Cooperative Automated Transportation (CAT)

Perspectives on Organization Alignment and Near-Term Investments

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AASHTO Committee on Transportation System Operations (CTSO) Annual Meeting
Atlanta, GA, August 27-29, 2018
TSMO within WSDOT
Transportation Systems Management & Operations (TSMO)
Managing safety and capacity as an asset

**PLANNING, PARTNERING, AND POLICY DEVELOPMENT**
- Land Use Planning
- Utilization of Regional Trails, Sidewalks, and Roadway Network
- Policy Implementation
- Agreement Development
- Data Sharing
- System and Corridor Planning
  - Multi-Modal
  - Corridor Sketch Maintenance
  - Joint Planning
  - State Facility Action Plan
- Integrated Scoping
- Community Engagement

**ITS IMPROVEMENTS**
- Road Weather Information Systems
- Ramp Metering
- Traffic Incident Management/IRT
- Wrong-way Driver Notifications
- Regionwide Communications
- Work Zone Management
- Adaptive Signals
- Intersection Conflict and Trail Crossing Warning Systems
- Weigh in Motion
- Online Truck Permitting

**TRAVEL DEMAND MANAGEMENT**
- Multi-Modal Development
  - Transit
  - Ferries
  - Bicycle
  - Freight
  - Pedestrian
  - Rail
- Commute Trip Reduction
- Managed Lanes
  - High Occupancy Vehicle
  - Tolled
  - Multi-Modal Shoulder Driving
- High Occupancy Tolling/Express Toll Lanes
- Land Use Development
- Integrated Multi-Modal Traveler Information and Fare Collection Systems

**COOPERATIVE AUTOMATED TRANSPORTATION**
- Traffic Signal Communications to Vehicles
- Truck Platooning
- Autonomous Truck Mounted Attenuators
- Work Zone Warning and Management
- Tolling Vehicle Occupancy Detection
- Rest Area Truck Parking Applications
- Winter Operations and Rural Traveler Information
- Pedestrian in Crosswalk Warning

**TRADITIONAL TRAFFIC OPERATIONS**
- Access Management
- Signal Operations/Optimization
- Safety Analysis/Countermeasures
- Signage & Striping
- Speed Management
- Minor Geometric Modifications
  - Channelization
  - Pedestrian Island
  - Compact Roundabouts
- Multi-Modal System Enhancement
- At-Grade Rail Crossings
How does WSDOT define CAT?

Cooperative: Deploying technology to encourage all modes of transportation to work in concert to provide travelers a safe, sustainable, and integrated multimodal transportation system.

Automated: By automating some or all of the functions of or access to various vehicle types (automobile, van, plane, truck, bus, rail, ferry, bicycle, scooter, etc.), traffic management systems, integrated multimodal trip planning and pavement systems along with other functions of the transportation system will greatly improve the our collective ability to leverage our limited funding to get the most capacity and safety out of the entire multimodal transportation system.

“Autonomous” implies independence, when in reality all of the parts of the transportation system are interdependent.”

Transportation: The entire transportation system working together (vehicles, infrastructure, modes, services, etc.) to provide safe, reliable and cost-effective transportation options to make our communities more livable, improve economic vitality, and improve the safety of our entire multimodal transportation system.
Organizational Efforts

Secretary of Transportation
Assistant Secretary
Multimodal Development & Delivery

External Workgroups

Governor’s Autonomous Vehicle Work Group

AASHTO CAT Coalition
Policy, Legislative, and Regulatory Workgroup

CAT Workgroup

Traffic Operations
Active Transportation
Maintenance
Innovative Partnerships
Tolling
Freight
Public Transportation
Multimodal Planning
Project Development
Aviation
Research

Washington State Autonomous Vehicle Work Group
Near Term Policy Development and Organizational Capability and Capacity Building

Agency Policy Development
- Developing and Communicating a Working Draft CAT Policy Framework

State and National Policy Development
- WA State Governor’s AV Workgroup
- WA State Transportation Commission AV Workgroup “Infrastructure & Systems Subcommittee”
- AASHTO CAT Policy Legislative and Regulatory Workgroup

Organizational Capability and Capacity Building
- Establishing Organizational Structures and pursuing dedicated resources to enable increased engagement, pilots, demonstrations, grant programs and more near term investments
- Expanding the use of consultants and the private sector as an extension of staff
Near Term Investments, Pilot Projects, Demonstrations, and Partnership Opportunities

**Underway: Investments**
- Winter Operations, Sharing Snow and Ice Maintenance information through the cloud.
- Expanding the EV Charging network with a goal of charging station(s) every 70 miles.
- Connecting traffic signal timing information to vehicles to improve safety and mobility (e.g., DSRC and Cloud based approaches).

**In Development: Pilot Projects and Demonstration Opportunities**
- Enabling CAT Grant program at the state level encouraging private investment.
- Use of aerial drones for roadside vegetation management.
- Bike share, E-Bikes, Traffic and signal priority for pedestrians and bicyclists.

**Opportunities: Investments, Pilot Projects, Demonstrations, and Partnerships**
- SAE Level 1 Driver Assisted Truck Platooning.
- Machine readable signing and roadway striping.
- Autonomous truck-mounted attenuator (TMA) pilots to reduce worker exposure to collisions during routine construction and maintenance activities (e.g., Low Speed Stripping Operations).
- Roadside infrastructure connected vehicle technology deployments for high-occupancy vehicle lane detection.
- Expand data sharing and access to include core maintenance, operations information.
  - Sharing Construction and work zone location information to connected vehicle OEMs.
- First Mile/Last Mile connections to transit through partnerships with ride sourcing companies.
- Autonomous Vehicles.
  - Flexible AV vanpools.
  - Low speed Shuttles: urban & rural applications.
QUESTIONS FOR WSDOT?

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