An Overview of the Literature on Disability and Transport

November 2003

Louca-Mai Wilson

Contents

Overview of the Literature on Disability and Transport

1. Introduction

1.1 Background
This literature review was undertaken in September and October 2003. The main purpose of this review is to provide an overview of the literature relating to disabled peoples' use and experiences of transport, with a particular focus on Disability Rights Commission (DRC) strategic and policy priorities. The review focused on strategic rather than technical issues, and does not attempt to cover the entire breadth of the literature on disability and transport, but to focus on key areas of interest to the DRC.

1.2 Objectives
- To provide an overview of current research in key areas
- To inform and support the DRCs work on transport
- To identify sources of information
- To identify gaps in knowledge, in order to inform future research and areas of work

1.3 Key Issues
This review focused on the following key issues:
- The experiences of disabled people
- Legislation and policy
- Public transport
- Car use
- The pedestrian environment
- Issues for transport providers

1.4 Methodology
The review was based on a search of relevant electronic search engines, principally Ingenta and the Web of Knowledge, as well as DRC library resources and the British Library. Hand searching was also undertaken in relevant journals (eg Disability and Society, Access Journal), government reports and other relevant specialist material. The latter included research commissioned and published by the Disabled Persons Transport Advisory Committee (DPTAC), and research by other relevant academic and

professional organisations. Websites searched and resources used are listed in an Appendix (Sources of Information). Key researchers and policymakers in the field were also contacted. The literature search focused principally on research published in the last ten years.

2. Disability and Transport

This section gives an overview of the main issues in disabled peoples' use and experiences of transport. Many issues are addressed in greater depth later in the report.

2.1 Transport disability

This review is informed by the social model of disability, the view that society disables people with impairments through the construction of social and environmental barriers (Barnes and Mercer, 2003). Heiser (1995) defines transport disability as 'the unnecessary exclusion of disabled people from current forms of transport'. Transport includes both public transport (buses, trains, taxis, aircraft and ferries) and private individual transport (cars and bicycles), as well as walking (Mitchell, 1997) and community transport (eg dial-a-ride). Research suggests that 12-13% of the population are transport disabled in some way, that is they experience problems in accessing some or all modes of transport (Henderson, 1999; Jensen et al, 2002; Mitchell, 1997).

2.2 Importance of transport

Transport issues are important to disabled peoples' lives, being the single most prominent concern at local level (DPTAC, 2002a). Accessible transport enables disabled people to live independent lives and means:
"…having transport services going where and when one wants to travel; being informed about the services; knowing how to use them; being able to use them; and having the means to pay for them". (Ling Suen & Mitchell,1998). Education and business are the greatest reasons for using public transport in the UK (Bellerby, 2000), and if disabled people are to access employment, education and services they need access to transport.
Porter (2002) suggests that 'those involved in policy and research into transport disability always have to place transport in the bigger picture'. Experience of transport disability is shaped by expectations and experiences as well as the services available.

2.3 Transport use

Disabled people in England and Wales travel a third less often than the general public. Disabled people drive cars less and are less likely to have one in the household, but nonetheless the most common mode of transport for disabled people is a car driven by someone else (67% of disabled people) (DfT, 2002a; DPTAC, 2002a). While disabled people drive far less (47% less often[1]), they use taxis/ minicabs (67% more frequently) and buses (20% more frequently) more often. 60% of disabled people have no car in the household, compared with just 27% of the general population (DPTAC, 2002a).

In Scotland, approximately 12% of the population are estimated to have some form of impairment, and 5% are likely to have significant difficulty in using public transport (Henderson, 1999).

Use of transport modes by disabled people and general public - Percentage ever using mode (2001/02)		
	Disabled people	General public
Car driver	20	85
Car passenger	85	66
Taxi/minicab	69	77
Local bus	59	68
Long distance bus/coach	36	38
Local rail	30	47
Long distance rail	23	41

DfT (2002a).

Monthly use of transport modes by disabled people and public - Percentage using mode at least monthly (2001/02)		
	Disabled people	General public
Car driver	20	64
Car passenger	67	69
Taxi/minicab	40	36
Local bus	43	41
Long distance bus/coach	3	15
Local rail	8	15
Long distance rail	2	0

DfT (2002a)

---

[1] NB – All DPTAC and DfT figures in this report refer to England and Wales only, data for Scotland are referred to separately where available.

Household car access for disabled people and the general public - Percentage of households (2001/02)		
Number of cars	Disabled people	General public
No car	60	27
One car	32	44
Two cars	5	22
Three or more cars	2	5

DfT (2002a)

2.4 The impact of inaccessible transport

Transport disability has a major impact on the lives and life choices of many disabled people. Transport is essential for disabled people to access education, employment, health services, social events and leisure pursuits. A lack of accessible means of independent travel creates social exclusion for many disabled people (Hesier, 1995; Alsnih and Hensher, 2003; SEU, 2003).

41% of disabled people in England and Wales say they experience difficulty with travelling, 25% experience difficulty travelling to/from the doctor or hospital, 23% have experienced problems visiting friends or relatives and 18% visiting leisure facilities. 23% of disabled workers say they find travelling to and from their place of work difficult (DPTAC, 2002a).

A recent research study (Campion et al, 2003) in England for Leonard Cheshire found that:

"23% of respondents that were actively seeking employment have had to turn down a job offer and a further 23% a job interview, because of inaccessible transport. Almost half (48%) said that inaccessible transport had restricted their choice of jobs, rising to 62% of wheelchair users and 86% of those with a visual impairment" (p6).

The study also found that 20% of respondents found it difficult or impossible to get the healthcare they needed, and that 1 in 7 respondents (1 in 5 of those without access to a car) were unable to collect prescriptions as a result of inaccessible transport. 50% (67% without access to a car) of those who did not see their family or friends as often as they would like stated that this was because of inaccessible transport. Respondents had missed special events including weddings and funerals, and 27% (43% without a car) said

that inaccessible transport had restricted their leisure pursuits.

In addition to excluding disabled people from full participation in society, it has also been argued that the annual cost of excluding disabled people from public transport in the UK could be as high as one billion pounds per year (Carr et al, 1994). This figure is based on additional costs to the economy of providing health care services at home (eg chiropody, GP visits), special transport to health and social care services and loss of tax revenue from people who are unable to access employment.

Young disabled people

DRC research with young disabled people in Great Britain (DRC, 2003a) found that almost two fifths (38%) of the young disabled people surveyed said they had experienced problems in using public transport for a reason relating to their impairment. This figure was higher for young disabled people who were neither employed, in full-time education or actively seeking employment, of whom almost half (46%) had experienced problems using public transport as opposed to 30% of employed respondents. This echoes Murray (2002), who found that lack of appropriate support (including accessible public transport) 'forced young disabled people into … dependency' (p3), and created barriers to full community inclusion and participation.

Of the 38% of respondents who had experienced problems using public transport, six in ten (60%) said that there were types of public transport they were unable to use because of their impairment. Of those respondents who had experienced problems using public transport **and** said there were some types of public transport they were unable to use (23% of total):

- eight in ten (81%) said they were unable to use buses
- seven in ten (71%) were unable to use trains
- over half (57%) were unable to travel on coaches
- over two fifths (42%) could not travel by plane.

When asked about the alternatives they use to travel, of this 23% of respondents (see above):

- over half (55%) said they were driven by someone else
- one in seven (14%) took a taxi

- one in eight (13%) drove their own car
- one in ten (10%) 'got round it some other way'
- 6% said they missed out

Half (51%) of those who had experienced problems in using public transport (11% of total), said that this made it difficult for them to participate in activities that other people their age took part in. Of these over three quarters (77%) said they had missed out on going on holiday, while two thirds (66%) felt that problems with public transport made it difficult for them to go to clubs/ dancing. Over half had experienced problems getting to concerts (57%), the cinema (54%), the pub (54%) or to watch sport (51%).

Morris (2002) found that fewer disabled teenagers in Great Britain (67%) live in households that have access to a car than non-disabled teenagers (80%), and this has an important limiting effect on leisure opportunities.

2.5 Transport needs

Recent research in England (Campion et al, 2003) for Leonard Cheshire suggests that "the difficulties caused by inaccessible transport are exacerbated for those respondents with visual impairments and disabled people without access to a car" (p6). DPTAC (2002a) also found that transport is a slightly more important priority for wheelchair users and visually impaired people in England and Wales, as well as being of particular importance for "disabled people aged 35-44, workers, those who live in rural areas and in London". Research by RNIB highlights the inaccessibility of public transport and the pedestrian environment for visually impaired people in Great Britain (RNIB, 1999 & 2002). A National Autistic Society report (Broach et al, 2003) found that a lack of accessible transport options meant that some people with autistic spectrum disorders in England and Wales were confined to their homes, and that 'less visible access issues are being ignored as providers focus on making transport accessible for people with physical disabilities'. People with learning difficulties also face barriers to accessing public transport and travelling independently, and Lavery et al (1997) felt that 'accessibility' generally

meant 'accessible to people with mobility impairments' and did not consider the needs of people with learning difficulties. Although both the Leonard Cheshire and DPTAC studies included people with physical and sensory impairments and learning difficulties, neither included mental health service users or survivors or other impairment groups. Further research is required into the transport barriers faced by different impairment groups (DETR, 2000d; Gallon, 2000).

Evidence suggests that many older people will experience difficulties with transport, both in terms of the pedestrian environment and accessing public transport (DTLR, 2001a). Fourteen per cent of people aged sixteen and over in England and Wales report some mobility difficulty (DTLR, 2001c). These difficulties increased with age and 72% of people aged over 85 reported some difficulty.

The OPCS survey of disability in Great Britain (Martin et al, 1989) found that two fifths of disabled people living in 'communal establishments' never went out, compared with 10% of those living independently. Unfortunately subsequent surveys of disability (see Grundy et al, 1999) have only included people living in private households, so we do not know the current extent of transport disability for disabled people in residential care. Morris (2002) found that young disabled people with 'high levels of support needs' were very reliant on parents or carers to provide transport, and that this severely limited their opportunities and independence. Many parents of disabled children find that transport is a major barrier to accessing education, leisure and healthcare (Audit Commission, 2003; Sharma, 2002). Transport of disabled children is an area that is complex and under-researched, and there is a lack of data on the extent and nature of travel by disabled children (Falkmer et al, 2001).

Henderson and Henderson (1999) found that Scottish disabled people's transport needs fell into the following key areas:
… "that overall policy must take account of their needs, with services co-ordinated in a way which allows them to travel independently; that the built environment, vehicles and buildings should be accessible; that staff employed by transport providers should be adequately trained; that

information should be available on a multi-modal basis, in appropriate forms, and covering all aspects of accessibility; and that transport providers and local authorities should consult regularly with disabled people".

