21st Australasian Transport Research Forum Adelaide, September 1997

Mobility With Safety - Research and Policy Study on Electric Wheelchairs and Scooters

Antony Missikos Office of Road Safety WA Department of Transport Keryn James ERM Mitchell McCotter

Abstract:

A rapidly emerging customer group in our community is people with mobility impairments who use electric wheelchairs and scooters for mobility and independence. For many, these devices have replaced the use of their legs and are vital for maintaining an equitable quality of life In 1993 the Australian Bureau of Statistics estimated that there were some 9,000 electric wheelchairs and scooters in use in Western Australia This is growing at a steady rate due to our increasing aged population and advances in technology. Between 1988 and 1993, the use of electric wheelchairs and scooters increased by 12% In 1995, the Minister for Transport established a Ministerial Review Committee to identify statewide access problems and issues of concern to the Advisory Council for Disability Services The Committee co-ordinated the preparation of a report which identified and researched these issues and identified policy options for each. The final report identifies ways in which Government policy can be enhanced to improve the transport network for the whole community This paper provides an overview of the project and the key recommendations.

Contact Author:

Keryn James ERM Mitchell McCotter Pty Ltd PO Box 7338 Cloisters Square WA 6850

telephone: (08) 9321 5200 f email: kerynj@ermperth.erm.com.au

fax: (08) 9321 5262

Introduction

Ihe importance of wheelchairs and scooters to the people who use them cannot be underestimated. To some, it is their only means of maintaining a degree of independence and ability to participate in the community. For others, it means they are able to live in their own homes for longer periods of time and independently move about in the community. For people with temporary disabilities it is a means of maintaining, as far as possible, their normal routines.

The use of electric wheelchairs and scooters by people with mobility impairments has increased in recent times. In 1993 the Australian Bureau of Statistics (ABS) conducted a survey of people with disabilities. The survey found that:

- 305,000 Western Australian's reported having a disability;
- the main type of disability was physical, affecting 69 per cent of people with disabilities; and
- approximately 70,000 Western Australians experienced either moderate, severe or profound mobility handicaps. 9,000 of these people used electric wheelchairs or scooters.

As a result of an ageing population, the number of people with disabilities is also likely to increase in the future as is the number of people who use electric wheelchairs and scooters (ABS, 1991, and Disability Services Commission [DSC], 1995)

Whether, as a result of ageing or an increasing range of products, the use of electric wheelchairs and scooters increased by 12 per cent in the five years between 1988 and 1993 The recent increase has resulted in a number of concerns related to:

- the safety of people who use electric wheelchairs and scooters; and
- the apparent lack of understanding of the rights and responsibilities of users.

In response to these concerns, a Ministerial Review Committee on Electric Wheelchairs and Scooters was established in March 1995 by the Minister for Transport, Hon Eric Charlton, MLC This Committee commissioned ERM Mitchell McCotter to research and prepare a policy framework for the use of electric wheelchairs and scooters. This paper provides an overview of:

- the research undertaken as part of the study;
- the key issues for customers with mobility impairments;
- detail of policy options, particularly in relation to the pedestrian/road environment;

- user/community, expert and ministerial feedback on policy approaches;
- rationale for preferred policy options; and
- conclusions.

Research

Research for the study included a review of current legislation and policy approaches in Australia which relate to the use of electric wheelchairs and scooters. Experiences in the UK and The Netherlands were also researched.

Existing legislation and policy framework

In developing the policy framework it was important to gain an understanding of the current legislation and policies relating to the use of electric wheelchairs and scooters in Western Australia. The Equal Opportunity Act 1992, Commonwealth Disability Discrimination Act 1992 and Western Australian Disability Services Act 1993 provide broad legislative frameworks to ensure that people with disabilities have access to the same rights and opportunities as other Australian citizens

The use of electric wheelchairs and scooters on roads and footpaths is controlled by the Road Traffic Act 1974 and associated regulations. These state that an electric wheelchair or scooter that is designed so as not to be capable of speeds exceeding seven kilometres per hour is a "motor vehicle" but is not required to be licensed.

If users require their electric wheelchair or scooter to be capable of speeds greater than seven kilometres per hour, both the vehicle and the user must be licensed and the owner must take out third party insurance However, if adopted, the Draft Road Transport Reform (Australian Road Rules) Regulations will increase this speed from seven to ten kilometres per hour

The majority of electric wheelchairs and scooters are not covered by third party insurance because they are not licensed. The increasing numbers of electric wheelchair and scooter users in the community poses additional safety concerns. This means that a change to the current insurance provisions is required so that users of electric wheelchairs and scooters are able to take out insurance.

