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**Road transport infrastructure – European Agreement
on Main International Traffic Arteries (AGR): consideration
of new proposals for amendments to the (AGR)**

Consideration of new proposals for amendments to the AGR

Note by the secretariat

1. At its 104th session the Working Party on Road Transport (SC.1) decided to amend the Amendments to the European Agreement on Main International Traffic Arteries (AGR) to include procedures relating to road safety impact assessments, road safety audits, the management of road network safety, as well as safety inspections in the Agreement. It was decided that road safety audits would be introduced in the AGR, as an annex to it. The secretariat was requested to prepare the present document, based on Directive 2008/96/EC of the European Parliament and of the Council of 19 November 2008 on road infrastructure safety management, for consideration and possible approval at the 105th session of SC.1 (ECE/TRANS/SC.1/388, para. 47).

2. The amendment proposals introduce a new annex IV to the Agreement, covering road infrastructure safety management, and adapt the text of the Agreement to this change. The elements of road safety contained in annex II remain unchanged, as they mainly concern maintenance related aspects of safety.

I. Amendment proposals

3. Modify the second paragraph of the preamble to read as follows:

“CONSIDERING that in order to strengthen relations between European countries it is essential to lay down a coordinated plan for the construction and development of roads adjusted to the requirements of future international traffic and the environment and with a high level of safety.”

4. Add a new article 3 bis to read as follows:

“The Contracting Parties shall establish and implement procedures relating to road safety impact assessments, road safety audits, the management of road network safety and safety inspections for the roads of the international E-road network as referred to in article 1 of this Agreement, in conformity with the provisions of annex IV to this Agreement.”

5. Modify article 9, paragraphs 1 and 2, to read as follows:

“1. Annexes II, ~~and III and IV~~ to this Agreement may be amended by the procedure specified in this article.

2. Upon the request of a Contracting Party, any amendment proposed by it to annexes II, ~~and III and IV~~ to this Agreement shall be considered in the Working Party on Road Transport of the Economic Commission for Europe (ECE).”

6. In order to align the terms with those of the Convention on Road Signs and Signals, 1968, and of the Consolidated Resolution on Road Signs and Signals (R.E.2), modify annex II, paragraph IV.4.2 Variable traffic signs, to read as follows:

“IV.4.2 Variable ~~traffic~~ **message** signs

Variable ~~traffic~~ **message** signs shall be as comprehensible as static road signs, and be legible by day and night to drivers in all lanes.”

7. Add a new annex IV to the Agreement, to read as in the annex to the present document.

Annex

Annex IV

Road Infrastructure Safety Management

I. General

1. The setting up and implementing of appropriate management procedures is an essential tool for improving the safety of road infrastructure within the international E-road network whether the roads are at the design stage, under construction or in operation.
2. Road safety impact assessments should demonstrate, on a strategic level, the implications on road safety of different planning alternatives of an infrastructure project and they should play an important role when routes are being selected. Moreover, road safety audits should identify, in a detailed way, unsafe features of a road infrastructure project.
3. Safety performance of existing roads should be raised by targeting investments to the road sections with the highest accident concentration and/or the highest accident reduction potential. To be able to adapt their behavior and increase compliance with traffic rules, road users should be made aware of road sections with a high accident concentration.
4. Network safety ranking has a high potential immediately after its implementation. Once road sections with a high accident concentration have been treated and remedial measures have been taken, safety inspections as a preventive measure should assume a more important role. Regular inspections are an essential tool for preventing possible dangers for all road users, including vulnerable users, and also in case of road works.
5. Training and certification of safety personnel by means of training curricula and tools for qualification validated by the competent entities should ensure that practitioners get the necessary up-to-date knowledge.
6. Sufficient roadside parking areas are very important not only for crime prevention but also for road safety. Parking areas enable drivers to take rest breaks in good time and continue their journey with full concentration. The provision of sufficient safe and secure parking areas should therefore form an integral part of road infrastructure safety management.