Research for the Joseph Rowntree Foundation found that transport was a major issue for disabled women as, in addition to the general problems of getting around faced by disabled people, they have a particular concern with personal safety. Lack of reliable, accessible transport meant they were isolated in their homes, unable to pursue employment, education or leisure activities (JRF, 1995).

It is important to recognise the particular needs of different genders, impairment groups, age groups and disabled people living in urban and rural areas as well as in England, Scotland and Wales.

2.6   **Barriers to travel**
A 'Which?' survey in 1990 found that 4 out of 5 disabled people had problems with transport and two-thirds said that difficulty with using public transport was one reason for not going out more and travelling further afield (Consumers Association, 1990). The DPTAC (2002a) research found that:
- Local rail services were perceived to be the most difficult to use (by 38% of respondents), followed by bus services (33%).
- Bus drivers were rated as the most unhelpful of transport staff (by 20% of respondents). 47% of disabled people said they would travel by public transport more if staff were better trained to deal with their needs, and this rose to 66% of those aged 16-44 and 67% of wheelchair users surveyed.
- 40% of disabled people say that they are fearful travelling by public transport.
- Overall, there is a higher fear of personal safety among disabled people when travelling than the general public, only 22% of whom say they are fearful of travelling by public transport. There is more social exclusion where public transport services are considered poor.
The DWP 'Disabled for Life' research (Grewal et al, 2002). found that the difficulties most commonly mentioned by

disabled people in Great Britain were getting to and from bus stops or stations (22%), or on and off buses and trains (24%).

Difficulties experienced by disabled people

Type of difficulty	Percentage
Getting to rail/bus station/ stop	13
Getting into rail/ bus station	10
Getting on/off bus or train	24
Travelling by taxi	8
Changing modes of transport	8
Getting from bus stop/ train station	9
Getting information about accessible transport	6
Booking tickets	4
Ensuring assistance is available	5
Other difficulties	2
Same as non-disabled people	7
No difficulties	57

(Grewal et al, 2002).

2.7   The transport chain

The 'transport chain' is a key issue for accessible transport, and is based on the fact that any given journey starts at the origin of the user (eg their home) and ends at the final destination. Journeys therefore need to be considered as a whole, rather than a series of discreet movements, and each individual element of the transport chain (eg walking to a bus stop, waiting for a bus, getting on and off the bus, making a connection, getting on and off second vehicle and walking to destination) needs to be user-friendly and accessible (DTLR, 2001a, Ling Suen and Mitchell, 1998a). In order for transport systems to be accessible to everyone, it is important to consider all the problems that disabled people might experience along an entire route, not simply consider the physical accessibility of public transport vehicles (Jensen et al, 2002). Each element of the journey, including information on the service and how to use it, has to be accessible for the whole journey to be achievable (Tyler, 2002).

2.8 Transport costs

It is often argued that impairments impose additional transport costs on the individual (Tisato, 1997). But Oxley and Richards (1995) found that service providers rather than users generally incurred the costs of providing accessible transport.

The dominant method of meeting the transport needs of disabled people has been through 'service-funding' – giving public funds to provider organisations. A little-used alternative is the 'user-side subsidy', giving public funds to individual passengers (eg taxicard and concessionary fare schemes. Hunter (1998) suggests that user-side subsidies can be both cost-effective and empowering, and that the two models could be combined to offer flexible services to disabled people.

The DPTAC (2002a) findings indicate that although cost is a priority for disabled people, it is no more so than the need for frequent and reliable services, as for the general population as a whole. Improving access and service delivery, particularly attitudes of transport staff, were seen as key issues.

2.9 Future requirements

Alongside the need for accessible, affordable services and a more accessible pedestrian environment, the ways in which services are delivered are as important as the services themselves. Improving attitudes of transport staff is seen as a key issue. More accessible information, and greater consultation with disabled people are also required (Henderson, 2000; DPTAC, 2002a).

3. Legislation and Policy

This chapter gives an overview of key legislation and public policy, and related research and other literature.

3.1   The Disability Discrimination Act and DPTAC
The 1995 Disability Discrimination Act (DDA) places legal duties on service providers and other persons not to discriminate against disabled people in certain circumstances and authorises the establishment of regulations relating to enforceable standards for accessible public transport vehicles. Much of the writing on transport and the DDA has focused on the scope and limitations of the current provisions (Bellerby, 2000; Henderson, 1999; Matthews, 2002; Williams, 2003).

The Act allows the government to regulate on access to all types of land-based public transport vehicle. The Rail Vehicle Accessibility Regulations (DETR, 1998a) came into force in November 1998 and affect all new rail vehicles entering service since 1st January 1999. The Public Services Vehicle Accessibility Regulations (DETR, 2000a) affect all new bus and coach vehicles over 22 passengers, used on local and scheduled services from 31 December 2000. In 2000 regulations were introduced which place a duty on licensed taxi drivers to carry guides, hearing and other assistance dogs (DETR, 2000b). In October 2003 the government announced proposals to implement the taxi provisions of the DDA. This will allow standards to be set for wheelchair access and other features to help disabled people use taxis. It is proposed that the regulations will be introduced over a 10-year period from 2010-2020 (House of Commons, 2003).

The Disabled Persons Transport Advisory Committee (DPTAC) was set up under the Transport Act 1985 as a statutory body to advise the Government on transport policy as it affects the mobility of all disabled people across the UK.

In addition to those mentioned above a number of other guidance documents have been published by the Department for Transport (DfT) and DPTAC across a range of modes of public transport, and the Strategic Rail Authority

have published a Code of Practice on train and station services for disabled people (SRA, 2002).

3.2 Part III exemption

A major criticism by the Disability Rights Task Force (see 3.6 below) and others has been the exemption of transport from Part III of the DDA (Bellerby, 2000; DRC, 2003b; Matthews, 2002; Williams, 2003). Instead Part V of the Act focuses solely on transport. Part III places a series of duties on the providers of goods, facilities and services not to discriminate against disabled people, except in cases where they are able to justify such discrimination. Part V gives power to the government to draw up technical regulations defining vehicle accessibility appropriate to each mode covered by the Act (Matthews, 2002). The provisions of Part V relate to domestic, land-based, public passenger transport (buses, coaches, trains – including light rail, underground and trams) and taxis (licensed services and new vehicles only). Although transport infrastructure (bus and train stations, airports and ports) is covered by Part III, there is currently a specific exemption for any service 'so far as it consists of the use of a means of transport'. This led to the position that even those provisions of the DDA that are not directly related to trains, buses or other vehicles do not apply to any part of the process of travelling by public transport (Willams, 2003).

In 2003 the government proposed that the best course of action to ensure a consistent level of service across the full range of public transport services was to remove the current exemption from compliance with the Part III duties, by extending Part III to include rail vehicles, buses and coaches, taxis, private hire vehicles, aviation, shipping, car hire and breakdown services (DfT, 2003; Williams, 2003). It was proposed that this new legislation would be brought in as part of the forthcoming Disability Bill, but this has yet to be announced. Key concerns expressed about the government's proposals were the continued exclusion of certain modes of transport, a proposed exemption for the tourist and leisure industry, the lack of a timetable for implementation, and the fact that the proposed legislative changes would not require a transport provider to consider

providing a reasonable alternative means of accessing the service (DRC, 2003b).

3.3 The ten-year transport plan (DETR, 2000c)

'2010: The Government's Ten-Year Transport Plan' builds on the Integrated Transport White Paper (DETR, 1998b) and sets out the government's long-term strategy for delivering 'a quicker, safer, more punctual and environmentally friendly transport system' through investment, modernisation and developing integrated transport systems.

Key issues in relation to transport and disabled people are:

- "The Government is committed to public transport that is accessible to disabled people. The rate and level of new investment in this Plan will ensure that improvements in the accessibility of public transport are brought forward more quickly. **Building in accessibility for disabled people in all new investment is a condition of public money being spent**. Local authorities and transport operators should ensure that the transport needs of disabled people are factored into their plans and that the full benefits of improved public transport are accessible to all…
- We will be developing measures for evaluating accessibility in transport systems, and in streets and public spaces, to check that investment is delivering real improvements in the day-to-day mobility of disabled people…we will also be setting targets for improvements in the quality of service delivery to disabled people…
- Improving public transport is also vital to reducing social exclusion, particularly for people who have less access to a car including …disabled people…
- Over the next ten years our proposals will provide…public transport services that are more accessible and easier for disabled people to use…half fare or better on buses for elderly and disabled people…[for people in rural areas] more flexible transport services, including voluntary and community transport and taxi buses, tailored to local needs, including the needs of disabled people.

3.4 Reviewing the Ten Year Plan

Three years into the Ten Year Plan, and prior to a planned review in 2004, how successful has it been?

The Department for Transport's report 'Delivering Better Transport: progress report (DfT, 2002b) says that in the first two years of the Ten Year Plan accessibility has increased, especially for those, in both urban and rural areas, who rely on public transport. The report also restates the government's commitment to 'promote better transport choice for disabled people'. The report states that:

"We will aim to produce an effective means of evaluating accessibility for disabled people as a tool for local authorities and others. We will assess compliance with the 10 Year Plan commitment on accessibility as a condition of public investment in the capital projects funded by LTPs [Local Transport Plans]".

By 2005 the government expect 'a significant proportion of public transport that is accessible to disabled people' and 'a clear understanding amongst local authorities of how best to deliver accessibility for disabled people, and plans which demonstrate that they are delivering'. New targets have been agreed with the bus industry on reliability, fleet age, bus stop information and accessibility for disabled people. 60% of London buses are now wheelchair accessible and:

"A new indicator will be introduced to track the proportion of the full-size bus fleet that is fully accessible for disabled people. The provisional aim is to ensure that 50% of buses are accessible by 2010. Around 29% of the full-size bus fleet is currently accessible".

The Strategic Rail Authority's new franchising policy has incentives for investing in long-term improvements and rolling stock, which should mean more accessible train services. By 2005 all Mark 1 slam-door rolling stock in the South-East should be replaced by modern trains. In November 2003 the government also announced a consultation on proposals to amend rail provisions in Part V of the DDA, in order to set an end date by which time all rail vehicles must comply with Rail Vehicle Accessibility Regulations and review existing legislation and sanctions[2].

---

[2] http://www.info4local.gov.uk/searchreport.asp?id=17349&heading=e-mail+alert 04/11/2003

There is also a proposal to create a new independent Rail Accident Investigation Branch (RAIB) in a Railways and Transport Safety Bill. Given the scarcity of data on disabled peoples' involvement in travel accidents (see p23), this could be an important development.

