AASHTO International Day
Singapore 2019

Panel 1: The Research, Policy, Legislative, and Regulatory Framework related to CAT

CAT Coalition Updates

Roger Millar
Secretary of Transportation
Washington State Department of Transportation
CAT Coalition

Joint Cooperative Effort between USDOT and AASHTO, ITE and ITS America

Formed to serve as a collaborative focal point for federal, state and local government officials, academia, industry and their related associations to address critical program and technical issues associated with the nationwide deployment of CVs and AVs.

Coalition membership includes representation from infrastructure owners and operators (IOOs), original equipment manufacturers (OEMs), technology and service providers, academic researchers, consultants, and internet of things (IOT) suppliers.
CAT Coalition - Organization

Co-Chairs
Roger Millar, WSDOT & Jennifer Cohan, Del DOT

Focus Area: Programmatic & Strategic Activities
Focus is on documenting needs and best practices for programmatic, strategic, and technical activities to encourage CAT deployment & operation through initiatives such as the SPaT Challenge & Connected Fleet Challenge.

Focus Area: Planning, Scenarios, & Resources
Supports the CAT industry in understanding Automated Transportation planning & scenario development, available resources, and documenting resource needs.

Focus Area: Infrastructure & Industry
Supports the CAT industry in defining the digital & physical CAT infrastructure, and establishing secure, verified connections between vehicles & this infrastructure.

Policy, Legislative and Regulatory Working Group
J. Toth
P. Ajegba

Strategic Initiatives Working Group
B. Leonard
J. Averkamp

Technical Resources Working Group
F. Saleem
N. Katta

Planning / Scenarios Working Group
Sondra Rosenberg
J. Sydello

IOO/OEM Forum
C. Castle
F. Saleem
M. Shulman

Infrastructure Industry Working Group
T. Larkin-Thomason, S. Gehring

Peer Exchange & Outreach Working Group (E. Seymour)—Supports all focus areas

Research Testing and Demonstration
(e.g. NCHRP 20-102, CV Pilot Sites, ATCMTD Sites, and other Federally & State led activities)

USDOT / FHWA

AASHTO ITS AMERICA
CAT Coalition Online

http://www.transportationops.org/catcoalition

Cooperative Automated Transportation (CAT) Coalition

The Cooperative Automated Transportation Coalition (CAT) serves as a collaborative focal point for federal,
**CAT Coalition Recent Activities / Accomplishments**

### Programmatic & Strategic Accomplishments (examples)
- CAT Funding and Staffing Survey Results & Summary
- Connected Fleet Challenge Resources & Website
- SPaT/Fleet Challenge Webinar (Oct. 3rd)
- Initiation of efforts for common (plain language) Automated Driving Terms Lexicon as used in AV Policy documents

### Planning Scenarios & Resources Accomplishments (examples)
- Facilitated multi-agency presentation for a Cellular V2X Overview
- Initiated and progressed towards a new resource titled “CV Deployment Environment” – that broadly highlights communications and back end systems needs.

### Infrastructure & Industry Accomplishments (examples)
- Initiated activities for a “Communications 101” resource and developed the outline and preliminary content.
- Initiated efforts to survey AV shuttle pilot deployments to summarize as a resource
- Planning an outreach webinar to explain the Software tool chain for work zone MAP creation
- Completed Draft Clarifications for Consistent Implementations (CCI) for Signalized Intersections.
CAT Coalition Policy, Legislative & Regulatory Work Group

- Part of the *Programmatic & Strategic Initiatives* Focus Area of Coalition
- Emphasis on conducting policy analyses, and tracking legislation and regulations related to Cooperative Automation (includes AV’s and CV’s)
- Create an open dialog and information sharing regarding policy, legislative, and regulatory topics
CAT Coalition Policy, Legislative & Regulatory Work Group – Initiatives

   *CAT Policy Framework Analysis & Emerging Practices Summary Report Completed*

II. CAT Funding and Staffing Survey of IOOs
   *Preliminary survey completed and results available online*

III. Identify Model Regulations that Enable Near-Term Pilots and Deployments [ONGOING]

IV. Develop further understanding and definition of CAT related terminology [ONGOING]
# Clearinghouse of CAT Policy Frameworks and Policy Statements