Currently no legislative control exists over driver ability Users of electric wheelchairs and scooters are not required to have a drivers licence, do not have to take a driver ability test and are not required to undergo any training to use an electric wheelchair or scooter. Two information bulletins produced by the Police Department provide some information to users on their rights and responsibilities The key instruments controlling the design of infrastructure used by electric wheelchair and scooters are the Building Code of Australia, AustRoads Part 13 - Pedestrians, the Draft National Disability Standards for Accessible Public Transport 1996 and the Action Plan for Accessible Public Transport for People with Disabilities in Perth The level of detail provided in these documents is not considered to be appropriate for guiding infrastructure providers and encouraging best practice.

A number of Australian standards that provide guidelines for the design of wheelchairs exist, but they are not mandatory. Electric scooters are a relatively new product and, as yet, Australian standards for the design of scooters have not been developed

International best practice : lessons from the UK and The Netherlands

The approach to infrastructure design in The Netherlands aims to provide long-term sustainable solutions. It is recognised, however, that there are a number of specific and general short-term issues that must be addressed The implications for Western Australia of this approach are positive and include:

- the need to set long-term objectives for access for people who use electric wheelchairs and scooters; and
- the need to identify a process for achieving these objectives including short-term and intermediary actions

Codes of practice are an important component of the UK approach to electric wheelchairs and scooters, indicative of the focus on education. The code of practice for users provides simple information about legal requirements, insurance, preparing for use on the road and road rules. There is no code of practice or guide for users, retailers or suppliers in Western Australia.

The UK places a high priority on third party insurance. While insurance is not compulsory, it is strongly recommended. One insurance company caters specifically for the wheelchair and scooter market and provides comprehensive insurance for a range of activities A comprehensive education program encourages wheelchair and scooter users to take out insurance. Western Australia is considering introducing this approach.

Consultation

An extensive community consultation program was implemented to identify the key issues with regard to the use of electric wheelchairs and scooters in Western Australia. Consultation activities included:

 a mail out questionnaire to 2,700 users or carers of users of electric wheelchairs and scooters, of which 500 were returned;

- focus groups with users of electric wheelchairs and scooters and their carers, representatives of disability support agencies such as the Multiple Schlerosis Society; government regulatory agencies, and representatives of community groups such as the Country Women's Association;
- a survey of all retailers and manufacturers of electric wheelchairs and scooters in Western Australia conducted using combined mail out and telephone interview techniques;
- follow up meetings with retailers and manufacturers of electric wheelchairs and scooters in Western Australia; and
- meetings with representatives from Local and State government.

A summary of the issues raised during the consultation process is provided in Table 1.

Identification of key issues

Four key issues were identified through the consultation program and review of existing information. These provided the strategic framework for the study and are discussed in detail below

Legal status of electric wheelchair and scooter users

Legislation and regulations provide the broad legal framework that guides the use of electric wheelchairs and scooters. It is important that a legislative framework is maintained, however, it must be consistent and provide adequate guidelines without being cumbersome. The legal status of electric wheelchairs and scooters needs to be clarified and the issue of safety equipment requirements and the lack of access to third party insurance for unlicensed electric wheelchairs and scooters needs to be resolved The key issue related to the legal status of electric wheelchairs and scooters is the need to maintain their accessibility to the user group while ensuring community safety

Driver ability and community awareness

With the increasing use of electric wheelchairs and scooters in Western Australia comes significant opportunities for users as well as the potential for conflict with other road users. The current legislative and policy framework promotes very little in the way of information, assessment or training for users of electric wheelchairs and scooters as well as retailers and manufacturers.

