



April 22, 2021

CSA Group Connected and Automated Vehicle Standards Initiative

CSA Group CAV Initiatives

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 - CSA Group research report – Insights for Codes and Standards in Canada
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 - Digital Infrastructure Guideline
 - Connected and Automated Vehicle Code
 - CAV Advisory Council



Standards

Standards Development

Standards promote:

- Safety
- Health
- The environment
- Economic efficiency

Education

- Provides access choices based on user needs
- Increases user knowledge of standards
- Guides the accurate application in workplaces and communities



Research

- Explores potential for new standards solutions
- Provides evidence to inform and accelerate standards development

Advocacy

- Drives public awareness of standards
- Promotes the value and use of standards
- Engages a new generation of standards developers and users

Standards Research

Understanding our changing world to drive tomorrow's solutions

Keeping pace and getting ahead of change relies on a strong research program.

- Supports evidence-informed requirements and guidance.
- Explores new and emerging areas that impact safety, health, the environment and the economy.
- Supports the development of standards and our ongoing commitment to social good.



CSA Group – Transport Canada ACATS Project

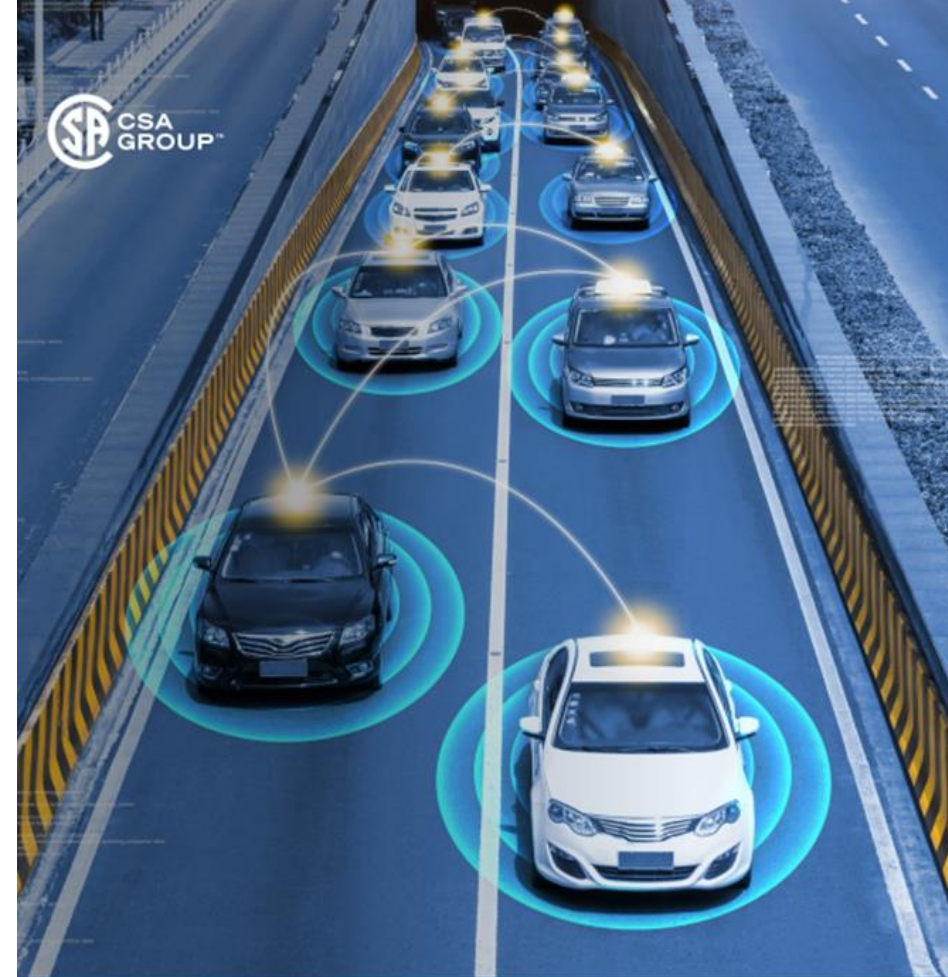
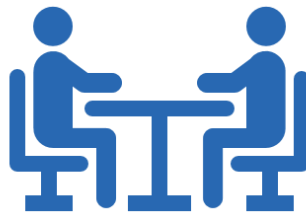
Advance Connectivity and Automation in the Transportation System (ACATS)

- Project title: Developing Guidelines and a Standardization Roadmap through Stakeholder Engagement to Safely Deploy Connected and Automated Vehicles into Canada
- Key Objectives
 - Engage Stakeholders
 - Create Codes and Standards Roadmap
 - Develop Guidelines



Connected and Automated Vehicle Technologies – Insights for Codes and Standards in Canada

- **Objective:** develop an understanding of the existing work and standards landscapes to identify areas of focus and opportunities for a CAV Codes and Standards Roadmap
- **Methodology:** combination of *desktop research*, *industry engagement*, and insight from a the team of *industry experts*.



Identified Gaps and Critical Need Themes



• **Harmonization and Interoperability** – need for consistency of standards across regions and countries, as well as the ability for technology to effectively interact and cooperate with each other.



• **Uncertainty with Enabling Communication Technologies** – uncertainty with the communication technology and spectrum allocation that is endorsed and supported by government agencies and widely used by manufacturers.



• **Compliance Verification** – gaps in standards and processes to verify that technology meets safety, security, and interoperability requirements.



• **Physical Infrastructure** – gaps in standards for physical infrastructure to accommodate CAV technologies.



• **Operational Design Domain** – gaps in standards and regulations regarding where, and under what conditions, CAVs are currently able to safely and efficiently operate.



• **High Definition Mapping and Localization** – gaps related to the development and availability of high definition (HD) mapping and localization technology to support the operation of CAVs.



• **Cybersecurity and Protection of Privacy** – critical needs for standards and security frameworks related to cybersecurity and privacy protection, specific to the CAV industry.



• **Technology Maturity** – gaps that are reflective of the fact that AV-enabling technologies have issues in some scenarios and all circumstances (e.g., operations in non-optimal conditions).

Key Recommendations and Input for Road Map

- Development of a comprehensive Guidance Document/Framework (or Code) for Canada
- Active coordination and alignment with the U.S.
 - Communications spectrum and technologies
 - Changes to Manual on Uniform Traffic Control Devices (MUTCDC)
 - Harmonization of Security Credential Management System (SCMS)
- Consider 'capability standards'
 - Certification for readiness for roads/highways (which level vehicles can drive autonomously)
 - Performance standards for CAVs (where and when can the vehicles operate autonomously)
- Officially recognize and require certification where applicable and available

Moving Forward – CSA Group's CAV Initiatives

- CSA's CAV Codes and Standards Roadmap
 - Roadmap to be published May 2021
- Digital Infrastructure Guideline based on input from CAV Working Group
 - Guideline to be published May 2021
- Connected and Automated Vehicles Code (CAV Code)
 - Developing a CAV Code Framework through a CSA Research project
 - Report on CAV Code Framework to be published June 2021
 - Developing a Seed Document for CAV Code
 - Seed document to be complete May 2021
 - Assembling a CAV Code Technical Committee
- Continued Stakeholder Engagement through CAV Advisory Council
 - Formed in 2019 and engages 53 members on codes and standards development and coordination



Questions?

Connected and Automated Vehicle Technologies – Insights for Codes and Standards in Canada Report can be downloaded online from the CSA Group website at:

<https://www.csagroup.org/article/research/connected-and-automated-vehicle-technologies-insights-for-codes-and-standards-in-canada/>



Thank you.

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