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REVISION OF THE CONSOLIDATED RESOLUTION R.E.1

Safety of pedestrians

Note by the secretariat

At its 49th session in June 2006, the Working Party adopted the recommendation on the safety of pedestrians contained in ECE/TRANS/WP.1/2006/7/Rev.1 with a number of modifications. They are marked in bold in the present document.

An alternative text for section 8.1.5 proposed by Israel and FIP still needs to be examined by the Working Party. The order of certain paragraphs has been modified to take account of the latest modifications to the structure of R.E.1 made by the small group on the restructuring of R.E.1. The modified structure is contained in document ECE/TRANS/WP.1/2005/15/Rev.3.

Chapter 3

Pedestrians and persons with reduced mobility

3.1 Context

Pedestrians still account for a substantial proportion of road accident victims in a large number of countries. The safety of pedestrians **and persons with reduced mobility** requires a comprehensive and coherent approach to ensure real interaction between the various road users. The aim of these recommendations is an improvement of their safety.

3.2 General recommendations

3.2.1 **Research and statistics on pedestrian safety** *(ex 3.1.3 of ECE/TRANS/WP.1/2006/7/Rev.1)*

In the field of pedestrian safety, there is a need to collect data to assess the safety of pedestrians in road traffic more effectively and more regularly in order to refine knowledge of the problem through, inter alia, the following:

(a) Ensuring that pedestrian collisions are recorded and that the quality of the recording is optimized to make in-depth analyses of collisions possible, if needed;

(b) Research into the relationship between the number of pedestrian collisions and changes in pedestrian activity (like children being brought to school by car instead of walking, or old people not leaving their homes owing to fear of traffic conditions);

(c) Further research to determine the positive and negative effects of the increasing use of advanced technologies in vehicles and the design of the latter on the safety of the most vulnerable road users, and pedestrians in particular.

3.2.2 **The role of public authorities**

Public authorities should take more account of the vulnerability of pedestrians and contribute actively to reducing the dangers to which they are exposed by taking the following measures:

(a) Giving pedestrian safety an important role;

(b) Taking pedestrians into account, giving them the same importance as users of means of transport when transport and traffic plans are being drawn up. When building new infrastructures, or changing existing infrastructures, safety audits should be carried out inter alia to determine and to alleviate possible negative effects on the safety and mobility of pedestrians;

(c) Enlisting the participation of residents of the neighbourhoods involved, so that t hey may contribute with suggestions regarding the improvement of pedestrian safety.

3.2.3 **Campaigns to promote pedestrian safety** *(ex 3.1.1 of ECE/TRANS/WP.1/2006/7/Rev.1)*

In order to make road users more aware of existing traffic rules and the behaviour they need to adopt to ensure that pedestrian safety is not compromised, the following points - especially with regard to campaigns and driving courses - should be stressed:

(a) Campaigns on pedestrian safety should project not simply an image of pedestrians as vulnerable road users, but as road users in their own right;

(b) Campaigns should inform all road users about the physical and psychological capabilities and limits of human beings in traffic, thereby helping to understand the behaviour of each road user group, including the need for interaction among road users;

(c) Special attention should be given to training and educational aspects, beginning with young children. Parents have a special responsibility to teach children how to cross a road;

(d) Driving courses and campaigns should encourage non-aggressive conduct towards pedestrians and stress their vulnerability.

…

Chapter 8

Measures and facilities to ensure pedestrian safety

In addition to the recommendation contained in chapter 3 of the present Consolidated Resolution, the present chapter lists the different measures and facilities for assuring greater safety for pedestrians. *(Introduction prepared by the small group on the restructuring of R.E.1).*

8.1 Recommendations concerning facilities for pedestrians

Because pedestrians as a diverse group have widely different capabilities and as individuals are especially vulnerable, the strategies for adapting pedestrian behaviour to current road structures are limited. Therefore, legal provisions, recommendations and other approaches regarding infrastructure are necessary.

Facilities and infrastructure should be designed to ensure pedestrian mobility, reduce the dangers of the road and foster in all traffic participants safe and responsible behaviour. The following provisions regarding pedestrians are recommended:

8.1.1 Pavements (sidewalks) and footpaths

In every town and city, a network of continuous walkways (including pavements (sidewalks), etc.) should be established. They should provide safe, direct links between homes, shops, schools, access to public transport and other vital services and facilities. Pavements and footpaths should be well lit and well maintained. Their width should be determined by their function (as school paths or through shopping areas, etc.). The pavement should **[…]** not be used for parking of vehicles. If this is not avoidable,

sufficient space **must be** left for the movement of pedestrians and **handicapped persons in wheelchairs**, and exceptions should be marked on the ground, indicating spaces for parking. Signs and other equipment should not obstruct the movement of pedestrians.