This vacuum has resulted in emerging safety problems including accidents involving vehicles and electric wheelchairs and scooters on roads, conflicts between pedestrians, cyclists and electric wheelchair and scooter users on dual use pathways and accidents in shopping centres where electric wheelchairs and scooters have caused damage to people and buildings

Mobility with Safety

Issue	Summary of Responses
Legal Status	 Majority of users are not aware that electric wheelchairs an scooters can be licensed through the DoT at no cost to the user Government agencies are not in favour of strict licensing becaus of added responsibility and implications for regulation and costs. Generally there seems to be little understanding as to the types o insurance available and whether or not it is required No consensus was reached as to whether users preferred to trave contra-flow (as is currently the law) or with the traffic Third party cover is important and should be readily provided not too expensive and not compulsory Reclassification of electric wheelchairs and scooters would have wide ranging implications in terms cost, responsibility, legal insurance. Codes of Practice good idea.
Driver Ability	• Users would benefit from training on how to use electric
and	wheelchairs and scooters and road rules.
Community	• Users are not aware of their rights and responsibilities and there
Awareness	is little understanding in the wider community.
	 The type of electric wheelchair or scooter a persons uses is related to disability and age. Generally people with a disability are more likely to use an electric wheelchair while scooters tend to be used more by the elderly. Their use on roads can be unsafe to both the user and others. Some people use their electric wheelchair or scooter at night however, there was debate as to whether this was appropriate. Electric wheelchairs and scooters provide independence and choice. This should not be overlooked in the development of policies.
Infrastructure Quality and Management	 Access frequently raised issue: unsuitable footpaths, lack of footpaths in rural areas, lip between road and gutter, unsuitable or lack of ramps from road to footpath, limited time to cross road and height of buttons unsuitable, roadworks and building sites, cars parked across driveways, inappropriate positioning of handrails, gradients on ramps too steep Users prefer to travel on footpaths instead of road Use of road is often necessary if footpath is unsuitable or if public transport is used Potential conflict of dual pathways resulting from speed differential and manoeuvrability Public transport is often inaccessible, gap between train and platform is unsuitable, taxis are unreliable and costly, problems with access in schools.

 Table 1
 Summary of results from consultation

502

,

Table 1	Summary of results from consultation (continued)
---------	--

Issue	Summary of Responses
Infrastructure Quality and Management (con't)	 Some Councils are more responsible than others in providing accessible infrastructure. General consensus on the need to improve the pedestrian environment, including provision of continuous pathways.
Design and Supply of Electric Wheelchairs and Scooters	 The maximum speed of devices ranges between seven kph and ten kph. Most devices are capable of more than seven kph. Dimensions of electric wheelchairs makes fitting and loading them into private cars or buses a problem There is no standard for the operating space required. There is no standard as to what safety features should be provided Majority of electric wheelchairs are obtained from hospitals and disability groups Majority of scooters are purchased privately. Suggestions that regulation or introduction of a standard at manufacture/retail level would be appropriate Dimensions, speed and features of electric wheelchairs and scooters could be standardised.

The lack of information in the community and in government about issues associated with the use of electric wheelchairs and scooters is a concern, particularly information about the following:

- where electric wheelchairs and scooters can be used and the restrictions that apply;
- whether electric wheelchairs and scooters are required to be or can be licensed and/or registered and/or insured;
- whether safety equipment is required;
- what types of wheelchairs can access different public transport facilities; and
- how electric wheelchair and scooters are classified under the Road Traffic Act and associated regulations.

The increasing use of electric wheelchairs and scooters may create more potential for conflict. Therefore, it is necessary to develop or identify some mechanisms to ensure that users are fully aware of their rights and responsibilities. They must be provided with clear and accurate information

Infrastructure quality and management

Lack of access within the transport environment was an issue raised during the consultation. Users are dissatisfied with the design and level of infrastructure provided It was suggested that one of the key reasons for this is the lack of awareness by people providing the infrastructure about the access requirements of people with disabilities.

Infrastructure in the transport and pedestrian environment includes roads, footpaths, kerbs, walkways, bus stops, hand rails, steps, ramps and bollards. The appropriate design of this infrastructure to cater for people using electric wheelchairs and scooters is important to improve access. It is currently the subject of considerable focus by a range of authorities at the National, State and local Government level.

Consultation with local government authorities indicates that they are keen to construct new facilities to suit the needs of electric wheelchair and scooter users. However, in order to do so, they require clear guidance on appropriate standards. There is a need to bring together the various design standards that have been produced.

The quality of the infrastructure provided in both the road and pedestrian environments is a key factor in determining the level of mobility and community safety Any future policy must support the aims of existing policy documents such as the 'Going Out and Getting There' document and seek to promote the concept of continuous accessible pathways.

