Description	Assigned to:	Coordinating Committees/Councils	Due Date	Comments	Associated AASHTO Goal #
1	Compile documentation associated with the USDOT Proof of Concept (POC) SCMS, and other relevant documentation on current system user (e.g. USDOT CV Pilots)	Technology Subcommittee Working Group on Connected and Automated Vehicles		ongoing	SI Work Group merged with ITS. Action item has been merged with CAV work group	3. Be a Leader in National Transportation Policy Development
2	Develop a summary document containing information on current USDOT POC SCMS documentation.	Technology Subcommittee Working Group on Connected and Automated Vehicles		ongoing	SI Work Group merged with ITS. Action item has been merged with CAV work group	1. Provide Value to Members
3	Disseminate the resulting summary to State DOTs and organize outreach and information sharing opportunities (e.g. webinars.)	Technology Subcommittee Working Group on Connected and Automated Vehicles		ongoing	SI Work Group merged with ITS. Action item has been merged with CAV work group	1. Provide Value to Members

**STRATEGY
4.3:**

Identify relevant standards that support State DOT, TSMO technology and system deployments, including the identification of the need for new standards, modification of existing standards, and other coordination activities as needed

Task #	Task Description	Assigned to:	Coordinating Committees/Councils	Due Date	Comments	Associated AASHTO Goal #
1	Identify and share information about planned research as available in NCHRP 20-102. Identify any research needs for CAV deployment (e.g. RTCM accuracy and sources) and convey these to CTSO research coordinators (i.e. generate one research needs statement)	Technology Subcommittee Working Group on ITS & CAV: Co-Chairs	<u>Various</u>	ongoing	SI Work Group merged with ITS. Action item has been merged with ITS and CAV work groups	1. Provide Value to Members

GOAL 5: Integrate new and emerging connected and automated vehicle (CAV) technology to improve safety, increase reliability, preserve infrastructure, and reduce congestion

STRATEGY 5.1: CTSO will collaborate with other CTSO working groups, AASHTO committees, State DOTs and external industry groups on areas of overlapping interest related to CAV.

Task #	Task Description	Assigned to:	Coordinating Committees/Councils	Due Date	Comments	Associated AASHTO Goal #
1	Identify states not involved in CAV and engage them to participate in the working group.	Technology Subcommittee Working Group on Connected and	<u>Various</u>	ongoing	Outreach and engagement with States involved in the SPaT challenge through NOCoE	1. Provide Value to Members

		Automated Vehicles				
2	Engage with other CTSO working groups and AASHTO committees to coordinate and share information.	Technology Subcommittee Working Group on Connected and Automated Vehicles	<u>Various</u>	ongoing	Plans for informational webinars are being developed.	1. Provide Value to Members
3	Continue opportunities for input to groups such as the IOO/OEM Forum and the AAMVA.	Technology Subcommittee Working Group on Connected and Automated Vehicles		ongoing	CTSO-CAV members actively participate in CAT-C work groups including IOO-OEM Forum	1. Provide Value to Members
4	Participate in and provide technical input to contribute to NOCoE activities related to CAV as appropriate (e.g. webinars, peer exchanges, workshops)	Technology Subcommittee Working Group on Connected and Automated Vehicles		9/30/2019	Ten informational webinars have been delivered through NOCoE covering a broad range of topics related to the SPaT Challenge. Plans to conduct three more related to the	1. Provide Value to Members

					Connected-Fleet Challenge.	
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STRATEGY 5.2: CTSO will promote and support CAV deployment and develop best practices from lessons learned in the deployments.

Task #	Task Description	Assigned to:	Coordinating Committees/Councils	Due Date	Comments	Associated AASHTO Goal #
1	Participate in discussions and reviews of SPaT Challenge Resources while representing CTSO member needs and communicating benefits.	Technology Subcommittee Working Group on Connected and Automated Vehicles		ongoing	See above	1. Provide Value to Members
2	Use webinars and other means to share information about AV progress to state members.	Technology Subcommittee Working Group on Connected and Automated Vehicles		ongoing	Working group members have a strong presence and active role in various CAT-Coalition AV work groups and the IOO/OEM Forum	1. Provide Value to Members
3	Provide a forum for members to share deployment experiences and best practices.	Technology Subcommittee Working Group on Connected and		ongoing	Work group members share deployment experiences and best practices	1. Provide Value to Members

		Automated Vehicles			during recurring webinars	
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STRATEGY 5.3: CTSO will identify technology gaps that require additional research