The Plan was published against a background of continuing growth in demand for transport across all modes, and shortly before fuel price protests which put considerable pressure on the government to focus on car travel rather than other modes (Docherty, 2001). A recent report from the Commission for Integrated Transport (CfIT, 2003) found that delivering enhanced capacity (particularly for rail) will be considerably more expensive and time consuming than envisaged in the Plan, while the relative price difference between private and public transport costs has risen far more quickly than forecast (see also Crompton and Jupe, 2002; Docherty, 2001). The splitting up of DETR into different departments (DfT, DEFRA and the Office of the Deputy Prime Minister) has also had an impact on the implementation of the Plan. The CfIT report notes that government departments 'need to recognise that transport can no longer be seen as merely an adjunct to their objectives' (eg in education and healthcare). This point is also reiterated in a recent Social Exclusion Unit Report (SEU, 2003), which found that the spend profile in the Plan is skewed in favour of those who travel most, ie those in the upper income bands rather than those at risk of social exclusion. CfIT recommends that 'social exclusion aspects of transport policy, specifically the provision of alternatives to the car and access to key services are addressed explicitly as the plan is rolled forward'. The report recommends that 'more public subsidy is needed to support the bus industry…this should be focused on improving access to key services and reducing fares to the full range of socially excluded groups'.

In relation to progress against the PSA (Public Service Agreement) and Ten Year Plan targets, CfIT found that the target of 50% of the full-size bus fleet being fully accessible by 2010 was on track, with 29% of the fleet now accessible. Access to community transport in rural areas has also increased by 55% between 2000 and 2001. A target of

securing improvements to the accessibility, punctuality and reliability of public transport by at least 12% by 2010 does not currently appear to be on track, especially outside London. A new target was introduced in 2002 that requires the bus industry to achieve year on year improvements to information at bus stops, and general public satisfaction is now being monitored.

Crompton and Jupe (2002) agreed that the lack of investment in the railway system identified in the Ten Year Plan is a fundamental problem for the government. But they found little evidence that the level of private investment predicted by the Plan will be forthcoming. This lack of investment has an impact on safety as well as accessibility of stations and rolling stock.

Although there are some indicators of positive change and targets on accessibility, overall there is little information on the success and impact of the Ten Year Plan in relation to disabled people, other than broad references to social exclusion and/or accessibility of buses and trains. Barriers for disabled people in the pedestrian environment, information systems, air and water transport and staff training are not addressed. The importance of transport links and travel confidence also needs to be addressed.

3.5 Scotland

Under the Scotland Act 1998 certain aspects of transport policy were devolved to The Scottish Executive. The DDA was devolved for both taxis and private hire vehicles as they are governed by Scottish legislation.

In 1998 'Travel Choices for Scotland', the Scottish Transport White Paper, was published (Scottish Executive, 1998). The white paper proposed Quality Partnerships Schemes and set out the UK Government's policy priorities for transport in Scotland alongside those set out for the UK as a whole in the DETR White Paper 'A New Deal for Transport' (DETR, 1998b).

The Transport (Scotland) Act (Scottish Executive, 2001a) included a legal status for Quality Partnerships Schemes and Quality Contracts Schemes which were established between

bus companies and local authorities to develop infrastructure, vehicles, training, and information systems. In 2001, the 'Integrating Disability into Transport Policy and Establishment of a Mobility and Access Committee for Scotland, Scottish Statutory Instrument 2001' came into force (Scottish Executive, 2001b) and in 2002, the Mobility and Access Committee for Scotland (MACS) was set up to advise Scottish Ministers on how they should take account of the interests of disabled people in the formulation of transport policies.

Rail
The provision of rail services is a reserved matter. However, the Scottish Executive has powers to award certain grants, give directions and guidance to the Strategic Rail Authority on the award of the Scottish Passenger Rail franchise and provide subsidies to the franchise holder.

Road
The UK Government retains responsibility for road traffic law, vehicle and driver licensing and taxation, public service vehicle operators and goods operators licensing and the regulation of road safety. Responsibility for all aspects of road building and maintenance is devolved.

Air
Regulation of aviation and air transport is a reserved matter, with the Department for Transport taking the lead role in policy making. However, as the planning system is devolved, the appropriate authorities within Scotland will take decisions regarding development at airports. These authorities are usually the appropriate local authority or the Scottish Ministers where an appeal has been lodged or an application called-in.

Water
Regulation of shipping is a reserved matter, with the Department for Transport taking the lead role in policy-making and implementation. However, the Scottish Executive retains control of the planning system, which affects ports, harbours and ferry routes.

Taxis and Private Hire Vehicles

The legislation governing taxis and private hire vehicles is contained within the Civic Government (Scotland) Act 1982 (sections 10–23). A Sewell Motion in the Scottish Parliament permitted Westminster to legislate on the Scottish Parliament's behalf on the Private Hire Vehicles (Carriage of Guide Dogs etc.) Act 2002. The regulations have still to be published in Scotland.

3.6   Where next?

The Disability Rights Task Force, in its report 'From Exclusion to Inclusion' said that:

"Accessible transport is fundamental to delivering our aim of comprehensive civil rights…The partial exclusion of transport from the DDA provides accessible vehicles, but no duty on transport operators to allow disabled people to actually use them" (DRTF, 1999, p15).

Key transport recommendations in the report were:

- "An 'end date' by which all passenger rail vehicles shall comply with rail accessibility regulations…
- The exemption for transport operators from the first and October 1999 phases of the DDA access to services duties should be removed in civil rights legislation…
- Mechanisms for increasing the availability of accessible private hire vehicles…
- The DDA access to service provisions should apply to car hire and breakdown recovery services…
- A reserve power should be taken to give the Code [on access to air travel for disabled people] statutory backing if agreement and compliance cannot be achieved on a voluntary basis…
- Accelerate progress in compliance with…guidance on access for disabled people in the shipping industry".   (DRTF, 1999, p248-250).

Many countries, including Canada, the US, Japan, and Western European countries now have or are moving towards legislation, regulations, standards or codes of practice that require accessible transport (Ling Suen and Mitchell, 1998a; Mitchell, 1997). Almost all countries in the European Union now have transport policies and legislation

based on principles of inclusion and accessibility for disabled people (Short, 2002).But as Ling Suen and Mitchell (1998a) point out, accessible transport options are not enough, and what is required is a totally integrated accessible transport system encompassing public transport services; intercity, regional, national and international transport, intermodal linkages, personal vehicles and the pedestrian infrastructure. Oxley and Short (1995) contrast the Swedish approach of staged development of an accessible, flexible public transport system and infrastructure with the British approach where legislation was felt to be mode-specific and restricted. They suggest that governments should realise that better mobility has tangible benefits, and that those benefits should be used to provide financial assistance to transport operators.

There are many aspects of travel, in urban, rural, inter-urban and international travel which make it difficult or impossible for disabled people to travel independently. Although there are many feasible solutions to these problems, many operators will not provide solutions without guidance from the government (Bellerby, 2000). In order for governments to develop fully accessible transport systems it is also necessary for 'the general public to be convinced of the accessibility case' (Tyler, 2002). Mitchell (1997) suggests that governments should 'realise that better mobility has tangible benefits at the general as well as the individual level'.

4. Public Transport

Public transport is generally defined as publicly available transport, usually shared with other users and operating on set routes at scheduled times (Mitchell, 1998). 'Mainstream' public transport includes buses, trains, taxis, aircraft and ferries. Other specialist public transport services include health, education and social services transport, dial-a-ride and other community transport services (DETR, 2000d; DPTAC 2002b). This chapter covers the key issues and research on disabled people's use and experiences of public transport.

4.1 Disabled peoples' use of public transport

94% of respondents in a recent DRC survey agreed that disabled people should have the same opportunities to use public transport vehicles as non-disabled people (DRC, 2003b). A recent study into social exclusion and public transport use (DETR, 2002d) identified four generic barriers: affordability, acceptability, availability and accessibility. Regional Transport Strategies in England and Wales should now provide public transport accessibility criteria for major developments (DETR, 2000c). In terms of affordability, the real cost of motoring has remained stable over the last 25 years, while rail and bus fares have risen by 50 and 75 per cent respectively (DETR, 2000c). Public transport has to compete in a market system where car travel remains under-priced in terms of its true environmental and social costs, and this has a direct impact on disabled people (Docherty, 2001). 40% of disabled people in England and Wales say they are fearful of travelling by public transport, and 46% say that improvements to public transport would have a positive improvement on their life (DPTAC, 2002a).

Public transport use, as for the general population in England and Wales, is highest in London. Use of different transport modes varies for different impairment groups. Visually impaired people are more likely to be rail and Underground users than other disabled people (42% compared to 31% of all disabled people). Wheelchair users are less likely to be bus users (72% never do compared with 39% overall) (DPTAC, 2002a). 39% of people in the DPTAC survey travelled on public transport alone, and 40% with someone else. Use of public transport by different impairment groups

should increase as transport modes and interchanges become more accessible (Gallon, 2000).

4.2 Accessibility

The ideal transport system is:

"…a mix of accessible equipment – the vehicles, the stations, the platforms, the bus stops – and ways of operating that do not create barriers to universal use" (Heiser, 1995).

The definition of 'accessible' has been debated, and Mitchell (1995) stated that:

"A transport system is accessible to a particular group of impaired people, if, by its physical design and its operating procedures, it can be used by that group of people without requiring them to do anything that their impairment makes impossible".

Tyler (2002) said that it is very easy for a standard of accessibility which has been set as a minimum to become the norm in practice, tending to reduce the possibility of improvements over time. 'This also tends to reduce the basic standard in the short term to that of the worst acceptable level'. Tyler suggests that 'the prime requirement of public transport design is to ensure that the accessible journey chain is maintained'. Rather than dimension-based standards he suggests 'performance-based standards' developed with users (eg rather than define the minimum dimension for a wheelchair space, a performance-based standard 'would require that a wheelchair user can reach, enter and leave the wheelchair space comfortably and with dignity in a forward direction'.

Accessibility should encompass the needs of disabled people who have learning difficulties, mental health problems and other impairments (Lavery et al, 1997).

Designing accessible transport systems should also be about 'universal design' or 'access for all'. 20 to 25 per cent of public transport passengers at any time have mobility limitations due to impairment, luggage, accompanying children or unfamiliarity with the local area (Ling Suen and Mitchell, 1998a). Accessible public transport is easier for everybody to use.

4.3   Concessionary fares

The Transport Act 2000 required local authorities in England and Wales to provide a national minimum standard of a half fare for people over retirement age and disabled people. 48% of disabled people hold a concessionary fare pass (DPTAC, 2002a).

In 2001 94 per cent of local authorities in England offered a half bus fare concessionary scheme for the elderly, 90 per cent for disabled people and 60 per cent for people registered blind. The remainder have either flat fare schemes or schemes offering free travel. Over half of local authorities had a more generous concessionary fare scheme than before the Transport Act took effect (DTLR, 2001b). Six areas in England (Greater London, Merseyside, West Midlands, Crawley, Reading and Redditch) provide passes entitling elderly and disabled people to free bus travel (Mellor, 2002). The Freedom Pass in London provides more than a million elderly and disabled people with free access to buses, London Underground, tram and National Rail services.