<table>
<thead>
<tr>
<th>Agency / Organization</th>
<th>Content</th>
<th>Summary of Content</th>
</tr>
</thead>
</table>
| Arizona               | Law Enforcement Protocol for Fully Autonomous Vehicles | • Includes the policy statement on testing or operation of autonomous vehicles;  
|                       |                                                        | • Includes key definitions of terms  
|                       |                                                        | • Includes requirements for fully autonomous vehicle companies  
|                       |                                                        | • Describes the enforcement protocols                                                                                                                                                                             |
| New South Wales, Australia | Connected and Automated Vehicle Plan                  | Five-year CAV Plan for New South Wales with clear goals and actions to embrace technology and address potential challenges like cybersecurity and ensuring safe interactions between automated vehicles and other road users. |
| Centralina Council of Governments, Great Charlotte Area | Automated and Connected Vehicle (ACV) Roadmap         | • Highlights ACV technologies;  
|                       |                                                        | • Provides near- and long-term actions with associated obstacles and solutions for a collaborative approach for all regional partners for various issue areas like fleet management, transportation planning, infrastructure costs, and land use planning. |
| Colorado             | CAT Program                                           | Includes mission, purpose, issues, objectives, priorities, and risks associated with the Connected and Autonomous Technology in Colorado.                                                                            |

[https://transportationops.org/CATCoalition/clearinghouse-cat-policy-frameworks](https://transportationops.org/CATCoalition/clearinghouse-cat-policy-frameworks)
Current Use of Innovative Financing

- Traffic Signal and Roadside data in exchange for Vehicle Occupancy Data
- Data Partnerships of any kind (no-cost data exchange, value for both parties)
- Use of Venture Capital
- Advertising
- Transitioning a Legacy System (Traveler Information, Roadway Weather, …)
- Outsourcing a Specific Transportation Service (Roadway Safety Rest Area)
- Cellular Towers / exchange for Connected Vehicle Infrastructure
- 5G Small Cell
- Fiber
- Telecom
- Exchange Use of Right of Way by Private Sector in Exchange for Private …
- Volkswagen Mitigation Funds

Other (please specify)
<table>
<thead>
<tr>
<th>Deployment Type</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>AI use for accident prediction and stationing of incident management vehicles. Also AI facilitating incident identification and accelerated (12 min)…</td>
<td>1</td>
</tr>
<tr>
<td>Open data/data sharing applications or projects</td>
<td>10</td>
</tr>
<tr>
<td>Connecting traffic signal timing information to vehicles - SPAT</td>
<td>15</td>
</tr>
<tr>
<td>Use of aerial drones for maintenance and asset management functions</td>
<td>20</td>
</tr>
<tr>
<td>Signing and Striping: Roadway machine readable signing and striping</td>
<td>25</td>
</tr>
<tr>
<td>Worker Safety: Autonomous roadway construction zone safety trucks</td>
<td>20</td>
</tr>
<tr>
<td>Electrification: Expanding/building the electric vehicle charging network</td>
<td>20</td>
</tr>
<tr>
<td>Transit: Automated bus braking and pedestrian detection</td>
<td>15</td>
</tr>
<tr>
<td>Transit: Low-speed AV shuttles</td>
<td>20</td>
</tr>
<tr>
<td>Transit: First mile/last mile connections</td>
<td>15</td>
</tr>
<tr>
<td>Truck Platooning: SAE Level 1 Driver Assisted, other</td>
<td>10</td>
</tr>
</tbody>
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Additional Resources

- Link to report on emerging and noteworthy practices that were identified in the review of these 30 CAT policy frameworks.

- Link to report state and local transportation agencies’ funding of Cooperative Automation related deployments
CAT Coalition – Planning Scenarios & Resources Focus Area

- CV/AV Deployment Environment – Current and Future
- National CAT snapshot – Initiating an update to a previous survey
- International Scan – Starting an effort to conduct international document research on CAT activity
- CAV/CAT Strategic Plans – Identify current landscape, capture available Plans
- Resource Review of RSZW Concept of Operations developed by IOO-OEM Forum
- Development of a broad view CAT/CV Ecosystem document
CAT Coalition – Infrastructure-Industry & IOO-OEM Forum Ongoing Initiatives

- Survey of AV Shuttle Deployments nationwide – [ONGOING]
- Communications 101 webinar – High level webinar on communications to raise awareness and assist in decision making
- Outreach and engagement with other organizations (SAE, AAMVA, etc.)
- Clarification for Consistent Implementation (CCI) Document
- Work Zone Software Tool Chain: Encouraging IOOs to use and test software to enable creation of work zone map data
- Collaboration on SPaT/RLVW, RSZW, TOSCo tools
Questions?

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