Task #	Task Description	Assigned to:	Coordinating Committees/Councils	Due Date	Comments	Associated AASHTO Goal #
1	Quantify and identify the documents that are of value to agencies planning and deploying CAV.	Technology Subcommittee Working Group on Connected and Automated Vehicles		ongoing	SPaT Challenge resources provided through NOCoE.	1. Provide Value to Members
2	Work with NOCoE to help accomplish the posting or linking to CAV documents of value.	Technology Subcommittee Working Group on Connected and Automated Vehicles		ongoing	SPaT Challenge resources provided through NOCoE.	1. Provide Value to Members
3	Identify and share information about planned research as available in NCHRP 20-102	Technology Subcommittee Working Group on Connected and		ongoing	Ongoing collaboration with TRB-NCHRP research coordinator for disseminating research findings	1. Provide Value to Members

		Automated Vehicles			from 20-102 roadmap projects. Presentation on CRCS planned during CTSO Annual Meeting.	
4	Identify any research needs for CAV deployment (e.g. RTCM accuracy and sources) and convey these to CTSO research coordinators.	Technology Subcommittee Working Group on Connected and Automated Vehicles	<u>Various</u>	ongoing	See above	1. Provide Value to Members

GOAL 6: Ensure that existing communication technologies remain available for transportation departments and capture the benefits of new and emerging communication technologies

STRATEGY 6.1: CTSO will continue to advocate, promote, and protect member agencies' ability to use land mobile radio and other communications technologies

Task #	Task Description	Assigned to:	Coordinating Committees/Councils	Due Date	Comments	Associated AASHTO Goal #
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1	Advocate for the use of AASHTO's Public Safety Frequency Coordination services by State DOTs, through personal contacts, industry conferences (e.g. IWCE), and other outreach strategies. Continue identifying new State Frequency Coordinators.	Technology Subcommittee Working Group on Communications: Radio Frequency Task Force		09/30/2020		1. Provide Value to Members
2	Provide AASHTO members technical support related to legacy, new and emerging communications technologies through webinars, best practice sharing, and other educational opportunities (e.g. webinars)	Technology Subcommittee Working Group on Communications: WG Co-Chairs		ongoing	Comm WG members are panel members on the NCHRP effort to develop LMR Guide (NCHRP 03-129).	1. Provide Value to Members
3	Advocate for continued protection of spectrum allocated to public safety and ITS applications (including 450 MHz, 4.9 GHz and 5.9GHz)	Technology Subcommittee Working Group on Communications		ongoing	Comm WG members contributed to the development and review of comment responses on recent FCC NPRMs related to 4.9 GHz, 5.9 GHz and 6 GHz and USDOT V2X RFC.	1. Provide Value to Members

**STRATEGY
6.2:**

Serve as AASHTO’s lead on interacting with Federal regulators and other parties who are developing and deploying technologies, procedures, and policy for current and emerging communication systems, and educate members regarding related issues and practices

Task #	Task Description	Assigned to:	Coordinating Committees/Councils	Due Date	Comments	Associated AASHTO Goal #
1	Represent AASHTO on national committees, as requested by AASHTO: a. Public Safety Communications Council (PSCC) b. Land Mobile Communications Council (LMCC) c. FirstNet Public Safety Advisory Committee (PSAC) d. Telecommunications Industry Association (TIA) P25 Steering Committee e. US Department of Homeland Security SAFECOM f. National Public Safety Telecommunications Council (NPSTC) Governing Board	Technology Subcommittee Working Group on Communications		ongoing	Comm WG members have continued to represent AASHTO on LMCC, PSCC, PSAC, FirstNet, and SAFECOM advocating for DOT role in public safety and emergency preparedness.	3. Be a Leader in National Transportation Policy Development

**STRATEGY
6.3:**

Provide technical support for developments impacting the use of DOT right-of way and property for communication infrastructure development (nano-cell – 5G, or FirstNet) by private industry, coordinating with other applicable AASHTO committees (e.g. Right of Way)

Task #	Task Description	Assigned to:	Coordinating Committees/Councils	Due Date	Comments	Associated AASHTO Goal #
1	Contact AASHTO members concerning activity related to the issue. Leverage current research being conducted through the NCHRP Research Project "Essential Communications" as needed.	Technology Subcommittee Working Group on Communications		09/30/2019	Workshop on LMR Guide completed at CTSO Annual Meeting on Thursday, August 29.	1. Provide Value to Members

STRATEGY 6.4: Provide AASHTO members technical support related to legacy, new and emerging technologies of communications with peer exchanges, workforce development, webinars, personal contacts, interaction as allowed with vendors and education opportunities on related technologies.