Design and supply of electric wheelchairs and scooters

The apparent lack of any consistent design standard for electric wheelchairs and scooters makes it hard for service providers to ensure suitable access is provided in the planning and decision-making process. Wheelchairs and scooters come in a range of sizes, widths and weights and many are custom-made or altered to suit the specific needs of the user. This makes it difficult for service providers to provide access for everybody.

In addition, many users are unaware that their electric wheelchair or scooter will not be able to fit on a bus or use a footpath until after they have acquired it Users need information about any constraints associated with the devices, and the need to work towards ensuring that all mobility devices can access the transport environment.

The safety concerns associated with the use of electric wheelchairs and scooters on roads have already been discussed. The lack of design standards relating to safety equipment requirements must be considered and addressed.

Policy development

Vision

A broad vision for the use of electric wheelchairs and scooters was developed from the terms of reference for the study, the results of the consultation, the principles of the Disability Services Act (1993), the objectives of the Disability Discrimination Act (1992) and broader social policy adopted by the government. It is based on the question, what are we trying to achieve ?

Discussions with the Ministerial Review Committee and various stakeholders have resulted in the following answer:

"To achieve a maximum freedom of movement for the users of motorised wheelchairs and scooters and with an equitable level of service and safety"

Objectives

In order to achieve the vision, objectives were identified that can be used to evaluate policy options. They are:

- to enhance mobility for users of electric wheelchairs and scooters;
- to maintain and improve safety;
- to define the roles and responsibilities of stakeholders to provide certainty for all; and
- to minimise total costs to the community including users of electric wheelchairs and scooters.

These objectives have been used to evaluate the policy options developed in the following sections. They are outlined in more detail on the next two pages

Enhanced mobility: The number of electric wheelchairs and scooters in the community is increasing. Discussions with retailers and manufacturers during the study indicate that sales have increased in recent years, particularly the sales of scooters. The survey also indicates that a wide range of devices are available in Western Australia, that will provide increased mobility for those with mobility impairments. This opportunity is significant and should be pursued. It means that people with disabilities and the elderly are able to participate in the community even if they are unable to walk long distances, access public transport, drive a car or ride a bike. This opportunity is promoted as a key principle of the Western Australian Disability Services Act (1993) The policies that are adopted should not reduce the opportunities for enhanced mobility and should seek to enhance them. *Community safety:* The increasing number of electric wheelchair and scooter users in the transport environment has led to concerns about the safety of users and others, including cyclists, pedestrians and motor vehicle drivers. This concern has been expressed by users, medical practitioners, occupational therapists, retailers, State and local Government and carers. The concerns relate to the quality of infrastructure, user fears about conflicts with traffic, the speed differential between cars and electric wheelchairs and scooters, potential conflicts with other users including cyclists and pedestrians and lack of awareness of all users about the road rules and use of the pedestrian environment. Policy approaches to these issues should seek to maximise safety for all users.

Definition of roles and responsibilities. One of the key issues identified in the research is the lack of understanding about the use of electric wheelchairs and scooters and coordination of policy and regulatory approaches This includes:

- a lack of understanding about the rights and responsibilities of someone who uses an electric wheelchair or scooter;
- a lack of awareness among some suppliers and retailers about safety issues, insurance requirements, the need for training and the constraints of public infrastructure such as public transport;
- a lack of knowledge and consistency in information provided by local and State Government about issues associated with the use of electric wheelchairs and scooters; and
- a lack of understanding among the general public about the needs and rights of people who use electric wheelchairs and scooters.

The clear identification of roles and responsibilities for each of the stakeholder groups will assist in providing certainty to each of these groups and therefore reduce the likelihood of any conflict. In addition to clearly defining roles and responsibilities there is a need to educate the community about those roles and responsibilities that are already defined.

Minimum cost to the community: The issue of cost must be considered in the development of policy, particularly the distribution of costs It is important to consider the costs that will be paid for by electric wheelchairs and scooter users The consultation indicated that many users are on low incomes or pensions and could not afford to pay significant license fees or insurance premiums.

It is also important to consider the costs that must be borne by the community at large For example, a recommendation to introduce licensing of all wheelchair and scooter users and devices, would require resources to be directed to administration If these costs are not borne by wheelchair and scooter users then they would come out of the public purse.

