

## **Invitation to the 4<sup>th</sup> Session of the GRVA Informal Working Group on Functional Requirements for Automated/Autonomous Vehicles (FRAV)**

The fourth session of the FRAV informal group will take place via web conference on 8 September 2020 between 13:00 and 16:00 CET.

### Session Objectives

This session agenda will focus on the following items:

1. Discussion of ODD, other constraints, and manufacturer descriptions of an ADS
2. Clarification and application of terms related to “system safety”
3. Transitioning to drafting specifications and requirements
4. Planning further work on Document 5
5. Preparation for GRVA September session

**The main objective of this session is to reach consensus sufficient to enable FRAV to shift its attention to considering individual requirements for ADS within an agreed framework.**

### Registration

Persons interested in participating in the web conference are asked to inform the FRAV Secretary ([jcreamer@americanautocouncil.org](mailto:jcreamer@americanautocouncil.org)) **on or before 7 September**.

### Submissions

Given the constraints imposed by the web conference format, the co-chairs wish to adhere to a fixed schedule with time limits for each agenda item. Documents may be submitted for consideration; however, the co-chairs may need to postpone their presentation to a future session. All documents prepared for the session, including the session agenda, will be posted on the [FRAV-04 webpage](#) as available. Please send any submissions to the [FRAV Secretary](#) **on or before 7 September**.

### Additional Background

#### *ODD discussion*

During its first session, FRAV agreed that ADS requirements should be applicable across the anticipated range of ADS applications. Technical specifications applicable only to individual ADS configurations or uses would likely require an unmanageable number of specifications. Although FRAV does not exclude the development of detailed specifications, FRAV believes that a “high-level approach” would result in requirements consistent with the VMAD tools and methods to ensure ADS safety.

The AV Framework Document states that manufacturers should provide ODD descriptions. FRAV has agreed that manufacturers should provide such descriptions for ADS features. Document 5 would provide specifications for these descriptions. Under this approach, each ADS and its feature(s) could be assessed for compliance with high-level requirements based upon their intended uses and design constraints.

During its 2<sup>nd</sup> and 3<sup>rd</sup> sessions, FRAV discussed whether ODD descriptions capture all the information that may be necessary to understand the intended uses and constraints of each ADS. Under one interpretation, ODD refers to “external operating conditions”. Stakeholders have suggested that ADS may be subject to additional prerequisites or constraints that should be addressed in the manufacturer’s description. FRAV may wish to consider the definition of ODD and the scope of potential specifications for manufacturer descriptions of an ADS and/or its feature(s).

### *System Safety discussion*

During its 2<sup>nd</sup> session, FRAV agreed that “system safety” includes system design and general operational performance. In June, FRAV initiated an exchange of information regarding the scope and content of the System Safety chapter of Document 5. During its 3<sup>rd</sup> session, FRAV discussed the term’s relevance to its activities, particularly its meaning and use under Document 5. In general, the discussion suggested that “system safety” covers multiple aims of the document but also refers to safety methods more properly addressed under VMAD.

FRAV also discussed the concept that an ADS may have functions necessary to operate a vehicle in traffic (which relates to the SAE definition of the Dynamic Driving Task, or DDT). In principle, an ADS must monitor the driving environment and adapt the vehicle motion in response to changes. The loss of such functions would render the ADS incapable of fulfilling performance requirements (e.g., an ADS that can no longer detect objects can no longer avoid objects).

Therefore, a proposal was made that Document 5 may wish to consider “functional requirements” that might assist VMAD efforts regarding the assessment of an ADS design in terms of its functional safety. FRAV may wish to consider whether Document 5 should identify underlying functional capabilities necessary to meet performance requirements.

### *Transition to Work on Requirements*

During its 3<sup>rd</sup> session, the VMAD co-chairs indicated that the VMAD informal group expected to define the NATM framework by the end of September and would then need clarity from FRAV regarding anticipated requirements. Therefore, the FRAV co-chairs would like to shift FRAV’s focus towards work on requirements under Document 5.

Pursuant to the 2<sup>nd</sup> FRAV session, the secretary consolidated a list of 142 proposals for ADS specifications. The list reproduces proposals offered by the FRAV stakeholders but did not merge, reconcile, or modify the items. As such, the list captures the views of stakeholders but needs refinement.

The co-chairs suggest considering items under 3-4 broad performance areas such as driving behavior, user interactions, etc. This approach would enable FRAV to organize the work around a series of sessions with each session devoted to one broad aspect of ADS performance.

The intended outcome would be a list of essential safety performance aspects with lists of related elements for inclusion under the ODD and System Safety chapters (pursuant to decisions taken at the 4<sup>th</sup> session). This would enable FRAV to respond to the VMAD request and to prepare for the November WP.29 session.