Task #	Task Description	Assigned to:	Coordinating Committees/Councils	Due Date	Comments	Associated AASHTO Goal #
1	Serve as SMES and develop outreach and education opportunities of interest to members, to address identified needs on an ongoing basis.	Technology Subcommittee Working Group on Communications		ongoing	Continue to invite presentations to WG on matters of significance including 5.9 GHz interference, 5G Fast Plan, Small Cell tower deployment in Public ROW,	3. Be a Leader in National Transportation Policy Development

					FirstNet expansion, etc.	
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GOAL 7: Increased standardization and consistency of intelligent transportation system (ITS) deployment and the modernization of technologies and their integration into agency operations.

STRATEGY 7.1: Share best practices and identify techniques to maintain and extend the useful life of operations technology, and determine when technology reaches obsolescence

Task #	Task Description	Assigned to:	Coordinating Committees/Councils	Due Date	Comments	Associated AASHTO Goal #
1	Categorize technology focus areas (e.g. cameras, DMS, communications infrastructure, sensors, etc.) and gather information on best practices and experiences from member agencies	Technology Subcommittee Working Group on ITS		ongoing	Presentation scheduled during ITS WG breakout session on comparing standard specifications for ITS devices.	1. Provide Value to Members
2	Synthesize findings and share with CTSO members (e.g. webinars).	Technology Subcommittee Working Group on ITS		09/30/2020	Planned for upcoming year	1. Provide Value to Members

STRATEGY 7.2: Develop ITS design standards/guidelines

Task #	Task Description	Assigned to:	Coordinating Committees/Councils	Due Date	Comments	Associated AASHTO Goal #
1	Survey member DOT agencies to collect ITS design standards/guidelines and identify standards gaps, including the need for new standards, modification to existing standards, and other coordination activities as needed. Utilize the Operations Guide to help identify ITS systems/devices for standards development. Generate one (1) research needs statement for consideration for NCHRP funding	Technology Subcommittee Working Group on ITS		ongoing	Combine with 4.1 Survey of ITS WG members and prioritization of key topics completed. Of 4 NCHRP problem statements funded in FY20 one related to ITS: "Crash Modification Factors for Intelligent Transportation Systems (ITS) Applications".	1. Provide Value to Members

Identify emerging technologies for the mainstream TSO community and pilot these technologies through deployments within the member agencies

STRATEGY 7.3:

Task #	Task Description	Assigned to:	Coordinating Committees/Councils	Due Date	Comments	Associated AASHTO Goal #
1	Poll members to identify technologies (existing products and current R&D efforts) that may	Technology Subcommittee		ongoing	Findings from the NCHRP 3-127 Cybersecurity of	1. Provide Value to Members

	meet the needs identified by member agencies	Working Group on ITS			Traffic Management Systems shared in a recent WG webinar. Online tool developed from this effort will be hosted on NOCoE.	
2	Identify and seek out venues for reaching the vendor community to better understand the state of research and product development efforts on an ongoing basis.	Technology Subcommittee Working Group on ITS		9/30/2020	Planned for upcoming year	1. Provide Value to Members

STRATEGY 7.4: Develop best practices for developing and maintaining the needed workforce to support ITS infrastructure.

Task #	Task Description	Assigned to:	Coordinating Committees/Councils	Due Date	Comments	Associated AASHTO Goal #
1	Collaborate with NOCoE to support workforce development efforts	Technology Subcommittee Working Group on ITS	Agency Administration Managing Committee, Committee on Human Resources	ongoing	Workshop at 2019 CTSSO Annual Meeting in Jackson, Wyoming	1. Provide Value to Members

GOAL 8: Enable AASHTO members, the CTSSO, its Subcommittees and Working Groups to advance transportation system

performance and the state of practice with TSMO strategies and technology through the application of data, analytics and performance management techniques.

STRATEGY 8.1: Engage with CTSO members to understand and support their performance management & data needs.

Task #	Task Description	Assigned to:	Coordinating Committees/Councils	Due Date	Comments	Associated AASHTO Goal #
1	Liaise with CTSO Working Groups on a regular basis.	Subcommittee on Performance Management & Data		ongoing	Assignments made on contacts established June 23, 2018	1. Provide Value to Members
2	Interact with Federal agencies to provide members' perspective on national initiatives.	Subcommittee on Performance Management & Data		as needed	Responded to FHWA OPP Request for Comment March 28, 2018; Hosted FHWA Presentations at CTSO Annual Meeting August 29, 2018	3. Be a Leader in National Transportation Policy Development
3	Monitor and share information related to MAP-21 Performance	Subcommittee on Performance		ongoing		1. Provide Value to Members

	Measurement rules and regulations.	Management & Data				
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NOTE: The CTSO Subcommittee on Performance Management and Data combined with a subcommittee with a similar scope from the Committee on Performance-Based Management. The result is AASHTO's first Joint Subcommittee on Emerging Technology and System Performance.