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Working Party on Road Traffic Safety

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REPORT OF THE WORKING PARTY ON ROAD TRAFFIC SAFETY ON ITS FIFTY-FIRST SESSION

Addendum

Revision of the Consolidated Resolution on Road Traffic (R.E.1)

Infrastructure and the safety of two-wheelers

Members of WP.1 will find below the text on infrastructure and the safety of two-wheelers (basis ECE/TRANS/WP.1/2007/22) as adopted by the Working Party at its fifty-first session (see ECE/TRANS/WP.1/108, paragraphs 39-40).

The contents of this text will be incorporated into chapter 11 of the Consolidated Resolution R.E.1, according to the draft structure of R.E.1 contained in document ECE/TRANS/WP.1/2005/15/Rev.4.

R.E.1

Chapter 11 - Infrastructure and the safety of two-wheelers

Amendments made to document ECE/TRANS/WP.1/2006/22 appear in bold

Users of two-wheeled motorized or non-motorized vehicles (cycles, mopeds, motorcycles) are exposed to particular risks connected with the inherent characteristics of these vehicles. Chapter 6 of this resolution contains a series of recommendations addressed to drivers and vehicles that are intended to enhance the safety of both. But it is also important, in view of the reduced stability and passive safety of these vehicles, to focus attention on infrastructures and facilities that could protect them or minimize the consequences of accidents. Such is the purpose of the recommendations below.

11.1 Cycles

11.11 General recommendations

To enhance the safety of cyclists and promote mutual respect among road users, cyclists must be considered when drawing up mobility policies, especially when installing or redeveloping infrastructures specifically designed for their use.

The development of dedicated infrastructures for cyclists such as “cycle tracks” and “cycle lanes” (see on this subject the definitions introduced in the Vienna Convention on Road Traffic in article 1 (g bis) and (g ter) and in the Vienna Convention on Road Signs and Signals in article 1 (e bis) and (e ter) by the amendments which entered into force on 28 March 2006) requires space availability and financial investment. Such facilities should be promoted and, to the extent possible, should form part of the original design of the road and not added later, when risks have become apparent and adjustments are required (from chapter 6).

These facilities should meet specific standards **and facilitate the observance of** traffic rules. Facilities must be standardized at national level, since this will encourage both cyclists and other road users to behave in the same way, i.e. they will be better able to recognize such facilities, identify traffic conditions and appreciate the potential risks they may face.

Facilities should be selected in consultation with all interested stakeholders, for example cyclists’ associations and representatives of other categories of road users, thereby fostering awareness of the needs of others and acceptance of whatever measures are decided.

11.1.2 In open country

Given the amount of space available, it should be easier to create special infrastructures for cyclists. Certain routes should be reserved for cyclists, for example with appropriate surfaces, marking, signs and signals. Effective protection should be guaranteed,

particularly at intersections, by installing special facilities such as staggered traffic signals, advanced cycle boxes, etc. (see paragraph 11.1.4).

Where it is not possible to provide cycle tracks and paths owing to lack of space, levelling or even surfacing the verges along certain roads may be the next-best solution and one that will also increase road safety for all users.

A **road** network in good condition is not only a prerequisite for encouraging people to make greater use of bicycles, it also increases safety by reducing the number of movements cyclists need to make to avoid obstacles and by ensuring that they are not knocked off their bicycles by defects in the carriageway surface.

11.1.3 In urban areas

Consideration should be given to the needs of cyclists at all times, not only by setting up bicycle routes or by providing specific facilities, but also by introducing measures of a general nature such as traffic calming and by devoting a greater share of public land resources to cyclists, pedestrians and public transport services.

Besides cycle tracks and lanes, a range of facilities or arrangements could be put in place for cyclists, at relatively low cost, to meet this objective of peaceful coexistence, for example:

– Contraflow arrangements in one-way streets with light local traffic;

– Use of existing service roads used for local activities or for providing access for local residents or frontages;

– Introduction of 30 km/h zones;

– Introduction of cycling areas modelled on those reserved for pedestrians;

– Provision of a central lane on bidirectional streets, which in addition to reducing visibility across the carriageway and thus causing traffic to slow down, would also make it easier for vehicles emerging from side streets to enter the traffic flow and for vehicles already on the road to move into position to turn left (right in countries driving on the left) at intersections;

- **Use of combined pedestrian and bicycle paths marked with road signs and markings in conformity with the 1968 Convention on Road Signs and Signals**.