II. Definitions

For the purposes of this annex, the following definitions shall apply:

1. "international E-road network" means the road network described in annex I to the present Agreement;
2. "competent entity" means any public or private organization set up at national, regional or local level, involved in the implementation of this annex by reason of its competences, including bodies designated as competent entities which existed before the entry into force of this annex, in so far as they meet the requirements of this annex;

3. "road safety impact assessment" means a strategic comparative analysis of the impact of a new road or a substantial modification to the existing network on the safety performance of the road network;
4. "road safety audit" means an independent detailed systematic and technical safety check relating to the design characteristics of a road infrastructure project and covering all stages from planning to early operation;
5. "ranking of high accident concentration sections" means a method to identify, analyze and rank sections of the road network which have been in operation for more than three years and upon which a large number of fatal accidents in proportion to the traffic flow have occurred;
6. "network safety ranking" means a method for identifying, analyzing and classifying parts of the existing road network according to their potential for safety development and accident cost savings;
7. "safety inspection" means an ordinary periodical verification of the characteristics and defects that require maintenance work for reasons of safety;
8. "infrastructure project" means a project for the construction of new road infrastructure or a substantial modification to the existing network which affects the traffic flow.

III. Road safety impact assessment for infrastructure projects

1. The Contracting Parties shall ensure that a road safety impact assessment is carried out for all infrastructure projects.
2. The road safety impact assessment shall be carried out at the initial planning stage before the infrastructure project is approved. The road safety impact assessment shall indicate the road safety considerations which contribute to the choice of the proposed solution. It shall further provide all relevant information necessary for a cost-benefit analysis of the different options assessed.
3. When carrying out road safety impact assessment, the Contracting Parties shall endeavor to meet the criteria set out in the Appendix I to this annex.

IV. Road safety audits for infrastructure projects

1. The Contracting Parties shall ensure that road safety audits are carried out for all infrastructure projects.
2. The Contracting Parties shall ensure that an auditor is appointed to carry out an audit of the design characteristics of an infrastructure project. The auditor shall be appointed in accordance with the provisions of section VIII, point 4 below and shall have the necessary competence and training provided for in section VIII. Where audits are undertaken by teams, at least one member of the team shall hold a certificate of competence as referred to in section VIII, point 3.
3. Road safety audits shall form an integral part of the design process of the infrastructure project at the stage of draft design, detailed design, pre-opening and early operation.
4. The Contracting Parties shall ensure that the auditor sets out safety critical design elements in an audit report for each stage of the infrastructure project. Where unsafe features are identified in the course of the audit but the design is not rectified before the end

of the appropriate stage as referred to in the criteria below, the reasons shall be stated by the competent entity in an Annex to that report.

5. The Contracting Parties shall ensure that the report referred to in paragraph 4 shall result in relevant recommendations from a safety point of view.

6. When carrying out road safety audits, the Contracting Parties shall endeavor to meet the criteria set out in Appendix 2 to this annex.

V. Safety ranking and management of the road network in operation

1. The Contracting Parties shall ensure that the ranking of high accident concentration sections and the network safety ranking are carried out on the basis of reviews, at least every three years, of the operation of the road network.

2. The Contracting Parties shall ensure that road sections showing higher priority according to the results of the ranking of high accident concentration sections and from network safety ranking are evaluated by expert teams by means of site visits guided by the elements referred to in point 3 of Appendix 3 to this annex. At least one member of the expert team shall meet the requirements set out in section VIII, point 4 (a).

3. The Contracting Parties shall ensure that remedial treatment is targeted at the road sections referred to in paragraph 2. Priority shall be given to those measures referred to in point 3 (e) of Appendix 3 to this annex paying attention to those presenting the highest benefit-cost ratio.

4. The Contracting Parties shall ensure that appropriate signs are in place to warn road users of road infrastructure segments that are undergoing repairs and which may thus jeopardize the safety of road users. These signs shall also include signs which are visible during both day and night time and set up at a safe distance and shall comply with the provisions of the Convention on Road Signs and Signals, done in Vienna on 8 November 1968.