There is considerable variation between schemes in England, with many local authorities restricting time and mode of travel. There is also variation in area covered, with some local authorities operating joint or countywide schemes with other local authorities. Some schemes offered travel tokens or vouchers instead of, or in addition to a half fare scheme (Rye et al, 2002). While the majority of local authorities offered the same concessionary scheme for elderly and disabled people, there was more variation in schemes for people registered blind (DTLR, 2001b). Whilst there are many variations and inconsistencies in schemes in England, disabled people in Wales and Scotland are now able to travel free on public transport. In Scotland an off-peak pass funded by the Scottish Executive, introduced in October 2002, entitles holders to free concessionary bus travel within their local authority boundary. The Welsh Assembly's scheme, introduced in April 2002, entitles pass holders to free travel on any local bus service in Wales (Rye et al, 2002).

Organisations of disabled people are campaigning for a similar standardisation of concessionary fares across England, but there are also suggestions that a universal

scheme may not be the best use of resources, and the idea of targeting concessionary fares at people at risk of social exclusion has been suggested in a recent report (DETR, 2000d). Targeting concessionary fares in this way would extend the schemes to other groups such as students and unemployed people, but would mean that not all disabled people would be entitled to concessions (Mellor, 2002).

The Disabled Persons Railcard allows holders to buy discounted rail tickets. If another adult is travelling with the holder, they can also travel at the same discounted fare. The Railcard currently costs £14 and is valid for 12 months. To qualify holders must be registered as visually impaired or deaf, suffer recurrent attacks of epilepsy, qualify for specified benefits or be buying or leasing a car through the Motability scheme[3]. 10% of disabled people hold a Disabled Persons Railcard (DPTAC, 2002a). In research with holders of Railcards one of the main strengths of existing train services was felt to be that the Disabled Persons Railcard scheme covered the entire network, but that the eligibility criteria should be widened (LTUC, 2001).

4.4 Accidents

Very little research has been undertaken into accidents on public transport involving disabled people, but elderly people, particularly those who are mobility and visually impaired, have been found to be more likely to be involved in accidents on public transport and as pedestrians (Mitchell, 1997). Kirk et al (2002) found that slips, trips and falls on buses and coaches are most likely to be caused by slippery and uneven floors, unexpected or high steps, steep slopes and a lack of visual clues. Accidents while boarding or alighting vehicles were caused by the step to the kerb being too high and steps of varying heights. 'Operation issues' such as accelerating or decelerating before the passenger reaches their seat are also responsible for non-collision accidents on buses and coaches, and drivers need to receive appropriate training in disability awareness alongside using accessible vehicles. Williams et al (2002) found some evidence that children with sensory impairments are at increased risk of involvement in road accidents. The risk of fatal pedestrian accidents among

---

[3] http://www.disabledpersons-railcard.co.uk/

adults with learning difficulties appeared to be two or three times greater than among the general population. Williams et al conclude that data on the involvement of disabled people in road accidents (both in vehicles and as pedestrians) is largely unavailable, but that accessible vehicles and pedestrian environments, alongside more co-ordinated safety training for disabled children, should reduce risk.

4.5 Barriers to using public transport

4.5.1 Information

Even where transport is physically accessible, its use may be limited because presentation, or lack, of information makes it difficult for some disabled people to use (DETR, 2000d). "The provision of accessible information is a huge problem which is still in the early days of investigation. Research has yet to show reliable and general ways of ensuring that [transport] information is accessible" (Tyler, 2002). Information is often less of a problem on familiar and regularly travelled routes, but can be a barrier for disabled people to travelling to new destinations (DETR, 2000d). The European Conference of Ministers of Transport recommended that information should be provided that is clear, concise, accurate and timely, and that can be comprehended by those with hearing and visual impairments. This applied to all forms of information such as leaflets, signs, telephone and public access terminals (ECMT, 1999).

DPTAC research found that telephone enquiry services were the most widely used means of obtaining journey information for public transport (35% of disabled people in England and Wales), followed by consulting printed timetables and maps (23%) and face-to-face at stations (22%). The internet and digital television were only used by 8% of respondents, although this was higher for younger people and those in employment. Many people had experienced problems getting information, and 39% of disabled people, mainly existing users, said that if it was easier to obtain information about public transport services, they would use these more. Of those who used public transport, only 39% said they felt well informed during journeys and 48% did not. Many people said

that they needed more information during journey stages, especially regarding delays (DPTAC, 2002a). Timetable and other information is often particularly inaccessible for people with learning difficulties and visual impairments (SEU, 2003). Developments in information technology could have real benefits for disabled people by providing accessible information on the service, at the bus stop or station, in a hand-held unit or at home (DTLR, 2001a; Ling Suen and Mitchell, 1998b; Mitchell, 1997). Kenyon et al (2003) suggest that information and communications technologies can substitute for, as well as supplement, physical accessibility by providing access to opportunities, services and social networks via the internet.

4.5.2 Staff

Improving staff attitudes is a key way to encourage greater use of public transport (DPTAC, 2002a; RNIB, 2002):
"Disabled people feel that transport staff (particularly bus drivers and train station staff) are not sufficiently trained about disabled people's needs. Bus drivers are regarded as particularly insensitive. The problem seems to be a basic lack of awareness of the problems disabled passengers face … Disabled people would like to see transport companies taking a lead in training their staff in disability equality and awareness". (DPTAC, 2002a p61).
47% of disabled people in the DPTAC survey said they would travel by public transport more if staff were better trained to deal with their needs. Many transport operators also acknowledge the need for training staff at all levels in order to deliver services that meet the needs of disabled people (DPTAC, 2000 & 2003b; Oxley, 2002; SRA, 2002).
The Strategic Rail Authority Code of Practice states that:
"One of the most cost-effective ways of making services more attractive to disabled passengers is to provide properly trained staff…Disability awareness training and disability equality training are essential for all parties providing services in the rail industry" (SRA, 2002 p37).
Disability awareness training of executives, managers and customer services staff in the USA raised levels of disability awareness across the organisation (Amtrak), improved and revised policy for accessible transport, enhanced

accessibility and significantly improved service delivery for disabled customers (Simon and McCloskey, 1998).

Tighter control of the taxi trade is needed to ensure training of all drivers and other staff in disability awareness (Beuret, 1995).

4.5.3 Rural areas

DPTAC (2002a) found that transport was of particular importance for disabled people who live in rural areas in England and Wales. The needs of disabled people in rural areas have to be considered in transport planning, as there are less accessible services and a less accessible pedestrian environment (Chapman, 1995; Heiser, 1995). The result is that disabled people in rural areas are more likely to rely on a car driven by someone else (DPTAC, 2002a). But there is little research on this area, and further information is needed on the specific transport barriers faced by disabled people in rural areas.

4.5.4 Confidence

Confidence to travel is a key issue (DETR, 2000d; LTUC, 2003; Tyler, 2002) and one on which there has been little research to date. Barriers to all or part of the transport chain, and negative experiences, can affect disabled people's willingness to travel:

"A potential passenger needs to be certain that the entire journey is accessible before they can have any confidence in setting out on the trip. Some people require more certainty than others about more of the journey in order to have this confidence" (Tyler, 2002).

The importance of accessibility at all points in the transport chain, including information, is discussed elsewhere in this report (see p10). Tyler (2002) suggests that confidence in the accessibility of an entire journey is a key issue which can prevent disabled people from using public transport. Travel training has been found to be helpful by disabled people who lack confidence in accessing public transport, particularly for people with learning difficulties (DETR, 2000d; Lavery et al, 1997; SEU, 2003). Travel training can enable people who find public transport hard to negotiate to 'learn' new and/or difficult routes, and negotiate links in the travel chain (DETR, 2000d). The benefits of travel training can also extend

beyond enabling people to travel independently, other benefits for people with learning difficulties include 'general confidence building and enhancement of life skills needed for independent living' (Lavery et al, 1998).

4.6 Buses

Two thirds of all public transport journeys are made by bus (DETR, 1999). Disabled people in England and Wales use buses around 20% more frequently than the general public, but only 42% (55% of bus users) of disabled people are satisfied with local bus services, and 38% (34% of users) are dissatisfied (DPTAC, 2002a). The DPTAC research also found that 36% of disabled people believe that buses are well designed for accessibility, and 42% disagree. Disabled people in London were most likely to use local bus services (54%), compared to other urban areas in England and Wales (44%), and rural areas (39%). Wheelchair users were least likely to be bus users (72% never do compared with 39% of all disabled people), but it was felt that use would increase as more accessible services are introduced and promoted.

From 1997 to 2000, bus industry investment in England and Wales went up by 30%, with over 21,000 new buses running, including many with low floor access (DETR, 2000c). The government's provisional aim is to ensure that 50% of buses are accessible by 2010. Around 29% of the full-size bus fleet in England and Wales, and 60% of London buses are currently accessible (DfT, 2002b). Transport for London estimate that the London bus network will be fully accessible by 2005, apart from a small number of Routemasters which will still be in service (Forster, 2003). However, research in Scotland, currently being updated, found that only 15% of buses were accessible (Henderson, 1999).

Tyler (2002) found that the bus system can be a barrier to disabled people by virtue of:
- the design of the network, services and operating systems
- the pedestrian- or bus-related infrastructure
- the design of vehicles
- the attitude and skill of drivers and other transport staff

- the location, style, content and form of information provision
- the way in which the bus system relates to local people in its design and implementation.

Oxley and Gallon (1995) found that disabled people who had stopped using mainstream bus services said they would start doing so again if there were lower steps on buses (18%), a lift or ramp for a wheelchair (13%), space on the bus for a wheelchair (7%), the bus moved off more slowly (5%), more frequent bus stops (4%), a door to door service (4%), more frequent buses (3%) and more helpful staff (3%).

Gallon (2000) undertook research to identify to what extent features, designed to improve access to mainstream bus services, are likely to change use by disabled people. She found that 'age, the inability to walk over certain distances and private car travel could explain most of the variation in bus use'. Learning difficulties and other 'intellectual functioning and behavioural' impairments also influenced whether a smaller number of disabled people travelled by bus. Gallon found that disabled people who have difficulty walking up to a quarter of a mile experience problems getting to 'mainstream bus stops'. The main reason that disabled people who are able to walk over half a mile do not use buses is because they opt to travel by private car. Restricted walking distance is a much stronger indicator of disabled people experiencing difficulties using mainstream bus services than problems getting on and off vehicles: "...vehicle design features and operational changes, intended to improve access to fixed mainstream bus services, would have a limited influence on providing people who cannot get to bus stops access to services".

Further research is needed to estimate the number of new disabled users of accessible bus services and their projected patronage levels (Gallon, 2000).

Disabled people in England and Wales said they were more likely to use buses if they were more frequent, accessible, had lower fares, friendlier and more helpful staff, more low floors and/or steps level with the pavement (DPTAC, 2002a). DETR research suggests that accessible buses can boost overall patronage by 15-20% (DETR, 2000d).

