



EUROPEAN CONFERENCE OF MINISTERS OF TRANSPORT

Improving Transport for People with Mobility Handicaps



A GUIDE TO GOOD PRACTICE

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EUROPEAN CONFERENCE OF MINISTERS OF TRANSPORT (ECMT)

The European Conference of Ministers of Transport (ECMT) is an inter-governmental organisation established by a Protocol signed in Brussels on 17 October 1953. It is a forum in which Ministers responsible for transport, and more specifically the inland transport sector, can co-operate on policy. Within this forum, Ministers can openly discuss current problems and agree upon joint approaches aimed at improving the utilisation and at ensuring the rational development of European transport systems of international importance.

At present, the ECMT's role primarily consists of:

- helping to create an integrated transport system throughout the enlarged Europe that is economically and technically efficient, meets the highest possible safety and environmental standards and takes full account of the social dimension;
- helping also to build a bridge between the European Union and the rest of the continent at a political level.

The Council of the Conference comprises the Ministers of Transport of 39 full Member countries: Albania, Austria, Azerbaijan, Belarus, Belgium, Bosnia-Herzegovina, Bulgaria, Croatia, the Czech Republic, Denmark, Estonia, Finland, France, the Former Yugoslav Republic of Macedonia (F.Y.R.O.M.), Georgia, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Moldova, Netherlands, Norway, Poland, Portugal, Romania, the Russian Federation, the Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Turkey, Ukraine and the United Kingdom. There are five Associate member countries (Australia, Canada, Japan, New Zealand and the United States) and three Observer countries (Armenia, Liechtenstein and Morocco).

A Committee of Deputies, composed of senior civil servants representing Ministers, prepares proposals for consideration by the Council of Ministers. The Committee is assisted by working groups, each of which has a specific mandate.

The issues currently being studied – on which policy decisions by Ministers will be required – include the development and implementation of a pan-European transport policy; the integration of Central and Eastern European Countries into the European transport market; specific issues relating to transport by rail, road and waterway; combined transport; transport and the environment; the social costs of transport; trends in international transport and infrastructure needs; transport for people with mobility handicaps; road safety; traffic management; road traffic information and new communications technologies.

Statistical analyses of trends in traffic and investment are published regularly by the ECMT and provide a clear indication of the situation, on a trimestrial or annual basis, in the transport sector in different European countries.

As part of its research activities, the ECMT holds regular Symposia, Seminars and Round Tables on transport economics issues. Their conclusions are considered by the competent organs of the Conference under the authority of the Committee of Deputies and serve as a basis for formulating proposals for policy decisions to be submitted to Ministers.

The ECMT's Documentation Service has extensive information available concerning the transport sector. This information is accessible on the ECMT Internet site.

For administrative purposes the ECMT's Secretariat is attached to the Organisation for Economic Co-operation and Development (OECD).

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Further information about the ECMT is available on Internet at the following address:
<http://www.oecd.org/cem/>

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FOREWORD

Over the last ten years or so there has been considerable progress in making transport more accessible for people with mobility handicaps. Low-floor wheelchair accessible buses are coming into service in ever increasing numbers; new light rail systems are now built to be fully accessible and many existing metro and heavy rail systems are gradually being refurbished and made more accessible. Air and maritime transport now provide much improved access for mobility handicapped passengers.

Transport infrastructure has also improved, and for example much more use is now made of tactile warning and guidance surfaces; ramps and lifts are provided where formerly there were only steps. New technology is also playing an important role in making travel easier for many disabled people, particularly in providing better, more immediate and useable information both before and during journeys.

Although a lot has been achieved, much still remains to be done to make transport services and travelling accessible to everyone. Over the last decade the European Conference of Ministers of Transport (ECMT) has played an important role in bringing together experts on the many aspects of transport for the mobility handicapped and producing reports and recommendations which provide guidance on achieving barrier-free travel. Political support for this work has been given through the adoption of several formal resolutions by the Council of Ministers. They are all available on ECMT's Internet site at the following address: <http://www.oecd.org/cem/>

The ECMT decided that, in the furtherance of accessible transport, it would be helpful to bring together current good practice in one publication. This publication is not a detailed statement of specific guidelines. It is intended to provide an overview of the subject as well as references to reports and other publications which provide further details.

ECMT would like to acknowledge the invaluable help of Philip Oxley of Cranfield University, United Kingdom, in preparing this publication. The

members of the working group (listed in Annex 2) are also warmly thanked for providing examples and illustrations of good practice from their own countries.

We hope this publication will be of help to everyone who works in the field of transport for mobility handicapped people, but particularly to those who are in places where much still remains to be done to achieve barrier-free transport.

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INTRODUCTION

Mobility handicap is a broad church. It includes people who by reason of accident, disease or a congenital condition find it difficult to move around, or to see or hear or understand. It includes people who have a temporary impairment which can encompass anything from a leg broken in a skiing accident to having a small child and/or several baskets of shopping. In fact at one time or another virtually everyone has a degree of mobility impairment, so good design of transport – in the broadest sense – has a universality of relevance.

It is worth keeping this thought in mind when reading this guide. Of course the ideas contained in it are of particular importance to people conventionally thought of as disabled – roughly 12 per cent of the population – but the guidelines are relevant to a much larger proportion than that. Two studies, one in Germany the other in France, estimated that at any one time between 20 and 30 per cent of people travelling have a mobility impairment for one reason or another.