Vehicles, **including all devices for personal mobility,** powered by motors of any kind, except slow-moving vehicles designed for handicapped persons, **should** not be allowed to use footpaths and pavements.

8.1.2 Pedestrian crossings

8.1.2.1 General principles

Pedestrian crossings should allow users to cross the roadway in safety. They cannot therefore be considered simply as a road marking, but have to be considered as a built traffic layout component (including the arrival areas and possibly a central island) forming part of the whole road design. Thus, their location and layout should always be integrated with the planning, design and construction of the road as a whole. Generally speaking, the objective should be to **give preference to the crossing of roads safely by pedestrians without change of level. However, when necessary to improve the safety of pedestrians in certain places, engineering structures such as footbridges or tunnels should be considered**.

Provision should also be made for a sufficient number of pedestrian crossings, and these should be carefully planned so that pedestrians do not have to make long detours.

8.1.2.2 Visibility at pedestrian crossings

In the area leading to the crossing, there should be nothing to interfere with visibility, because pedestrians must be able to see **and be seen** by oncoming vehicles at a sufficient distance if they are to cross safely. Accordingly, to ensure clear visibility near a pedestrian crossing, pavements should be broadened **wherever possible** to bring the kerb into line with the roadside limit of the parking spaces**,** or parking should be prohibited within a distance of at least five metres before the crossing by means of appropriate road markings, **as is required by Article 23.3 of the European Agreement supplementing the Vienna Convention on Road Traffic (Ad Article 23.3).**

8.1.2.3 Facilities for pedestrian crossings

In general, roads should be designed so as to minimize the crossing distances of pedestrians at designated pedestrian crossings.

If not equipped with traffic light signals, pedestrian crossings should be equipped with the regulatory sign specified in the 1968 Vienna Convention on Road Signs and Signals, and motorists should, **if necessary**, be alerted to their presence by a danger sign suitably positioned on the approach to the crossing. Crossings should also be illuminated much more brightly than other parts of the road.

When vehicles are permitted to change direction at intersections of streets or roads equipped with traffic lights, measures should be taken to increase the safety of pedestrians on a pedestrian crossing. Accordingly, clear **information** should be given to pedestrians alerting them to possible danger, and also to motorists warning them to take care when changing direction.

Moreover, signal phases at traffic lights should provide reasonable time for safe crossing of pedestrians. In special cases, detection technologies should be used to provide extra clearance time for the crossing of slow pedestrians.

At pedestrian crossings with no traffic lights, the speed of approaching traffic should be limited, to enable safe crossing for pedestrians.

Finally, at high-risk spots - **in particular** where a road enters a built-up area, where a carriageway consists of several lanes in each direction or where vehicles tend to travel at higher speeds - pedestrian crossings should be equipped whenever possible with a central island and/or any other provision together with good lighting, to ensure safe crossing by pedestrians, especially children and elderly people.

8.1.3 Pedestrian subways and footbridges

Where a large number of pedestrians have to cross a road with dense fast-moving traffic of more than two lanes, footbridges and subways, if properly maintained, lighted and accessible to all users, including those with reduced mobility, can provide a good solution. In addition, where the crossing of a road on foot, at road level, is potentially dangerous, pedestrians should be prevented from crossing by barriers and/or other obstacles.

8.1.4 Pedestrian zones

Pedestrian areas are intended and should be designed for the use of pedestrians. National legislation should give clear prescriptions on the conditions under which certain categories of vehicles and users are permitted to enter them as well as on signs, speeds and permitted times applying to such areas. Special care should be given to the access walkways leading to and from pedestrian areas.

8.1.5 Traffic calming areas

Low speeds within built-up areas are crucial for the safety of pedestrians. For this purpose it is usually not sufficient to place traffic signs at the start of a zone with lower speed. These zones should also be set up with support in terms of built infrastructure, to reduce **traffic** speed and **volume**. In such zones, the following measures are recommended:

(i) The establishment, in residential, shopping and other heavily used areas, of zones with speed limits below those generally applied in built-up areas;

(ii) The establishment of "residential areas" to which motorists' attention should be drawn by appropriate regulatory signs as described in the 1971 European Agreement supplementing the Vienna Convention on Road Signs and Signals.

[8.1.5 *Traffic Calming Zones* (New text proposed by Israel and FIP – not yet considered by WP.1)

Ensuring low speeds within built-up areas is crucial for the safety of pedestrians. However, it is generally not sufficient just to place traffic signs to create a zone with reduced speed. It is also necessary to employ various special means of infrastructure. For this purpose, various types of infrastructure can be envisaged such as, for example, zones where pedestrians can benefit from enhanced safety. The two most frequent types of zones are described below.