4.7   Trains

There is 'a significant and growing potential market for rail travel' amongst disabled people and:

"It is important for rail operators to understand the size and nature of this potential market and to recognise the barriers: physical, financial, information and confidence which currently exist. They need to develop a strategic approach to marketing that will overcome these barriers and that will address the issue of rail travel as part of a wider chain" (McKee, 1998).

The Strategic Rail Authority Code of Practice (SRA, 2002) sets standards for train and station services for disabled rail passengers. All passenger train and station operators in Great Britain are expected to comply with the code whenever work or refurbishment takes place, and to commit to a programme of continuous improvement in access and services for disabled people. The implementation of the code is monitored through operators' Disabled Persons Protection Policies (DPPPs), and although not guaranteeing immunity from prosecution, should ensure good practice in line with Part III of the DDA.

A recent survey in London found that rail is the least accessible mode of public transport (LTUC, 2003). DPTAC research found that train travel was seen as the worst mode in terms of making travel arrangements, information during the journey and availability of wheelchair spaces and priority seating for disabled people. Only 20% of disabled people (44% amongst rail users) were satisfied with local trains and 13% (38% of users) were satisfied with long-distance and inter city rail services. 16% of disabled people thought that the considerations made for disabled people in the design of trains was good, and 29% thought it was poor. In terms of station design, 18% rated this as good and 29% as poor (DPTAC, 2002a).

Oxley and Gallon (1995) found that 'distances between rail stations produced a higher proportion of people who had no access to the system because of problems getting to stations', and that there were particular problems with accessibility in rail stations for wheelchair users. Oxley and Gallon found that for disabled former rail users better provisions for wheelchairs and improved access to platforms

were the most important requirements, followed by more staff and help with luggage, more stations, reduced platform/ carriage gap and cheaper fares. For many visually impaired people gaps between trains and platform edges are particular hazards (RNIB, 2002). A further crucial aspect to enabling disabled people to access rail-based public transport is 'the necessity of providing an accessible and affordable means of getting to and from stations' (Oxley and Gallon, 1995).

Research with holders of Disabled Persons Railcards (LTUC, 2002) found that although being able to pre-book assistance (through the Disabled Person's Reporting System) was seen as a useful service. However Railcard holders said that assistance often did not materialise in practice and was not always available. (DPTAC research (2002a) found that only 9% of disabled people, and 30% of wheelchair users, in England and Wales had used the Disabled Person's Reporting System). Some railcard holders said that they would like be able to travel spontaneously. Holders wanted train operating companies to employ more disabled people and train staff in disability awareness; to have level access from platforms and moving walkways along and between platforms; to have complete clarity about discounts available; for new rolling stock to have facilities for disabled people in a fixed location aligned with a clearly marked point on the platform and more priority seats for disabled people as well as a fully accessible rail system.
In the DPTAC research disabled people said that they were more likely to use rail travel if fares were lower, trains more accessible, stations closer to where they lived and there were more announcements and information (DPTAC, 2002a).

Crompton and Jupe (2002) found that lack of investment in the railway system is a fundamental problem that has had an impact on both safety and accessibility of rolling stock and stations. Railway privatisation discouraged investment in rolling stock in the lead up, as British Rail did not invest in rolling stock in the 1,000 days prior to privatisation. Subsequently few train operating companies (TOCs), often awarded limited franchises, invested in new rolling stock and this trend has only recently started to be reversed (Crompton

and Jupe, 2002). Only 14% of disabled people in England and Wales think that the necessary investment is being made in Britain's railways to meet the needs of disabled passengers (DPTAC, 2002a).

4.8 Taxis

Accessible taxis and minicabs are an essential link in the transport chain for many disabled people, and in some cases the only accessible transport mode (Beuret, 1995). But as taxis and minicabs are also the most expensive mode of transport this can create a barrier to their use by disabled people (Heiser, 1995). As many disabled people rely on taxis a reduction in trip costs is seen as an essential service in order to reduce transport disability (Beuret, 1995; McClary, 1995).

All London's licensed taxis are now wheelchair accessible (DETR, 2000c), and all licensed taxis in Edinburgh have had to be accessible since 1997 (McClary, 1995). DPTAC research found that black cabs received the best rating from disabled people in England and Wales in terms of accessible transport design, and that disabled people use taxis and minicabs 67% more frequently than the general public:

"From a range of different transport modes, disabled people are most satisfied with the service provided by taxis and minicabs. Sixty-three per cent of disabled people are satisfied with taxi/minicab services, rising to 80% among users. This may partly be explained by the personal service some disabled people receive from local taxi/minicab firms". (DPTAC, 2002a).

Variations in accessibility, driver attitudes, accountability and staff training mean that the service offered to disabled people can be very inconsistent, and this needs to be addressed (Beuret, 1995).

Taxicard schemes provide subsidised taxi travel for people who find it difficult to access mainstream public transport. In Great Britain this type of service was pioneered in Edinburgh in 1979 (McClary, 1995). In England taxicard schemes exist mainly in London, and are used by 24% of disabled people there as opposed to 6% across England and Wales (DPTAC, 2002a). These schemes, and their role in the transport chain, are discussed further in '4.9 Specialist Services' below.

Taxis have been used in some areas of Great Britain to enhance the public transport network, and options currently being explored include identifying flexible and demand-responsive services which could be run by taxis, such as taxi-buses and shared taxis (SEU, 2003).

4.9   Other forms of public transport

The literature on disabled people and public transport has to date focused principally on bus, train, taxi and specialised or community travel, probably because these are the modes of public transport most frequently used by disabled people. This section of the report is therefore fairly limited, but further research into the accessibility and disabled people's use, and confidence in using, other modes of transport is needed to track key changes and issues.

4.9.1 Aircraft

Travelling by plane presents significant barriers for disabled people, and generally the disabled person has to be far more flexible than the service provider. The focus is very much on providing assistance rather than an accessible and flexible service (Briaux-Troverie, 1995). A survey of disabled people in England and Wales found that 25% rated the considerations made for disabled people in aircraft design as good, and 7% as poor' 31% rated airport design as good, and 5% as poor. Two thirds of disabled people said they do not fly (DPTAC, 2002a). Research in Scotland found that although airports were generally accessible, disabled people often had to board the aircraft by being physically carried on board, and that none of the aircraft in service were large enough to carry on-board wheelchairs (Henderson, 1999). In Canada, Rutenberg and Ling Suen (1998) found that airport planners need to pay particular attention to the needs of people with sensory impairments navigating within airports. Travelling by air is not yet covered by the DDA because it is largely an international industry. The European Civil Aviation Conference (ECAC), an intergovernmental organisation, has adopted recommendations for making air travel easier for people with reduced mobility, which include air services, information, communication, staff training and assistance on the ground and in-flight (Toffin, 1998). A voluntary code of

practice (DfT, 2003) aims to help the aviation industry improve services, and covers all aspects of air travel, including accessing information, aircraft design and arrival at the final destination. This is currently a voluntary code for UK companies only and sets minimum standards, so its remit is very limited. The DPTAC guidance on air travel (DPTAC, 2003) outlines what disabled people can expect when travelling by air, what services are currently available and how further information and advice can be accessed. A consultation is also being undertaken of accessibility specifications for aircraft toilets[4].

4.9.2 Ferries

A survey of disabled people in England and Wales found that 19% rated the considerations made for disabled people in ferry design as good, and 6% as poor. Three quarters of disabled people said they never use ferry services (DPTAC, 2002a).

DPTAC guidance supporting International Maritime Guidelines covers the design and operation of large passenger ships and infrastructure (DPTAC, 2000). This guidance includes the need for pre-journey information, accessible booking arrangements, access to and within terminals and vessels, on-board accommodation, information in terminals and vessels, and the need for training and review of policies and procedures. In Scotland the means of boarding some vessels was found to be very difficult for some disabled people, and some older vessels had no means of allowing people with mobility impairments to move independently between decks (Henderson, 1999).

4.9.3 Underground and other forms of mainstream public transport

Eight in ten disabled people never use light rail, tram or Underground services (DPTAC, 2002a). Of the 275 Underground stations, only 40 do not require the use of steps or escalators (SEU, 2003).

Oxley and Gallon (1995) found that access to the Underground was the most important reason why disabled

---

[4] http://www.dptac.gov.uk/pubs/aviation/consult/index.htm#9

people no longer used the system, including too many steps, difficulties with escalators and lack of wheelchair access. Oxley and Gallon found that for disabled former Underground users improved access within stations was the most important requirement, followed by more (and more helpful) staff, more stations, reduced carriage/platform gap and less crowding.

4.10 Specialist services

Flexible and accessible forms of transport can provide a cost-effective service that offers disabled people independence, security and the means to access mainstream public transport (Alsnih & Hensher, 2003). Dial-a-ride, Shopmobility and other community transport or 'para-transit' services play a crucial role in providing a basic level of mobility for disabled people who cannot access other forms of public transport (DPTAC, 2002b; LTUC, 2003). Shopmobility[5] involves lending manual and powered scooters to enable people with mobility impairments to shop and use leisure facilities in towns, cities and shopping centres. An audit of services found that Shopmobility 'assists in sustaining the independence and rights of mobility-impaired people to "seamless" travel' (Gant, 2002). 'Dial a ride' bus services offer subsidised door to door transport for people who find it difficult to access mainstream public transport. 9% of disabled people in the DPTAC survey, and 20% of those in London and wheelchair users use this type of service (DPTAC, 2002a).

In order for existing mainstream public transport system to meet the needs of all disabled people, 'the Community Transport sector needs to be fully integrated with mainstream services' (Langley and White, 1998). Gallon (2000) found that 51% of disabled people currently unable to use mainstream bus services, would be able to use a more penetrative service based on the Swedish Service Route Traffic (SRT) concept. This is a public transport system designed to meet the needs of elderly and disabled people, and consists of small low-floor buses with ramps and personal assistance from the driver. SRT has a specific route

---

[5] http://www.justmobility.co.uk/shop/

layout with a maximum walking distance to the bus stop of 150m, and people can also telephone and be picked up closer to home (Jensen et al, 2002). Tyler (2002) suggests that there is currently an 'accessibility gap' between public and 'specialised' transport services. A person who is not able to access mainstream public transport, but who is ineligible for specialised services, will be 'excluded from both the transport system and the activities they may wish to undertake'. Tyler proposes that this accessibility gap can be bridged by improved design, accessible information and more flexible routes to bring buses closer to people. Perry (1995) describes the development of an integrated accessible transport network in Birmingham which has made access to conventional public transport possible for more disabled people by supplementing dial-a-ride services with a timetabled, fully-accessible, semi-fixed route service. Gallon (2000) estimated that 31% of the disabled population who do not currently travel by mainstream bus would require a door-to-door service, so the importance of developing a variety of flexible and accessible options in the transport chain is essential. Traditional techniques for assessing how to subsidise public transport may be inappropriate for community transport, 'because of its different cost basis and the fact that it doesn't meet 'valued' needs such as work journeys…economies of scale through centralisation will outweigh arguments in favour of local community development (Taylor & Lavery, 1998).