In a recent publication by John Gill¹ the following estimates of numbers of people with various types of impairment are given. They relate to geographic Europe, which has a total population of about 800 million.

Wheelchair users	3 million
Cannot walk without aid	45 "
Cannot use fingers	1 "
Cannot use one arm	1 "
Reduced strength	22 "
Reduced co-ordination	11 "
Speech impaired	2 "
Language impaired	5 "
Dyslexia	25 "
Intellectually impaired	30 "
Deaf	1 "
Hard of hearing	80 "
Blind	1 "
Low vision	11 "

THE ROAD AND PEDESTRIAN ENVIRONMENT

Almost all journeys start and finish by walking or wheeling. No matter how accessible transport itself may be, if the walking environment contains barriers to movement then the usability of transport services is largely negated.

2.1 FOOTPATHS AND FOOTWAYS¹

The underlying purpose of a pavement is to provide safe, easy access for everyone walking or using a wheelchair. To achieve this the following guidelines should be followed wherever possible:

- a minimum obstacle free footway at least 1 800 mm wide – preferably 2 000-2 500 mm;
- widths should be greater at bus stops (minimum 3 000 mm) and in front of shops (3 500 mm or more);
- if possible gradients should be not more than 5 per cent (1 in 20) to cater for self-propelled wheelchairs: this should be used as a design limit in new development (The Swedish Association of Local Authorities² noted that a gradient of 2.5 per cent (1 in 40) can be managed by the majority of people, but gradients steeper than this begin to cause difficulties for some manual wheelchair users.);
- where gradients are unavoidably steeper than this, level areas (preferably 1 800 mm long) should be incorporated at intervals of 10 metres;
- crossfalls, which are needed to make sure rain water drains away quickly should not be more than 2.5 per cent (1 in 40). Anything steeper than this makes it difficult for a wheelchair user to steer in a straight line;
- where there is a drop or steep slope at the rear side of a footway (or both sides of a footpath) a 100 mm edging upstand should be provided as a safeguard for wheelchair users and as a tapping rail for long cane users;
- surfaces should be non-slip, well maintained and any joints between paving slabs should be closed and flush to avoid catching the small wheels of a wheelchair;

- covers and gratings should be non-slip and flush with the pavement surface;
- nothing should overhang the footway (signs, tree branches, etc.) to a height of less than 2 100 mm (preferably 2 500 mm);
- where it is not possible to avoid having obstacles in the pavement, such as lamp-posts, traffic signs, etc. they should have a contrasting band of colour 140 mm to 160 mm wide with the lower edge 1.5 to 1.7 metres above ground level. Trees in the footway should have a distinctive surface around them (for example grating or pebbled) to warn blind people;
- seating should be provided at regular intervals of around 100 metres.

2.2 JUNCTIONS AND ROAD CROSSINGS

These are potentially hazardous for visually impaired people and wheelchair users. Dropped kerbs are of great help to wheelchair users and should be provided at all pedestrian crossing points. At side roads where there is space to do it, dropped kerbs should be set up on the side road out of the direct line of the footway of the main road. This is to prevent blind people walking into the side road without realising it.

The dropped kerb or “kerb cut” should be flush with the carriageway, 2 metres wide (more if it is a heavily used crossing point) and the gradients associated with it should be gentle.

To help visually-impaired people, when a dropped kerb is in the direct line of travel, a tactile surface should be laid to a depth of 1 200 mm (see below) in a contrasting colour to the surrounding pavement. This will provide a warning to the pedestrian that they are approaching a road.

Busy junctions require some form of control to assist pedestrians across the road. This may be just a pedestrian crossing (“zebra”) or a controlled crossing (traffic signals with a pedestrian phase and various other forms of control such as “pelicans” and “puffins”). Again all these crossings should have dropped kerbs and tactile warning surfaces.

Further help can be given to visually-impaired pedestrians at controlled crossings by means of audible and tactile (or haptic) signals. Examples of these

include the signal popularly known as “bleep and sweep” which is designed to be used at staggered crossings across roads which have a centre reservation.

Straightforward crossings can use a standard bleep which should have two tones – one to indicate that it is safe to cross, the other to indicate that the safe period is about to come to an end. Electronic systems have been developed which will extend the safe crossing period; this can be helpful to disabled people who cannot move as quickly as an able-bodied person. The sound output of beepers can be modified by reference to the ambient (traffic) noise level to ensure that it can be heard over traffic noise but does not cause a noise nuisance at quieter times.

2.3 PEDESTRIANIZED AREAS

Areas, particularly in town centres, that are traffic free for some or all of the time can provide a pleasant and safe environment for all pedestrians, but they can also contain hazards.

The gradients mentioned earlier (in 2.1) also apply to pedestrianized areas and, where there are unavoidable changes in level, ramps should be provided as well as steps. Two level (or more) shopping precincts must have lift access to all floors.

The walking surface, like that of footways, should be non-slip and well lit; good maintenance is also essential.

There is very likely to be some encroachment onto the pedestrian areas of shop displays and goods as well as street furniture – lamp posts, bollards, waste-bins and the like. Such encroachment should be carefully controlled otherwise it can be dangerous for visually-impaired people. The aim should always be to maintain all the principal directions of movement as “pedestrian clearways”.

Large open pedestrian areas are difficult for visually-handicapped people to navigate, so tactile guidance surfaces should be incorporated in such areas (see 2.5) as well as appropriate warning for any flights of steps. In the future navigation systems may help blind people to find their way through these types of area.