Certu

Basic Road Safety Information

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This document is intended to give a quick guide. The downside is the risk of approximation and incompleteness. For more information please consult the documents referenced in this document

Urban

▷ Certu 2007/15

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RÉPUBLIQUE FRANÇAISE

ministère des Transports de l'Équipement du Tourisme et de la Mer

Visibility

The purpose of this document is to provide information about issues surrounding visibility.

It provides the main requirements at junctions and normal sections, explains the main items obstructing view and provides possible solutions.

Definitions

What is meant by visibility in this document is the physical possibility for users to see each other, or for a given user, to see an obstacle, sign, situation or place, etc.

This notion of visibility is directly related to the speeds practised on the road.

Speed influences both the user's field of vision and their reaction time for braking.

Requirements will therefore not be the same on a road where traffic flows quickly as on a slower road.

Two options can be encountered:

1 - Adapt visibility to the speed of the road?

2 - Ensure, via relevant devices, that speeds on the road are consistent with the conditions of visibility?

There is no single answer. The road planner must select objectives by evaluating the risks of each device.

Approach speed judgement is fundamental and an improvement in the safety of a junction or a pedestrian crossing often results in the reduction of speed than systematically clearing visibility for the speed of the road.

By clearing visibility and thus giving motorists a sense of security, speed can often increase.

Main requirements at junctions

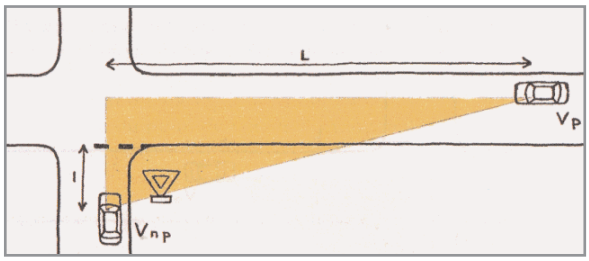
A junction is the main point of collision between motorists but also between motorists and users of two-wheeled vehicles, whether motorised or not, especially when changing direction. They are also where most pedestrians cross roads in urban areas.

It is a place where items obstructing visibility are common and often difficult to remove. Speed of approach is the main factor that defines the level of attention required.

The greyed-out areas in the following diagrams shows areas where visibility needs to be cleared.

VISIBILITY BETWEEN VEHICLES

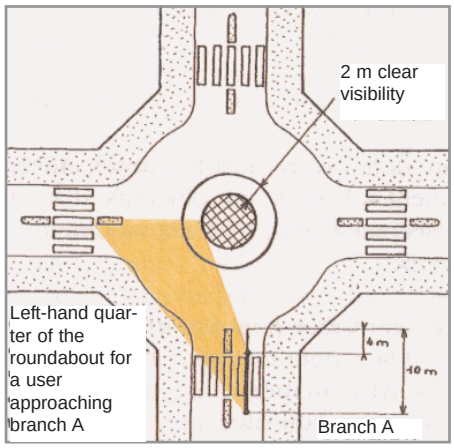
– the user who has stopped at a stop line or give way sign must be able to take the decision to set off and pass without this manoeuvre being dangerous for the priority road user and themselves;



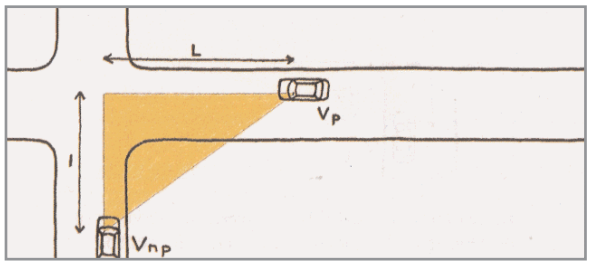
For a give-way sign		
Speed regulatory	I	L
30 km/h	7 m	20 m
50 km/h	7 or 10 m	45 m
70 km/h	10 m	70 m

For a stop line		
Speed regulatory	I	L
30 km/h	3 m	20 m
50 km/h	3 m	45 m
70 km/h	3 m	70 m

– on a roundabout, the approaching motorist needs to know if another user is also approaching;



– in roads with priority to the right, visibility must be enough to allow a driver to stop (at the given speed);