Recent research into the attitudes of disabled people to community transport (DPTAC, 2002b) found that overall awareness and knowledge about community transport across England and Wales was low, but that those who used these services found them easier to use than mainstream public transport. Staff were also felt to be more friendly and helpful than bus drivers. The services that were most well-known were Dial-a-ride and Shopmobility, and community transport was most commonly used to travel to and from town centres, followed by visiting community and day centres. Availability was also perceived to be low and this was the main factor which affected whether or not disabled people used community transport services, as a quarter of respondents said that no form of community transport was available in their area. Although useage of community

transport was found to be low, disabled people said that they would like to use community transport for more journeys, particularly for medical appointments. The key factor that would encourage greater use of community transport services was better and more information about these services.

Ling and Mannion (1995) found that dial-a-ride services improved quality of life for people in older age groups, people lacking access to alternative forms of transport, and disabled people with no informal care or living alone. However many dial-a-ride providers have complained of being under-resourced and unable to meet user demand (Armitage, 1997). In a survey of users of dial-a-ride and taxicard services, the London Transport Users Committee (LTUC, 2003) found that although these schemes made a positive contribution to their users' quality of life, inconsistency of service, unreliability and difficulties making bookings all caused problems. Many of the people surveyed were keen to make more use of mainstream public transport as well as these specialist services, but physical accessibility, lack of information and lack of confidence all created barriers. Taxicard users were more likely to use the service to access other (mainstream) forms of transport. Research with disabled women found that dial-a-ride and taxicard services were often not co-ordinated or integrated and were also extremely difficult to contact (JRF, 1995).Many women reported finding Taxicard had serious limitations if they wanted to travel after 10pm. There is a potential role for taxis in providing a link to improve the effectiveness of demand responsive services like dial-a-ride, so that they are not seen as a stand-alone service, but part of a chain enabling access to other transport modes (McClary, 1995).

As accessible mainstream public transport develops there is likely to be a trend away from separate specialised provision, but specialised services will continue to be needed by some disabled people (Mitchell and Smith, 1998). In the future specialist/ community transport could also be used to meet the needs of other socially excluded groups, and further research is needed into the possibilities and economics of developing and integrating such services with mainstream public transport (DETR, 2000d).

4.11 Transport providers

There is a significant business case for operators to make services more accessible. Disabled and older people represent 'a growth market and planners, designers, manufacturers and operators and all levels of government should be aware of the market size and ways to meet needs' (DTLR, 2001a). Only by examining the personal attitudes, values and behaviours at all levels of provider organisations 'will it be possible to realise the benefits of fully accessible transport' (Eltridge-Smith, 1998).

"It is essential that those responsible for the specification, design, implementation and operation of the bus system have a clear understanding of the implications for accessibility of each decision that moves the solution further away from the ideal. They need to be aware that this is not just about whether or not someone can board a bus, but that failure in any of the various elements of the system will mean that they are condemning someone to be unable to reach the objective of their journey…engineers, architects, designers and other professionals need to be skilled in accessibility issues" (Tyler, 2002).

Oxley and Gallon (1995) found that more staff and more helpful staff were important requirements for disabled people who had stopped using buses, rail and the Underground. Research with Disabled Railcard holders found that some train and station staff show discrimination, and do not offer to help, if disability is not apparent. Many staff were perceived to be unhelpful or indifferent, and many ticket staff were unclear about discounts available to disabled passengers (LTUC, 2002).

Transport planning should be based on need rather than demand (Heiser, 1995). In order to create a transport system that meets the needs of disabled people, the supply industry for accessible transport needs to be developed alongside legislation and awareness of the needs of current and potential disabled users (McKee, 1995). McKee suggests that disability organisations need to work closely with industry in order to develop consistent strategies which support best practice. Transport operators are 'coming round to the view that accessibility is something that cannot be ignored' (Short, 2002). Clear, reliable and long-term public funding of non-commercial and specialist services is

essential if providers are to be able to plan and deliver flexible services that meet the needs of disabled people (Short, 2002; Tyson, 1995).

5. Private Transport

The car is the most common mode of transport for disabled people, and although 60% of people have no car in the household (DfT, 2002a; DPTAC, 2002a):
"many disabled people consider private cars to be the only form of transport that is convenient and accessible. Vehicles can often by adapted to the individual needs of users…People also feel that private cars are more reliable and comfortable, as well as providing a feeling of security, in line with the general population". Ninety per cent of disabled people in England and Wales travel by car, only slightly less than the general public. Many disabled car users feel that public transport is difficult to use and not adequate for their needs, 59% say they prefer using a car to public transport. 13% of regular disabled car users say that they prefer cars because of difficulty getting on and off public transport, and 10% because a car avoids the need to walk (DPTAC, 2002a).

5.1 Disabled drivers
As levels of car ownership and licence holding are increasing for all age cohorts, further research is needed to project future trends in car ownership and driving for disabled people (Gallon, 2000). Of the 40% of disabled people who have a car in their household, 69% hold a Blue (formerly Orange) badge (DPTAC, 2002a). A survey of disabled motorists found that 60% never use any form of public transport, mainly because of finding these services inaccessible and the staff unhelpful (Mori, 2000). The problems experienced by disabled drivers in relation to parking are discussed further in '6. Pedestrian Environment' below.

Adapting a car can be very costly, adding a wheelchair lift, for example, can cost around £6,000 (SEU, 2003). Motability[6] is a joint enterprise which provides vehicles to people who are in receipt of the Higher Rate Mobility Component of the Disability Living Allowance. It operates as a partnership between the voluntary, public and private sectors and was set up in 1977 to rationalise provision of government allowances and vehicle schemes for disabled people. The scheme currently has almost 400,000 customers and new cars purchased through the scheme represent around 7% of all new car sales in the UK. 13% of disabled people

---

[6] http://www.motability.co.uk

in England and Wales, and 27% of wheelchair users, use the scheme (DPTAC, 2002a).

Research on disabled drivers has tended to focus on technical aspects of adaptations and safety. Henriksson (2001) found that disabled drivers in Sweden had accident rates similar to non-disabled drivers and had high levels of confidence in their adapted cars. Developments in intelligent transport systems could have real benefits for disabled drivers, for example by steering assistance, emergency alerting systems and monitoring vehicle condition (Ling Suen and Mitchell, 1998b).

5.2 Disabled car passengers

79% of disabled people never drive themselves, compared to a third of the general public. 67% of disabled people regularly travel in a car driven by someone else, mainly family, friends or neighbours. 72% of disabled people living in rural areas in England and Wales regularly travel using a car driven by someone else (24% use volunteer drivers), compared to 65% in urban areas and 62% in London. This may reflect the provision and accessibility of public transport in these areas (DPTAC, 2002a).

6. Pedestrian environment

This chapter covers key issues in relation to transport, a separate DRC literature review has already covered wider issues for disabled people in relation to the built environment.

6.1   The pedestrian environment

An integrated transport system, encompassing accessible public transport, public transport infrastructure and a barrier-free pedestrian environment is essential in order to deliver comprehensive civil rights for disabled people (Oxley, 2002). Disabled people in England and Wales are generally dissatisfied with the conditions of roads and pavements and 48% of disabled people in England and Wales say they would go out more if conditions for walking were better (DPTAC, 2002a). 65% of those surveyed were dissatisfied with pavement maintenance, and 58% with road maintenance. 57% rated the considerations made for disabled people in the design of streets and pavements as poor, and only 23% thought they were good. A survey of disabled and older Londoners found that uneven, cracked and dangerous pavements are the greatest problems on the streets, followed by pavement cycling, difficult in crossing roads, the distance to be travelled and speeding traffic (Living Streets, 2001).

Visually impaired people are most likely to say they were dissatisfied with roads and pavements, 73% in England and Wales did so, compared with 67% of wheelchair users, 63% of those with an 'ambulant disability', 48% with a learning disability and 47% with a hearing impairment (DPTAC, 2002a). Street furniture, uneven and cracked surfaces, lack of tactile surfaces, road crossings, overhanging vegetation and litter have been found to cause particular problems for visually impaired people (RNIB, 1999). Future developments in information technology could provide assistance with wayfinding and warnings of hazards for visually impaired people through handheld location and guidance equipment, and talking signposts and information displays (Ling Suen and Mitchell, 1998b).

Many disabled car drivers experience problems with the pedestrianisation of towns, particularly the perceived increasing distance of parking from amenities, the lack of

provision of parking spaces for disabled vehicles, inconveniently located parking spaces, illegitimate use of disabled parking spaces and a lack of wheelchair ramps (DPTAC, 2002a; Mori, 2000). Market research for an electronic vehicle detector found that 31% of disabled parking bays in supermarkets were misused by non-disabled people, and that this increased to as much as 62% at weekends and in bad weather (Withers and Hampton, 2003).

The design of accessible pedestrian environment needs to include professional access audits of footways, pathways and pedestrian areas, tactile paving surfaces, car parking, bus stops, taxi ranks, access to and within transport-related buildings, facilities within transport buildings, lighting, signage and information as well as consideration of access needs outside urban areas and consultation and training (Oxley, 2002). "We need to understand a lot more about the ways in which people move around and interact with the pedestrian infrastructure. This requires comprehensive and rigorous study of the effects of different characteristics (eg gradients, crossfalls, surface conditions, including weather conditions) on the ease with which people move around (Tyler, 2002).

6.2 Transport interchanges

Much of the research on transport and disabled people has focused on the accessibility of modes and access to/from home. Despite the complexity of facilities and features located at public transport terminals and interchanges, little attempt has been made to quantify accessibility for disabled people (Lavery and Knox, 1998). Transport interchanges in Scotland were found to have a considerable number of inaccessible public toilets and ticket counters, and induction loops were relatively rare (Henderson, 1999).

31% of disabled people in England and Wales think that considerations made for them in the design of bus stations are poor, and only 25% rate them as good. The accessibility of the pedestrian environment, and particularly bus stops, is essential to ensure accessibility of bus services (Gallon, 2000; Tyler, 2002).

29% of disabled people in England and Wales think that considerations made for them in the design of train stations is poor, and 18% rate them as good (DPTAC, 2002a). The Strategic Rail Authority Code of Practice (SRA, 2002) sets standards for station services for disabled rail passengers. But a Social Exclusion Unit report published in February 2003 found that no rail stations currently meet the SRA design standards (SEU, 2003). In 1999 only 51 of over 300 train stations in Scotland were accessible in all areas for wheelchair users (Henderson, 1999). Research with holders of Disabled Persons Railcards (LTUC, 2002) found that platform announcements were felt to be helpful, but if these were made remotely they could be drowned by the noise of passing trains without the announcer being aware. Interactive electronic information points were useful for some participants, but railcard holders complained that there is no single information point to find out about accessibility of stations and trains, that there were delays in the process of obtaining advice and information and that information they gave about their needs was not passed on. With regard to stations it was felt that there is a lack of consistency in terms accessibility, information and assistance available, poor waiting conditions, a shortage of or vandalised seating on platforms and excessive gaps between platforms and trains.

