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ROAD SAFETY MEASURES
SECOND EDITION

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PREFACE

The second, revised edition of *The Handbook of Road Safety Measures*, first published by Elsevier Science in 2004, gives a systematic overview of current knowledge regarding the effects of road safety measures. The book gives state-of-the-art summaries of current knowledge regarding the effects of 128 road safety measures. Since 2004, the introduction part and 65 chapters have been revised and 5 chapters have been added.

Easily accessible knowledge on how to prevent traffic injury is in increasing demand, as the number of people killed or injured in road accidents continues to grow on a global basis. It is hoped that this book may serve as a reference manual for road safety professionals in every country. The 2004 edition of the book was published in Spanish in 2006.

The book is based on the Norwegian edition of the book, first published in 1982 and continuously updated and expanded since 2001. Work on this book started as far back as 1980. During the whole period from 1980 until now, the endeavour to develop and update the book has been funded by the Norwegian Ministry of Transport and Communications and the Norwegian Public Roads Administration. In recent years, the Swedish Road Administration has been an important contributor as well. The Institute of Transport Economics (TØI) would like to thank these institutions for their financial support and their long-term commitment to this research effort. Without the original Norwegian edition, the current English version could never have been produced.

The present edition is the result of the coordinated effort of Chief Research Officer Rune Elvik and researchers Alena Høye, Truls Vaa and Michael Sørensen – all belonging to the Institute of Transport Economics. The final preparation of the manuscript for publication was made by Unni Wettergreen. The points of view expressed in the book are those of the authors and do not necessarily reflect the positions of the funding agencies. Errors and omissions, if any, are the sole responsibility of the authors.

Oslo, May 2009
Institute of Transport Economics

Lasse Fridstrøm
Managing Director

PART I

INTRODUCTION

1.

BACKGROUND AND GUIDE TO READERS

1.1 PURPOSE OF THE *HANDBOOK OF ROAD SAFETY MEASURES*

As the title of this book is *Handbook of Road Safety Measures*, most readers will perhaps expect a handbook to give instructions or advice concerning its main topic, but not all readers will expect the same kind of instructions or advice. It is therefore appropriate to start the book by describing its background and purpose.

Although this book is called a 'handbook', it does not provide any instructions or advice of a general nature with respect to how best to design or implement road safety measures. The term 'handbook' rather denotes a reference manual, a catalogue or an encyclopaedia of road safety measures.

Why is this book written and what is its main purpose? The book is written in order to summarise and present in an easily accessible form what is currently known about the effects of road safety measures. A road safety measure is any technical device or programme that has improving road safety as the only objective or at least one of its stated objectives. Road safety measures may be directed at any element of the road system: patterns of land use, the road itself, road furniture, traffic control devices, motor vehicles, police enforcement and road users and their behaviour.

This book takes a broad view of what constitutes a road safety measure. It is not limited to a particular class of safety programmes, but tries to cover everything that is intended to improve road safety. A total of 128 road safety measures are included. Improving road safety is, unfortunately, not a concept that has a standard scientific definition. In this book, it refers to a reduction in the expected number of accidents, a

reduction in accident or injury severity or a reduction in the rate of accidents or injuries per kilometre of travel.

The main purpose of the book is to describe, as objectively as possible, the effects of road safety measures on road safety. Some road safety measures influence not only road safety but also the ease of travel and the quality of the environment. Ease of travel is a broad concept that includes aspects such as accessibility (the availability of a certain destination for travel), out-of-pocket expenses (like motor vehicle operating costs) and travel time. In this book, the term mobility is used to denote the ease of travel in terms of accessibility, cost and travel time. Environmental impacts of road safety measures refer primarily to impacts on traffic noise and air pollution, but in some cases, other impacts are briefly mentioned, for example, impacts on the working conditions of professional drivers.

Some of the terms that have been used to describe the contents of this book, such as 'current knowledge' and 'objective description', require a more extensive discussion. This will be undertaken in later chapters of Part I (in particular, Chapters 4 and 5). Before describing the main questions, the book tries to answer, its structure and the role of research in promoting road safety, what this book is not intended to be needs to be explained.

This book is not a technical design handbook. It does not tell readers how to design a junction or how to build a car. This book does not offer a prescription for road safety policy. It does not tell readers which road safety measures ought to be taken, nor does it instruct policymakers in how to set priorities for the provision of road safety. [Section 1.4](#) outlines how the line separating road safety research from road safety policymaking is understood in the book.

This book does not tell you how to do road safety research; however, it tries to assess systematically the quality of current knowledge about the effects of road safety measures. In doing so, this book of course invokes widely accepted standards of technical rigour and quality in applied research. However, assessing the quality of what is known is not the same thing as instructing researchers about how to improve knowledge.

This book does not tell readers how to set up an accident recording system or how to investigate accidents, but discusses the concept of accident causation and briefly summarises what is known about factors that contribute to road accidents. Although this presentation may perhaps give readers some ideas about what they should be looking for when trying to find out why road accidents happen, it is highly deficient in acting a guide as to how best to investigate and record road accidents.