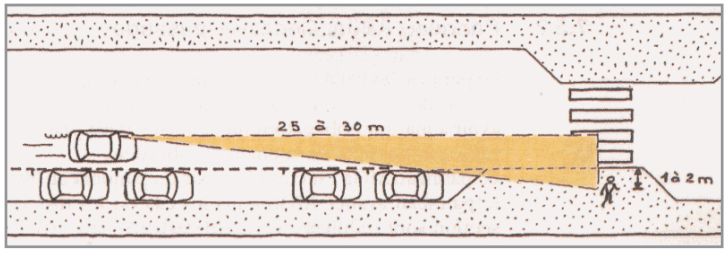


In dense urban areas, the sizes of the visibility triangle are as follows		
Speed regulatory	**I**	**L**
30 km/h	9 m	13 m
50* km/h	15 m	20 m

*Approach speed is supposed to be 40 km/h.

In urban areas that are less built-up or periurban areas, the following values are more important		
Speed regulatory	**I**	**L**
50 km/h	20 m	30 m

VISIBILITY BETWEEN VEHICLE AND PEDESTRIAN MUST BE THE SAME.



Location of parking plays a very important part

INTERSECTIONS AND LIGHTS

These must not be obscured, whether temporary or permanent.

Their visibility must be maintained to allow the motorist to adapt their behaviour (slow down, stop, etc.)

Main requirements on normal section

On a normal section, there are several places where attention needs to be paid to visibility. These can include:

– pedestrian crossings (whether with crossing paths or not);

– public transport stops;

– schoools;

– car park exits;

– residents' driveways;

– horizontal alignment events (bends, chicanes, etc.);

– specific devices (start of central reservation, speed bumpst, etc.)

Main items obstructing visibility in urban areas:

It is best to clear visibility between 0.6 and 2.3 m height, paying attention to the size of plants, trees and street furniture.

- Parked vehicles, whether on normal sections or at junctions, are the most common obstacle to visibility. These should be avoided when designing devices and by regular parking controls.
- Managemet of short-stay bays is more delicate. When there is an increased risk to safety, dissuasive measures should be taken to avoid this practice (fines can be part of this).

It is necessary to take care with the position of loading bays, particularly for large trucks: avoid or forbid up from junctions and pedestrian crossings.

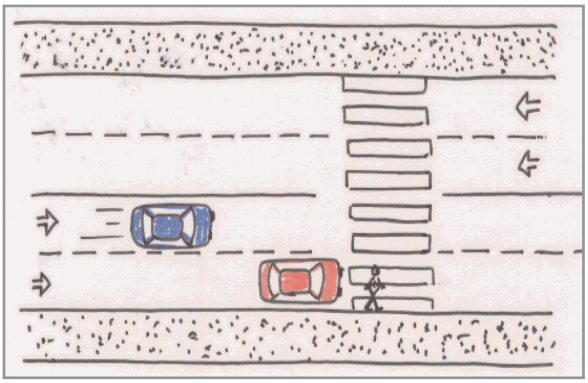
- Urban furniture, including advertising space, gardens, walls, bins, etc. (especially for children).
- Buildings.
- Vegetation, particularly trees, bushes, hedges, etc. that are at an adult's height when projects are created while bearing children in mind again; not only in isolation but together with other obstacles (a line of small trees can easily block the view of a driveway).
- Road signs, especially directional, often get in the way due to their height or poor positioning.

● Geometric road design can be source of poor visibility:

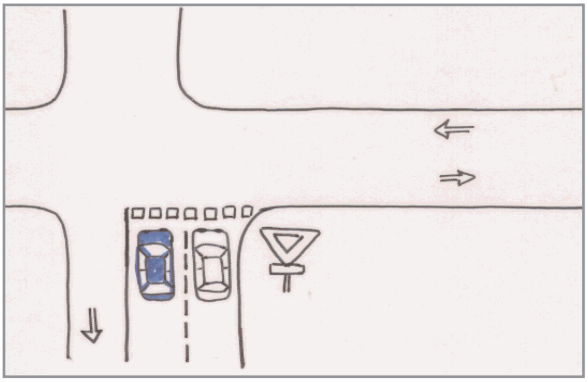
– conflicting traffic flows at a junction;

– stop or give-way signs with two lanes in the same direction;

– pedestrian crossing with two lanes in the same direction.



