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Convention on Road Traffic (1968):

Automated driving

**Consolidated Resolution on the Integration of Vehicles with
Automated Driving Systems in Traffic**

Submitted by the Government of the United States

This document contains a discussion paper for consideration by Global Forum for Road Traffic Safety (WP.1) proposing an elaboration of Consolidated Resolution on the Integration of Vehicles with Automated Driving Systems in Traffic and suggesting its possible content.

Consolidated Resolution on the Integration of Vehicles with Automated Driving Systems in Traffic

A Discussion Paper for Consideration by Working Party 1

Submitted by the Government of the United States

The following language is offered in response to interest expressed by Working Party 1 in developing guidance for integrating vehicles with Automated Driving Systems in traffic. The specific guidance included in this discussion paper is not intended to be exclusive of other areas, but is meant to reflect areas of Working Party 1 concern and offered for consideration as a first iteration of a new guidance instrument.

Preamble

As motorization grows and vehicle technology develops, so does the system of road traffic rules necessary to assure the safety and compatibility of the wide range of road users. Given the significant international movement of road users and traffic, international traffic rules are typically harmonized through legally binding treaties (conventions). These conventions are constantly reviewed and periodically amended in order to keep them relevant and up-to-date.

With the introduction of advanced crash avoidance and self-driving vehicle technologies, the pace of technological development has increased significantly. These technologies promise substantial safety benefits for road users, but present new challenges for integration in existing traffic.

This Consolidated Resolution on the Integration of Vehicles with Automated Driving Systems in Traffic is intended to provide non-binding recommendations and advice for domestic governments and local jurisdictions that are considering the introduction of such vehicles on their roadways. The recommendations and advisory statements included in this Resolution reflect the judgment of Working Party 1 of the United Nations Economic Commission for Europe, and incorporate the cumulative experience and expertise of Working Party members as well as available data and evidence and consultation with outside experts.

Scope and Relevance

Working Party 1 intends for these recommendations and advice to eventually cover a comprehensive range of topics regarding the integration of vehicles with Automated Driving Systems in traffic. The Working Party also intends for the recommendations and advice to evolve as technology develops and experience and evidence accumulates regarding safe technology deployment. The current iteration is a beginning that will be expanded to reflect increasing knowledge.

While being non-binding and advisory, the following recommendations complement the provisions in the 1949 Geneva and 1968 Vienna Conventions on Road Traffic by anticipating the widespread integration of vehicles with Automated Driving Systems in traffic and providing governments with practical advice on policies, programs and procedures that can facilitate their safe function.

**Suggested Structure of the Consolidated Resolution on the Integration of
Vehicles with Automated Driving Systems in Traffic:**

Section 1. Recommendations for integrating vehicles that can operate in driverless mode and require occasional operation by an on-board human driver.

1.1. Need for mobility.

Governments should develop appropriate policies and work with industry to address the need for equitable mobility and safety in vehicles with Automated Driving Systems.

1.2. Need for a licensed driver.

Governments should develop policies and work with industry to ensure that individuals who are actively engaged in vehicle control - monitoring the roadway and manipulating vehicle controls to execute driving tasks – are licensed drivers.

1.3. Permissible driver fitness to safely operate the vehicle.

Governments should take appropriate steps to ensure that individuals who are actively engaged in vehicle control are fit to drive, have adequate situational awareness for safe vehicle operation, and are not impaired by drugs or alcohol according to domestic driver impairment laws. This precaution recognizes that vehicle operation is a serious responsibility with potential safety consequences and should only be performed by an individual who has adequate skills, knowledge and mental acuity.

1.4. Compliance with traffic code.

Governments should work with industry to ensure the compatibility of vehicles with Automated Driving Systems with traffic codes. This should involve a review of traffic codes for clarity and consistency. Governments should specify appropriate vehicle registration, safety inspection and other requirements as appropriate for such vehicles. Governments may choose to enact additional traffic laws affecting driverless vehicle operation as considered necessary to ensure safe and predictable interaction with other road users.

Section 2. Recommendations for integrating vehicles that are fully driverless and do not permit operation by an onboard human driver.

2.1. Safe interaction with public safety and emergency officials.

Governments should work with public safety and emergency officials to identify specific needs for their safe interaction with driverless vehicles. This may include the ability for public safety and emergency officials to communicate with the vehicle in the case of a traffic or roadway incident or other public safety need and provide directions for safe traffic maneuvers. This should include a review of practices and procedures by public safety and emergency officials and work with industry to identify approaches for accommodating these needs.

2.2. Compliance with traffic code.

Governments should work with industry to ensure the compatibility of vehicles with Automated Driving Systems with traffic codes. This should involve a review of traffic codes for clarity and consistency. Governments should specify appropriate vehicle registration, safety inspection and other requirements as appropriate for such vehicles. Governments may choose to enact additional traffic laws concerning driverless vehicle operation as considered necessary to ensure safe and predictable interaction with other road users.

2.3. Communication with law enforcement officials.

Governments should work with law enforcement officials and industry to identify approaches for enabling communication between driverless vehicles and police officers or other officials. A method for such communication is needed to provide information on vehicle ownership or registration and other pertinent information in cases where there is a public safety necessity, even if there is no occupant on board.

2.4. Education of consumers and other road users.

Governments should monitor the interaction of other road users with vehicles with Automated Driving Systems to identify safety risks. If necessary, governments should work with industry and others to develop educational materials and programs to ensure that all road users - especially pedestrians, cyclists, motorcyclists, children, the elderly, and those with special mobility needs - are aware of unique characteristics of vehicles with Automated Driving Systems. This monitoring should include interactions at intersections, pedestrian crossings and other locations where predictability is critical for the safety of vulnerable road users.