– **Possible use by bicycles of bus lanes, which may be widened when necessary;**

– Signing of recommended routes.

When repairing or resurfacing roads, it is also advisable not to leave obstacles protruding above the surface of the carriageway, which would force cyclists to swerve to avoid them, or to produce too convex a carriageway profile as a result of successive resurfacing operations.

11.1.4 Special measures at intersections

Particular attention must be paid to the layout of junctions at points where cycle tracks or lanes intersect with lanes open to all vehicles. These special zones must be designed with the following objectives in mind:

– Reduction in the number and severity of conflicts between cyclists and other road users by improving visibility and slowing the speeds at which motor vehicles travel;

– Protection of cyclists turning left (right in countries that drive on the left) and from other vehicles turning right **(left in countries that drive on the left)**;

– Taking account of cycle traffic in the design of roundabouts and junctions controlled by traffic signals;

– Provision of protected areas for two-wheeled vehicles at junctions, such as advanced cycle boxes.

11.2 ***Recommendations concerning*** **motorized two-wheeled vehicles**

In some countries mopeds are classified - wholly or partly - as bicycles with regard to road positioning. If this is not the case, they use the carriageway in the same way as motorcycles. In both cases, and particularly if these vehicles use the carriageway, it must be acknowledged that infrastructure is most often designed for cars, heavy vehicles and bicycles. The following recommendations take account of the specific characteristics of mopeds and motorcycles.

11.2.1 General recommendations

Owing to the presence of mopeds and motorcycles on the carriageway, some aspects mainly concerning the rider's balance should be stressed, **such as**:

(a) Pavement quality: ruts, potholes, grooves, surface dressing chipping and protruding joints are particularly dangerous. They can be an extreme hazard, especially when wet, leaving little chance for drivers to escape unharmed. Chipping may induce a reduction in grip and risks of falling. In addition, some road surfaces are dangerous, particularly when wet, for example paving stones, rail tracks and manhole covers;

(b) Road markings: these can be a real hazard. The thickness of the paint and some thermoplastic markings may in time be so slippery that braking becomes hazardous. The same applies to areas where vehicles frequently stop (traffic lights) and where deposits form on the road surface;

(c) **Roadside features: lighting supports, signal and sign fixtures can create a particular hazard for motorcyclists, both in limiting vision and inflicting injuries in accident situations. Crash barriers that allow motorcyclists to collide with their posts or protruding features are very dangerous;**

(d) Some road structures (narrowing or raising of the carriageway) to reduce speed or moderate traffic may sometimes be dangerous, in particular where they are badly placed, badly or not signalled, or not visible.

The competent authorities should, at a minimum, indicate the presence of some of the hazards listed above (ruts, grooves, protrusions and gravel). In the absence of prompt technical solutions to these problems (for example through non-slip road markings), it is necessary to insist during driver training on the correct behaviour to be adopted.

More generally, the following action is necessary:

(a) Development of policies on the design and emplacement of road markings, manhole covers and road furniture **[…];**

(b) Maintenance and repair of roads, taking into account the impact on two-wheeled motorized vehicles;

(c) Development of policies on the design and location of road signs and their mounting arrangements, signalling and lighting structures and other roadside features;

(d) Promotion of the development of comprehensive national strategies to improve infrastructure for two-wheeled motorized vehicles, aimed at persons responsible for road construction and maintenance. **[…]**

11.2.2 Recommendations concerning mopeds

Where mopeds are allowed to use cycle tracks and lanes, special attention should be given to potential cyclist/moped rider conflicts, for example by varying the number of moped riders on cycle tracks depending on the quality of the track and/or distinguishing between mopeds capable of travelling at different speeds.

11.2.3 Recommendations concerning motorcycles

Motorcyclists find it easier to adapt to general traffic owing to the vehicle's characteristics (power, braking system, usually more sophisticated technology), but they encounter the same difficulties as moped riders, magnified due to the speed of the vehicles concerned. Unlike moped users, motorcyclists are permitted to use motorways and expressways, which means that the danger from ruts, grooves and sharp protrusions, etc., on this network is magnified. Accordingly, infrastructure managers must pay special attention to these points and deal promptly with any problems.

[…] Crash barriers can also pose a significant danger to motorcyclists, especially if they have **unprotected posts or** protruding sections**. Indeed,** in the majority of cases, collisions with a barrier of this kind result in very severe injury. Accordingly, the use of concrete retaining walls or profiled crash barriers without unprotected posts and protruding sections is advisable.