5% of disabled people in England and Wales think that considerations made for disabled people in the design of airports is poor, and 31% rate them as good (DPTAC, 2002a). The same survey found that two thirds of disabled people do not fly, which correlates with the 64% of people who rated airports as neither 'poor' nor 'good'.
DPTAC research in England and Wales found that:
"the design of airports tends to be viewed most favourably by wheelchair users, 51% rate them as good…this may be as in this type of environment designers and operators expect people to be travelling with heavy luggage or using luggage trolleys and accommodate their needs".
This reinforces the idea that accessible environments benefit many others as well as disabled people.

7. Recommendations

- Those involved in developing policy and research on transport disability need to place transport in the bigger picture of disabled people's participation in society.

- The transport needs and particular barriers faced by different impairment groups, disabled people of different ages, in urban and rural areas, and in England, Scotland and Wales need to be taken into account.

- The 'transport' chain is a key issue, and transport needs to be considered as an interlinked system, each element of which - including information, the pedestrian environment and transport interchanges - needs to be user-friendly and accessible.

- Disabled people need to be consulted in the design, delivery and implementation of accessible transport systems, as well as development of policy, research and legislation.

- The cost of providing a fully accessible transport system must be weighed up against the cost of excluding disabled people.

- Improving disability awareness and attitudes amongst transport providers is essential to ensuring accessible transport.

- The case should be made to transport providers and the general public that better mobility, through accessible transport systems, has tangible benefits at the general as well as individual level.

- Disability organisations need to work closely with industry in order to develop consistent strategies which support good practice.

- The implementation of taxi regulations needs to be carefully monitored to ensure that disabled people get a consistent level of service, and that drivers are trained in disability awareness.

- Clear, reliable and long-term public funding of non-commercial and specialist services is needed to develop flexible services that meet the needs of current and potential disabled users, and

provide a link to mainstream public transport services. Models of other flexible services need to be explored further.

- Recommendations for further research:

    - The barriers to disabled people's confidence in public transport, and ways to overcome these;
    - The transport use and needs of different impairment groups, disabled women and disabled people of different ages, particularly for mental health service users or survivors and people with learning difficulties;
    - The transport use and needs of disabled people in England, Scotland and Wales, and in rural and urban areas;
    - The implementation and impact of disability awareness training at all levels in transport organisations;
    - The involvement of disabled people in transport accidents, as passengers and pedestrians;
    - Variations in concessionary fare schemes for disabled people across and within countries and modes of transport;
    - The implementation and evaluation of accessible travel information systems;
    - The use, and potential use, of information and communication technologies as a means of providing disabled people with travel information;
    - Barriers in the pedestrian environment and at transport interchanges and their impact on disabled people;
    - Variations in the service offered to disabled people by taxis and minicabs and the potential use of taxis to supplement other public transport;
    - Identification of gaps in the development of integrated accessible transport networks in Great Britain;
    - Future trends in car ownership and driving for disabled people;
    - The barriers faced by disabled drivers and ways of overcoming these.

Appendix: Sources of Information

Organisations

www.access-association.org.uk The Access Association's aim is to improve access and facilities for disabled people and consequently for all people whom would benefit from an accessible environment.

www.communitytransport.com Community Transport Association, a UK-wide member organisation that promotes excellence in community transport.

www.dda.org.uk The Disabled Drivers Association provides help and advice to disabled drivers and passengers.

www.ddmc.org.uk The Disabled Drivers Motor Club is run by disabled people provide help and advice on mobility.

www.jmuaccess.org.uk A not-for-profit pan disability access consultancy supported by the Royal National Institute for the Blind. Services include access audits for existing schemes, design appraisals for new projects, and training for construction professionals, designers and facilities owners, managers and operators.

www.ltuc.org.uk London Transport Users Committee, the official watchdog for transport users in and around London. Reports on needs disabled rail users, dial-a-ride and taxicard schemes and others.

www.mis.org.uk/ Mobility Information Service, a resource for physically disabled people who drive or want to drive.

www.motability.co.uk Motability is a national UK charity, set up in 1977 to provide cars and powered wheelchairs to disabled people. The Motability Scheme now has almost 400,000 customers, making it the leading car scheme for disabled people.

www.radar.org.uk/RANE/Templates/Article1.asp?lHeaderID=125 Transport pages of RADAR, UK campaigning and advisory disability body.

Disability and Transport Literature Review

www.transport2000.org.uk National environmental transport body. Campaigns on transport and social exclusion, pedestrian environment etc, and has general statistics on transport and travel.

www.tripscope.org.uk/ Tripscope provide information and advice about travelling with a disability by public or private transport.

www.uitp.com UITP is the world-wide association of urban and regional passenger transport operators, their authorities and suppliers. It provides information, research and analysis on all aspects of Public Transport including infrastructure, rolling stock, organisation and management.

Government and related

www.cfit.gov.uk The Commission for Integrated Transport (CfIT) provides independent advice to Government on the implementation of integrated transport policy, monitors developments across transport, environment, health and other sectors and reviews progress towards meeting objectives

www.dft.gov.uk/stellent/groups/dft_mobility/documents/sectionhomepage/dft_access_page.hcsp. Mobility and Inclusion Unit, Department for Transport.

www.dptac.gov.uk The Disabled Persons Transport Advisory Committee advise the Government on access for disabled people to transport and the built environment.

www1.oecd.org/cem/index.htm European Conference of Ministers of Transport. The European Conference of Ministers of Transport (ECMT) is an intergovernmental forum in which Ministers responsible for transport can co-operate on policy.

www.macs-mobility.org/ Mobility and Access Committee for Scotland (MACS) is a committee set up to advise Scottish Ministers how best they should take account of the interests of disabled people in the formulation of transport policies.

www.scotland.gov.uk/cru/resfind.aspx?series=9 Scottish Executive research on transport.

Statistics

www.statistics.gov.uk/CCI/nscl.asp?ID=7965 National statistics publications related to disability and transport

www.transtat.dft.gov.uk/personal. Department for Transport statistics searchable by 'disability'. Includes data from Transport Trends on car access and use of transport modes by disabled people.

Research

www.ucl.ac.uk/~ucet48b/ Accessibility Research Group based in the Centre for Transport Studies at University College London.

www.cilt.dial.pipex.com/ Centre for Independent Transport Research in London. A research, consultancy and resource unit dedicated to investigating ways of improving urban transport in environmentally and socially sustainable ways.

www.mit.wlv.ac.uk Develops devices and frameworks for Intelligent Transport Systems (ITS). Seminar on mobility and accessibility for elderly and disabled people in December 2003.

http://transed2001.idn.org.pl/ Transed 2001, 9th International Conference on Mobility and Transport for Elderly and Disabled People.

www.transport.uwe.ac.uk Unit for Transport & Society at the University of the West of England, Bristol.

www.tri.napier.ac.uk The Transport Research Institute (TRi) is based at Napier University, Edinburgh and promotes cross-disciplinarily research in transport.

www.trl.co.uk Transport Research Laboratory (TRL) works with governments, aid agencies and private companies both in the UK and internationally to find sustainable solutions for transport.

Disability and Transport Literature Review

Journals and magazines

www.accessjournal.org.uk Environmental access and inclusive design, the Journal of The Access Association and JMU Access Partnership. Published quarterly.

www.transportforall.com Online version of magazine for disabled travellers in London

www.eco-logica.co.uk/WTPPhome.html World Transport Policy and Practice journal.

Other information sources

www.leeds.ac.uk/disability-studies/archiveuk/index.html Provides access to the writings of disability activists and writers whose work may no longer be easily accessible in the public domain.

www.disabledpersons-railcard.co.uk Information about the Disabled Persons Railcard and the discounts that it provides for the holder when travelling by train in Britain.

http://dptac.bgsportal.com/search_e.asp . DPTAC Access Directory - a tool to search a database of references of accessibility guidance for the built environment.

www.findtransport.net/Research Transport information resource.

www.nottingham.ac.uk/sbe/planbiblios/bibs/sustrav/refs/ST10.html List of websites and information sources related to disability and transport.

www.ricability.org.uk/reports/report-mobility.htm Reports on using a wheelchair on public transport and buying and adapting cars

Bibliography

Alsnih R and Hensher D A (2003). The mobility and accessibility of seniors in an ageing population. Transportation Research Part A. **37**, 903-916.

Armitage D (1997). 'Does Dial-a-Ride Have a Future?'. Global Transport, **11**, pp30-35.

Audit Commission (2003). Services for Disabled Children: a review of services for disabled children and their families. Public Sector National Report. London: Audit Commission.

Barnes C and Mercer G (2003). Disability. Cambridge: Polity Press.

Bellerby, F. (2000) 'Public transport and the Disability Discrimination Act 1995'. Contemporary Ergonomics. 218-222.

Beuret K (1995) 'Call a cab - chance would be a fine thing: the importance of taxi transport for elderly and disabled people and the problems of provision'. 7th International Conference on Transport and Mobility for Elderly and Disabled People. Conference Proceedings, Vol 1 , pp317-316.

Briaux-Trouviere C (1995). 'Travelling by plane – what is the reality for disabled people?' 7th International Conference on Transport and Mobility for Elderly and Disabled People. Conference Proceedings, Vol 1, pp 105-109.

Broach S, Camgoz S, Heather C, Owen G, Potter D and Prior A (2003). Autism: Rights in Reality: How people with autism spectrum disorders and their families are still missing out on their rights. London: The National Autistic Society.

Campion J, Greenhalgh C and Knight J (2003). Mind the Gap: Social Exclusion Report 2003. London: Leonard Cheshire.

Carr M, Lund T, Oxley P and Alexander J (1994). Cross-Sector Benefits of Accessible Public Transport. Transport Research Laboratory Report 39: Cranfield University.

CfiT (2003). <u>10 Year Plan – second assessment report</u>. London: Commission for Integrated Transport.

Chapman J (1995). 'Reconciling the needs of urban and rural areas'. <u>7th International Conference on Transport and Mobility for Elderly and Disabled People</u>. Conference Proceedings, Vol 1, 69-74.

Consumers' Association (1990). <u>No Go? Public Transport and Disabled People</u>'. *Which?* June 1990, 347-350.

Crompton G and Jupe R (2002). 'Delivering better transport? An evaluation of the 10-year plan for the railway industry'<u>. Public Money and Management</u>. **22**, 3, 41-48. Blackwell: Oxford.

DETR (2000a). <u>Public Service Vehicles Accessibility Regulations</u>. London: Department of the Environment, Transport and the Regions.