5. The Contracting Parties shall ensure that road users are informed of the existence of a high accident concentration section by appropriate measures. If a Contracting Party decides to use signposting, this shall comply with the provisions of the Convention on Road Signs and Signals, done in Vienna on 8 November 1968.

6. When carrying out safety ranking the Contracting Parties shall endeavor to meet the criteria set out in Appendix 3 to this annex.

VI. Safety inspections

1. The Contracting Parties shall ensure that safety inspections are undertaken in respect of the roads in operation in order to identify the road safety related features and prevent accidents.

2. Safety inspections shall comprise periodic inspections of the road network and surveys on the possible impact of road works on the safety of the traffic flow.

3. The Contracting Parties shall ensure that periodic inspections are undertaken by the competent entity. Such inspections shall be sufficiently frequent to safeguard adequate safety levels for the road infrastructure in question.

VII. Data management

1. The Contracting Parties shall ensure that for each fatal accident occurring on a road which is part of the international E-road network an accident report is drawn up by the competent entity. Contracting Parties shall endeavor to include in that report each of the elements listed in Appendix 4 to this annex.
2. The Contracting Parties shall calculate the average social cost of a fatal accident and the average social cost of a severe accident occurring in its territory. The Contracting Parties may choose to further differentiate the cost rates, which shall be updated at least every five years.

VIII. Appointment and training of auditors

1. The Contracting Parties shall ensure that, if they do not already exist, training curricula for road safety auditors are adopted the soonest possible.
2. The Contracting Parties shall ensure that where road safety auditors carry out functions under this Agreement, they undergo an initial training resulting in the award of a certificate of competence, and take part in periodic further training courses.
3. The Contracting Parties shall ensure that road safety auditors hold a certificate of competence. Certificates awarded before the entry into force of this annex shall be recognized.
4. The Contracting Parties shall ensure that auditors are appointed in compliance with the following requirements:
 - (a) they have relevant experience or training in road design, road safety engineering and accident analysis;
 - (b) from two years after the entry into force of this annex, road safety audits shall only be undertaken by auditors or teams to which auditors belong, meeting the requirements provided for in paragraphs 2 and 3 above;
 - (c) for the purpose of the infrastructure project audited, the auditor shall not at the time of the audit be involved in the conception or operation of the relevant infrastructure project.

IX. Exchange of best practices

In order to improve the safety of the international E-road network the Contracting Parties use the Working Party on Road Transport of the United Nations Economic Commission for Europe (UNECE) as a platform for the exchange of best practices between them, covering, inter alia, existing road infrastructure safety projects and proven road safety technology.

Appendix I

Criteria for road safety impact assessment for infrastructure projects

1. Elements of a road safety impact assessment:

- (a) problem definition;
- (b) current situation and "do nothing" scenario;
- (c) road safety objectives;
- (d) analysis of impacts on road safety of the proposed alternatives;
- (e) comparison of the alternatives, including cost-benefit analysis;
- (f) presentation of the range of possible solutions.

2. Elements to be taken into account:

- (a) fatalities and accidents, reduction targets against "do nothing" scenario;
- (b) route choice and traffic patterns;
- (c) possible effects on the existing networks (e.g. exits, intersections, level crossings);
- (d) road users, including vulnerable users (e.g. pedestrians, cyclists, motorcyclists);
- (e) traffic (e.g. traffic volume, traffic categorisation by type);
- (f) seasonal and climatic conditions;
- (g) presence of a sufficient number of safe parking areas;
- (h) seismic activity.

Appendix II

Criteria for road safety audits for infrastructure projects

1. Criteria at the draft design stage:

- (a) geographical location (e.g. exposure to landslides, flooding, avalanches), seasonal and climatic conditions and seismic activity;
- (b) types of and distance between junctions;
- (c) number and type of lanes;
- (d) kinds of traffic admissible to the new road;
- (e) functionality of the road in the network;
- (f) meteorological conditions;
- (g) driving speeds;
- (h) cross-sections (e.g. width of carriageway, cycle tracks, foot paths);
- (i) horizontal and vertical alignments;
- (j) visibility;
- (k) junctions layout;
- (l) public transport and infrastructures;
- (m) road/rail level crossings.