8.1.5.1 <u>30 km/hr zones</u>

This is a zone designed for calmed-down traffic, at no more than 30 km/h having an appearance that differs substantially from that of a regular road. Its design and planning are directed towards both less traffic and slower speeds. In such zones, the enactment of some or all of the following measures may be considered:

(1) Creating visually distinctive "gates" at the entries to the zone.

(2) Establishment of a 30km/h overall speed limit.

(3) Designing roads and adjacent areas in a manner that discourages speeding.

(4) Providing substantial areas in the zone for walking and for non-motorized traffic.

(5) Yielding right-of-way to traffic coming from the right (left in countries moving on left side).

(6) Diverting through-traffic via by-pass roads.

(7) Using various types of pavement coverings instead of asphalt in order to make certain places conspicuous.

8.1.5.2 "<u>Pedestrian preference zones</u>"

In places where the number of cars is so low that the entire surface of a street may be used for walking or even playing, and in places where numerous pedestrians should be able to cross "everywhere", such pedestrian preference zones may be established. ***Such zones are referred to as "residential zones" or "meeting zones" depending on the case, but other names are sometimes employed.*** *They should be designed in such a way that it is obvious for drivers that vehicles do not have the right of way over pedestrians and that they must adapt their speed to give way to pedestrians in the zone.]*

These zones should be signposted for motorists by the use of an appropriate regulatory sign such as the one described in the 1971 European Agreement (paragraph 22 – Ad Annex 1, Section E, subsection II) supplementing the Vienna Convention on Road Signs and Signals.

See also paragraph 20 *bis* (ad. Article 27 *bis* "Special rules for residential areas signposted as such") of the 1971 European Agreement supplementing the Vienna Convention on Road Traffic.

8.1.6 School zones

Special attention should be given to school zones **[…]** and special measures should be taken when new schools are to be constructed or existing schools are modified to ensure a high level of safety for children (see chap. 9, para. 9.1). In addition to these provisions relating to infrastructure, special attention should also be given to safety on the routes taken by schoolchildren, as dealt with in chapter 4, paragraph 4.1.

8.1.7 Infrastructure provisions for pedestrians in rural areas

Footways in rural areas should be either established completely independently from the road or separated physically by an elevated kerb, grass band or a wide shoulder. Carriageway markings or narrow shoulders are often not sufficient to provide adequate safety.

8.1.8 Direction and information signs for pedestrians

Good orientation based on direction and information signs can contribute to greater safety for pedestrians. These signs may prevent pedestrians from getting lost or disoriented in traffic and enable them to give full attention to the traffic situation, and be used to indicate the safest routes.

8.1.9 Provisions for other non-motorized road users

Facilities designed for improving the safety and convenience of cyclists and other non-motorized travellers (skaters, scooter riders, etc.) should not compromise pedestrian safety. Where no separation of these road users is possible or desirable, the road infrastructure should be designed in such a way that it can safely accommodate cyclists and other non-motorized road users.

8.1.10 Comfort provisions for the safety of pedestrians

Comfort provisions such as even pavement surfaces, provision of seating and shelter play a role in the safety of pedestrians. This is especially true for the elderly and handicapped, and may prevent accidents caused by falling.

8.1.11 Maintenance of pavements for pedestrians

Pavements should be designed and maintained to ensure evenness and skid-resistance. No obstacles should hinder the mobility of pedestrians. De-icing and clearing the pavements of snow in the winter is important.

8.2 **Recommendations concerning** counter-flow bus lane**s**

In order to reduce the accident risk for pedestrians crossing a carriageway with a counter-flow lane reserved for certain categories of vehicles, special attention should be given to appropriate facilities such as:

(a) Pedestrian crossings controlled by light signals; or,

(b) Refuges on the outside edge of the lane in question, with a sign on each refuge and on the opposite pavement reminding pedestrians to look in the appropriate direction for approaching vehicles.

Additionally, crossing elsewhere than at the specially arranged places mentioned above should be discouraged through the installation, where necessary, of protective devices separating the counter-flow lane and the pavement. Care should also be taken to ensure that protective devices are not sited in locations where passengers alighting from buses could be trapped between the bus and the device.

8.3 **Recommendations concerning** safety at tram stops

To ensure safety at tram stops, passengers should never **have to** board directly from the carriageway or alight directly and unprotected onto the carriageway. To this end, tram stops should be situated either on the edge of a pavement or a designated island, or, in the case of a narrow street, on a raised section of the carriageway protected by a light signal. Some form of raised structure is in any event necessary to enable elderly or handicapped persons to board and alight without difficulty.