Classic case: the first vehicle stops, the pedestrian crosses, they are hit by the second vehicle.



Left-hand vehicle sees nothing to the right: vehicle to the right sees nothing to the left.

NB: *Some items blocking visibility can be situated in a private area. This then depends on the power of the police to take the required measures if safety is at stake (pruning, closure, advertising, etc.).*

Children are a very important factor and delicate to manage given their behaviour, their "insensitivity" to the notion of safety and their size. It is important to be especially vigilant with the speed/visibility "duo" near play areas, schools and more generally along main routes around these facilities (gardens, plants, signs, etc.).

Suggested solutions

Aside from the solutions for removing, moving or avoiding obstacles, **several other options** are available:

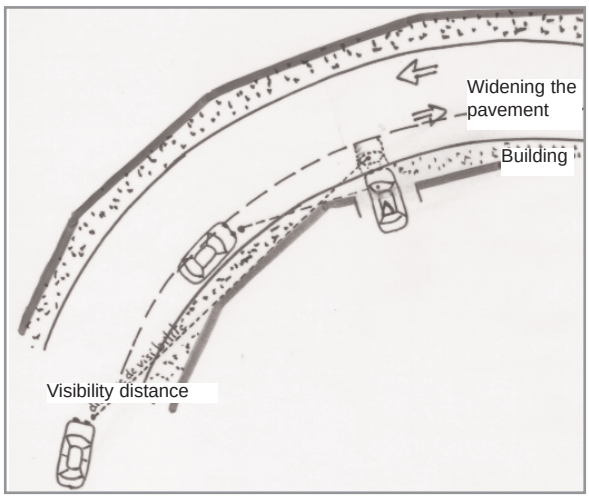
– reduction of speed; given this, the visibility distance necessary for decision making is also reduced;

– extended built-out pavements (ears) of 5-10 metres up from a pedestrian crossing are a good device for managing parking, shortening pedestrian crossings and improving accessibility;

– use of a one-way system if possible to resolve low visibility problems at a junction;

– operational features moving traffic onto a junction with better visibility;

– enlargement of the pavement, a more useful measure insidea bend to facilitate driveway access;



– mirrors should be used with care: distance deformation, maintenance often neglected, etc.

– facility for reverse manoeuvres for public transport vehicles and trucks should be avoided.

At night. The influence of lighting on road safety is little-known. Here, we cover just a few fundamental elements:

– a uniform level of lighting (avoid "black holes", care with areas of shadow due to trees, for example);

– light the street, yes, but do not forget the roadside and especially pavements;

– in the event of additional lighting for pedestrian crossings, ensure that it is good-quality ambiant lighting to avoid pedestrians crossing down from a pedestrian crossing being in negative contrast;

– ensure that on-road "obstacles" such as traffic islands are clearly seen in a lit area or circled with a white reflective border or reflecting blocks;

– make use of specific points (e.g. ground lighting).

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Associated subjects

- Pedestrians at the heart of urban public space planning
- Controlling speed through design
- Cyclists
- General information concerning at-grade junctions
- Parking

Bibliographic references

- Guide Carrefours urbains (Guide to urban junctions), LYON Certu, January 1999.
- Sécurité des routes et des rues, BAGNEUX CETUR, Sétra, September 1992.
- Ville plus sûre Quartiers sans accidents Savoir-faire et techniques (Safer cities, accident-free neighbourhoods) , BAGNEUX CETUR, 1990.
- Guide général de la voirie urbaine: Conception, aménagement, exploitation (General guide to urban roadway networks, design, layout, operations),

The series of documents "Basic Road Safety" formed part of the MPSR project "Road Safety Management and Practices" by by RST working groups managed by Certu for urban areas and by Sétra for interurban areas.
This series of documents is published only for the purposes of sharing experience.
The Administration cannot be held liable for the contents hereof.
These sheets can be downloaded from the following web sites:

- Certu (http://www.certu.fr)
- "DSCR road safety "job portal" (http://securite-routiere.metier.i2)
- Sétra (intranet: http://catalogue.setra.i2 and Internet: http//catalogue.setra.equipement.gouv.fr).

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