At the same time, expenditure of public funds may provide benefits to all members of the public Improvements in public transport, or the design of the pedestrian environment, would provide such benefits. Similarly, the provision of access to people with disabilities may increase mobility and decrease reliance on other community facilities. It can also provide a sense of independence and well being which can in turn, provide many community benefits The policy options must be considered in light of the costs which would be incurred and the benefits which would be derived

Proposed policy approach

The proposed overall policy approach is comprised of each of the preferred options identified in Table 2. The approach includes:

- amendments to existing legislation to clarify outstanding issues and require electric wheelchairs and scooters to be registered;
- public education campaign;
- development of a Code of Practice for Users;
- preparation of guidelines for infrastructure providers;
- introduction of Code of Practice/Ethics for Suppliers; and
- introduction of a Design Standard for Safety and Performance Features

Details of the specific actions for each policy and the stakeholder responsibilities are given in Table 3

Conclusions

This paper has provided an overview of the process and issues related to the development of a new policy approach for electric wheelchairs and scooters in Western Australia. There is a growing need to consider the needs of people with disabilities in the community and people who use electric wheelchairs and scooters are a large consumer group Improved pedestrian facility and road design in addition to improved education and community awareness will assist in the development of a greatly improved transport environment for the whole community.

Mobility with Safety

Evaluation Summary Key Strategic Issues Policy Options Study Objectives Enhanced Improved Definition of Roles Minimum Costs Mobility Community and to Community Responsibilities Safety х X Legal Status a. Maintain Status Quo Х 0 V 1 X b. Minor Amendments to Existing Legislation 4 c. Moderate Amendments to Existing Legislation 111 Х 1 · reclassify wheelchairs / scooters under Road Traffic Act Х 111 • legislate to require licensing / registration of all electric XXX 0 х wheelchairs and scooters ~ 0 0 Х • exempt users from licence fee or inexpensive license fee d. Major Amendments to Existing Legislation • classify as special class of vehicles Х ~ Х 0 ✓ • legislate to require full licensing and registration XXX 0 XXX • users to pay fees Х 0 Х **Unable** a. Volumary Training Driver Ability and · voluntary training for electric wheelchair and scooter users Ő Community Awareness b. Code of Practice and Public Education code of practice for users 1 public education campaign c. Mandatory Training 111 introduce mandatory training as licence requirement Х XXX d. Zoned Restrictions $\checkmark \checkmark \checkmark$ XXX ✓ • legislate to restrict where electric wheelchairs and scooters XXX can be used

Table 2Evaluation of policy options (preferred options shaded)

Key Strategic Issues	Dalian Ontinu	Evaluation Summary			
noj onatogie issues	Policy Options	Study Objectives			
		Enhanced	Improved	Definition of Roles	Minimum Cost
		Mobility	Community	and	to Community
Infrastructure	a. Education Campaign		Safety	Responsibilities	
Quality and	• education campaign targeted at infrastructure providers -	1			
Management	private and Local and State Government			, v	Х
	b: Design and Management Guidelines	Contract Contracts			10 Million Contracts
	 guidelines for infrastructure providers, including. 	477	1 - C - C - C - C - C - C - C - C - C -	×	x
	demonstration project c. Design Standard				
	 develop design standard for provision of infrastructure 	111	111		
	d. Legislating for Better Design			V	XXX
	 legislate to introduce minimum design requirements 	111	<i>√√√</i>	111	XXX
Design and Supply	a. Education Campaign for Suppliers		· · · · · · · · · · · · · · · · · · ·		
of Electric Wheelchairs and	• education campaign encouraging suppliers to provide	✓	✓	0	х
cooters	advice to users				
۰. ۱	b. Code of Practice/Ethics for Suppliers		A ALMAN AND A DECIDENT		Professional Academic Street, Ballion of Street
	c Design Standard for Safety Features			444	X.
	• introduction of design standard for safety equipment for	$\sim 10^{-1}$	141		x
	electric wheelchairs and scooters		이 가 또 아이가 들어		X
	d. Legislated Standards	or a contra e successi a sue successi de successi.	和自己的研究的社会中的思想的思想的经历的情况的思想。	19月1日1日日の1月日日日日日1月1日日日日日日日日日日日日日日日日日日日日日	的政治保護的政治社会的政
	 legislate to require standardised dimensions and 	XXX	1	\checkmark	xxx
ev: VV make	components for electric wheelchairs and scooters				~~~~
ey: 🖌 make: Pay	s significant contribution to meeting objective O does not contribution	ibute or detract from a	phiectine	XXX detracts from a	bjective in significa

Table 2 Evaluation of policy options (preferred options shaded) (con't)

Х detracts from objective in minor way

Mobility with Safety

.....