2. Criteria for the detailed design stage:

- (a) layout;
- (b) coherent road signs and markings;
- (c) lighting of lit roads and intersections;
- (d) roadside equipment;
- (e) roadside environment including vegetation;
- (f) fixed obstacles at the roadside;
- (g) provision of safe parking areas;
- (h) vulnerable road users (e.g. pedestrians, cyclists, motorcyclists);
- (i) user-friendly adaptation of road restraint systems (central reservations and crash barriers to prevent hazards to vulnerable users).

3. Criteria for the pre-opening stage:

- (a) safety of road users and visibility under different conditions such as darkness and under normal weather conditions;

- (b) readability of road signs and markings;
- (c) condition of pavements.

4. Criteria for early operation:

assessment of road safety in the light of actual behavior of users. Audits at any stage may involve the need to reconsider criteria from previous stages.

Appendix III

Criteria for ranking of high accident concentration sections and network safety ranking

1. Identification of road sections with a high accident concentration

The identification of road sections with a high accident concentration takes into account at least the number of fatal accidents that have occurred in previous years per unit of road length in relation to the volume of traffic and, in case of intersections, the number of such accidents per location of intersections.

2. Identification of sections for analysis in network safety ranking

The identification of sections for analysis in network safety ranking takes into account their potential savings in accident costs. Road sections shall be classified into categories. For each category of roads, road sections shall be analyzed and ranked according to safety-related factors, such as accidents concentration, traffic volume and traffic typology.

For each road category, network safety ranking shall result in a priority list of road sections where an improvement of the infrastructure is expected to be highly effective.

3. Elements of evaluation for expert teams' site visits:

- (a) a description of the road section;
- (b) a reference to possible previous reports on the same road section;
- (c) the analysis of possible accident reports;
- (d) the number of accidents, of fatalities and of severely injured persons in the three previous years;
- (e) a set of potential remedial measures for realization within different timescales considering for example:
 - (i) removing or protecting fixed roadside obstacles;
 - (ii) reducing speed limits and intensifying local speed enforcement;
 - (iii) improving visibility under different weather and light conditions;
 - (iv) improving safety condition of roadside equipment such as road restraint systems;
 - (v) improving coherence, visibility, readability and position of road markings (incl. application of rumble strips), signs and signals;
 - (vi) protecting against rocks falling, landslips and avalanches;
 - (vii) improving grip/roughness of pavements;
 - (viii) redesigning road restraint systems;
 - (ix) providing and improving median protection;
 - (x) changing the overtaking layout;

- (xi) improving junctions, including road/rail level crossings;
- (xii) changing the alignment;
- (xiii) changing width of road, adding hard shoulders;
- (xiv) installing traffic management and control systems;
- (xv) reducing potential conflict with vulnerable road users;
- (xvi) upgrading the road to current design standards;
- (xvii) restoring or replacing pavements;
- (xviii) using intelligent road signs;
- (xix) improving intelligent transport systems and telematics services for interoperability, emergency and signage purposes.

Appendix IV

Accident information contained in accident reports

Accident reports include the following elements:

1. precise as possible location of the accident;
2. pictures and/or diagrams of the accident site;
3. date and hour of accident;
4. information on the road such as area type, road type, junction type incl. signalling, number of lanes, markings, road surface, lighting and weather conditions, speed limit, roadside obstacles;
5. accident severity, including number of fatalities and injured persons, if possible according to common criteria to be defined in accordance with the regulatory procedure with scrutiny referred to in Article 13(3);
6. characteristics of the persons involved such as age, sex, nationality, alcohol level, use of safety equipment or not;
7. data on the vehicles involved (type, age, country, safety equipment if any, date of last periodical technical check according to applicable legislation);
8. accident data such as accident type, collision type, vehicle and driver manoeuvre;
9. whenever possible, information on the time elapsed between the time of the accident and the recording of the accident, or the arrival of the emergency services.