Key Issue	Proposed Policy	Specific Actions	Stakeholder Responsibilities
Legal Status	Approach minor amendments to existing legislation	 incorporate Draft Australian Road Rules into traffic regulations minor alterations to Regulations to introduce some safety equipment requirements, controls over night use advice on legislative changes register electric wheetchairs and scooters and exempt them from registration fee to provide access to insurance 	 Road Safety Council / DoT Road Safety Council/DoT Crown Law Department DoT
`	registration of	establish administrative process for registration	• DoT
Driver Ability and Community Awareness	voluntary training	 identify current and potential training sources, eg. Armadate Training Centre and RAC provide information about how and where training is available through codes of practice for users and suppliers establish task force to develop code of practice to include information about requirements of Road Traffic Act, speed limits, licensing requirements, road rules, 	 Office of Road Safety/DoT Office of Road Safety/DoT
	code of practice for users	 where training and independent advice is available, insurance policies, information required to be provided by suppliers provide advice about insurance issues and availability of policies most to code of practice. 	Office of Road Safety/DoT
		 Input to code of plattee input on road safety and road rules and incorporation of key elements of code of practice into strategic planning process review of code of practice 	 SGIC/Insurance Council of WA DoT/MRWA/DSC/ user groups/suppliers/retailers/ WA Police Service DoT/MRWA/WA Police
			Service • Office of Road Safety / DoT
	 public education campaign 	 development of package of education materials including pamphlets, media advertisements, school education, presentations to disability groups and homes 	Office of Road Safety / DoT / RAC

Table 3Proposed policy approach

Table 3	Proposed	policy	approach ((con't)
---------	----------	--------	------------	---------

Key Issue	Proposed Policy Approach	Specific Actions	Stakeholder Responsibilities
Infrastructure Quality and Management	 comprehensive design and management guidelines for infrastructure providers demonstration project 	 establishment of taskforce to develop guidelines for infrastructure providers participation in taskforce incorporate infrastructure design in disability service plans review of strategic planning and planning policies on infrastructure design participation in a demonstration project for transport environment 	 MRWA/DoT/WAMA/DL G DoT/WAMA/DLG/users and user groups/MRWA MRWA/Local Govt/WAMA/DSC DLG / MFP DoT/MRWA/WA Police Service/Office of Road Safety, WAMA / DSC /
Design and Supply of Electric Wheelchairs and Scooters	 code of practice for suppliers design standard for safety features 	 establish taskforce or committee to co-ordinate code of practice and code of ethics for suppliers develop code of practice requiring standards of service provision from suppliers, commitment to providing information and training, commitment to best practice development of design standard for safety features and general dimensions and performance 	Local Govt and State Gov DoT/Ministry of Fair Trading DoT/DSC/users/user groups/ retailers and manufacturers/ hospitals/Association of Occupational Therapists/ Standards Australia / DSC / users / manufacturers

References

AustRoads (1995) Part 13 - Engineering Guide to Pedestrians

Australian Bureau of Statistics (1993) Basic Community Profile - Western Australia

Australian Bureau of Statistics (1993) Aging and Disability Survey - Summary of Results

Australian Bureau of Statistics (1993) Aging and Disability Survey - Commissioned data

Australian Transport Council DDA Transport Standards Taskforce (1996) : Draft Disability Standards for Accessible Public Transport, Parts 1 and 2

Department of Transport, United Kingdom (1996) Code of Practice for Class 3 Vehicle Users

Department of Iransport, Western Australia (1995) Going Out and Getting There -Action Plan for Accessible Public Iransport for People with Disabilities in Perth

Disability Services Commission (1995) Disability Services Act : Guide for Local Government

Disability Services Commission (1995) Disability Service Plans - Resource Manual for Local Government

Draft Road Transport Reform (Australian Road Rules) Regulations (1996)

Gemeente Gouda, Holland (1986) Brochure explaining the preparation of the Route Plan for People with a Handicap in Gouda

Ministerial Review Committee on Electric Wheelchairs and Scooters for People with Mobility Impairments (1995) Interim Report - Motorised Mobility Devices Planning for the Future, December 1995

Ministry of Iransport and Public Works (1986) Manual - Iraffic Provisions for People with a Handicap (The Hague, The Netherlands)

White, S (1994) for Australian Local Government Association Disability Discrimination Act: A Guide to Best Practice in Local Government