DETR (2000b). <u>Carriage of Guide, Hearing and Other Assistance Dogs in Taxis</u>: guidance to licensing authorities in England and Wales on the duties, medical exemptions and enforcement. London: Department of the Environment, Transport and the Regions.

DETR (2000c). <u>Transport 2010</u>: the 10 Year Plan. London: Department of the Environment, Transport and the Regions.

DETR(2000d). <u>Social Exclusion and the Provision and Availability of Public Transport</u>. London: Department of the Environment, Transport and the Regions.

DETR (1999): <u>From Workhorse to Thoroughbred: A Better Role for Bus Travel</u>. London: Department of the Environment, Transport and the Regions.

DETR (1998a). <u>The Rail Vehicle Accessibility Regulations</u>. HMSO. London: Department of the Environment, Transport and the Regions.

DETR (1998b): <u>A New Deal for Transport: Better for Everyone</u> - The Government's White Paper on the Future of Transport. London: Department of the Environment, Transport and the Regions.

DfT (2003a). <u>Consultation on Transport Aspects of the Disability Discrimination Act.</u> London: Department for Transport.

DfT (2003b). <u>Access to Air Travel for Disabled People</u> – code of practice. London: Department for Transport.

DfT(2002a). <u>Transport Trends 2002.</u> London: Department for Transport.

DfT (2002b). <u>Delivery Better Transport: progress report</u>. London: Department for Transport.

Docherty I (2001). 'Interrogating the ten-year transport plan'. <u>Area</u>. **33**, 3, p321-328. Royal Geographical Society: London.

DoT (1985). <u>Transport Act</u>. London: Department of Transport.

DPTAC (2003). <u>Access to Air Travel</u>: guidance for disabled and less mobile passengers. London: DPTAC.

DPTAC (2002a). <u>Attitudes of Disabled People to Public Transport</u>: research study conducted for Disabled Persons Transport Advisory Committee. London: DPTAC.

DPTAC (2002b). <u>Attitudes of Disabled People to Community Transport</u>: research study conducted for Disabled Persons Transport Advisory Committee. London: DPTAC.

DPTAC (2000). <u>The Design of Large Passenger Ships and Passenger Infrastructure</u>: guidance on meeting the needs of disabled people. London: DPTAC.

DTLR (2001a). <u>Older People: Their Transport Needs and Requirements</u>. London: Department for Transport, Local Government and the Regions.

DTLR (2001b). <u>Transport Statistics Bulletin</u>: Concessionary Bus Fare Schemes England: 2001. London: National Statistics. London: Department for Transport, Local Government and the Regions.

DTLR (2001c). <u>Focus on Personal Travel</u>. 2001 edition. Including the report in the national travel survey 1998/2000.

DRTF (1999). <u>From Exclusion to Inclusion</u>: a report of the Disability Rights Task Force on civil rights for disabled people. London: DFEE.

DRC (2003a). <u>Young Disabled People</u>: A survey of the views and experiences of young disabled people in Great Britain, conducted by NOP on behalf of the Disability Rights Commission.

DRC (2003b). <u>The DRC 2003 Attitudes and Awareness Survey.</u>

DRC (2003c). <u>Response to the Department for Transport consultation on the Government's proposals to lift the exemption for transport services from some of the civil rights duties in Part III of the DDA.</u> London: Disability Rights Commission.

ECMT (1999). <u>Improving Transport for People with Mobility Handicaps</u>. Paris: European Conference of Ministers of Transport.

Eltridge-Smith T (1998). 'Fully accessible transport: the importance of appropriate attitudes, values and behaviours within transport service providers'. <u>8th International Conference on Transport and Mobility for Elderly and Disabled People</u>. Conference Proceedings, Vol 1, 399-406.

Falkmer T, Fullard J and Gregesen N P (2001). 'A literature review of road vehicle transportation of children with disabilities'. <u>Journal of Traffic Medicine</u>, **29**, 3, 54-62.

Forster F (2003). 'Ahead of the game'. <u>Coach and Bus Weekly</u>, **589**, 34-35.

Gallon C A (2000): <u>Disabled People and their Use of Transport:</u> The relative importance of different factors and their implications for policy. PhD Thesis. London: Cranfield University.

Gant R (2002). 'Enabling transport for mobility-impaired people: the role of *Shopmobility*' World Transport Policy and Practice, **8**, 2, 27-35.

Grewal I, Joy S, Lewis J, Swales K and Woodfield K (2002). 'Disabled for Life: attitudes towards and experiences of, disability in Great Britain'. Research Report 173. London: Department for Work and Pensions.

Grundy E, Ahlburg D, Ali M, Breeze E and Sloggett A (1999). Disability in Great Britain. DSS Research Report no.94. HMSO.

Heiser B (1995): 'The Nature and Causes of Transport Disability in Britain and How to Overcome It' in G.Zarb, (ed.) Removing Disabling Barriers. London: Policy Studies Institute.

Henderson S and Henderson B (1999). Transport Provision for Disabled People in Scotland. Development Department Research Programme Research Findings No.76. Edinburgh: Scottish Executive.

Henrikksson P (2001). Drivers with disabilities – a survey of adapted cars, driving habits and safety. VTI Report 466. Swedish National Road and Transport Research Institute.

House of Commons (2003). Taxi Acccessibility Regulations-policy proposals: Written statement made in the House of Commons on 28 October 2003 by Tony McNulty, Parlimentary Under-Secretary of State for Transport.

Hunter D (1998). 'The case for user-side subsidies – a critique of service led transport planning'. 8th International Conference on Transport and Mobility for Elderly and Disabled People. Conference Proceedings, Vol 1, 355-359.

Jensen G, Iawarssin S and Stahl A (2002). 'Theoretical understanding and methodological challenges in accessibility assessments. Focusing the environmental component: an example from travel chains in urban public bus transport'. Disability and Rehabilitation, **24**, 5, 231-242.

JRF (1995). The experiences of disabled women. Social Policy Research, Findings 81. York: The Joseph Rowntree Foundation.

Kenyon S, Rafferty J and Lyons G (2003). 'Social exclusion and transport in the UK: a role for virtual accessibility in the alleviation of mobility-related social exclusion?'. <u>Journal of Social Policy</u>, **32**, 3, 317-388.

Kirk A, Grant R and Bird R (2002). <u>Passenger casualties in non-collision accidents on buses and coaches in Great Britain</u>. Vehicle Safety Research Centre, Paper no.296. 20/10/2003. <u>www.lboro.ac.uk/research/esri/usrc/publications/Abstracts%202000 0+.htm</u>.

Langley A and White G (1998). 'Changing a culture: integrated government funding – a beginning'. <u>8th International Conference on Transport and Mobility for Elderly and Disabled People</u>. Conference Proceedings, Vol 1, 319-328.

Lavery I and Knox J (1998). 'Evaluating the accessibility of transport terminals from the perspective of disabled people'. <u>8th International Conference on Transport and Mobility for Elderly and Disabled People</u>. Conference Proceedings, Vol 2, 723-731.

Lavery I, Knox J and Slevin E. (1998). 'Identifying and evaluating the barriers to independent travel for severe learning disabled people'. <u>8th International Conference on Transport and Mobility for Elderly and Disabled People</u>. Conference Proceedings, Vol 1, 217-225.

Lavery I, Knox J and Slevin E. (1997). 'Learning disabled people - the forgotten passengers?'<u>. Public Transport Planning and Operations</u>, **416** ,141-152.

Ling D J and Mannion R (1995). 'Improving older people's mobility and quality of life: an assessment of the economic and social benefits of dial-a-ride'<u>. 7th International Conference on Transport and Mobility for Elderly and Disabled People</u>. Conference Proceedings, Vol 2, 331-339.

Ling Suen S and Mitchell C G B (1998a). <u>Accessible Transportation and Mobility</u>. Paper A1E09: Committee on Accessible Transportation and Mobility. Transportation Development Centre: Transport Canada. 25/09/2003 <u>http://gulliver.trb.org/publications/millennium/00001.pdf</u>

Disability and Transport Literature Review

Ling Suen S and Mitchell C G B (1998b). 'The value of intelligent transport systems for elderly and disabled people. 8th International Conference on Transport and Mobility for Elderly and Disabled People. Conference Proceedings, Vol 1, 1-8.

Living Streets (2001). Liveable London: the need for a walkable neighbourhood- older and disabled people have their say.

LTUC (2003). Transport for all? Dial-a-ride and taxicard users speaking. London Transport Users Committee. http://www.ltuc.org.uk/view_document.php?id=837 20/10/2003.

LTUC (2002). Easing the trip: Meeting the needs of disabled rail users. London Transport Users Committee. http://www.ltuc.org.uk 20/10/2003.

Matthews B (2002). 'The Disability Discrimination Act and developments in accessible public transport in the UK'. World Transport Policy and Practice, **8**, 2, 42-49.

McKee C (1998). 'Making rail travel accessible to disabled people'. 8th International Conference on Transport and Mobility for Elderly and Disabled People. Conference Proceedings, Vol 2, 751-757.

McKee C (1995). 'But where's the market? A suppliers viewpoint'. 7th International Conference on Transport and Mobility for Elderly and Disabled People. Conference Proceedings, Vol 2, 149-155.

McLary J J (1995). 'The role of taxis in accessible transport'. 7th International Conference on Transport and Mobility for Elderly and Disabled People. Conference Proceedings, Vol 1 , 307-316.

Mitchell C G B and Smith T (1998). 'Access to transportation systems and the trend to universal design'. 8th International Conference on Transport and Mobility for Elderly and Disabled People. Conference Proceedings, Vol 1, 283-290.

Mitchell C G B (1997). Access to Transport Systems and Services: an international review. Transportation Development Centre, Transport Canada.

Mitchell C G B (1995). 'Definitions of accessibility'. 7th International Conference on Transport and Mobility for Elderly and Disabled People. Conference Proceedings, Vol 1, 17-20.

Mellor C (2002). 'Concessionary fares policy: political gimmick or tackling social need?'. Local Transport Today, **348**, pp10-11.

Mori (2000). Disabled motorists penalised by British transport system. Survey of Disabled Drivers Association members for Privilege Insurance. www.mori.com/polls/2000/privilege.shtml 23/10/2003.

Morris J (2002). 'That Kind of Life?': Social exclusion and young disabled people with high levels of support needs. London: Scope.

Murray, P. (2002). Disabled teenagers' experiences of access to inclusive leisure. **Findings** (ref: 712). York: Joseph Rowntree Foundation.

Oxley, P R (2002). Inclusive Mobility: a guide to best practice on access to pedestrian and transport infrastructure. London: Department for Transport.

Oxley P R and Gallon C (1995). 'Travel by people of reduced mobility'. 7th International Conference on Transport and Mobility for Elderly and Disabled People. Conference Proceedings, Vol 1, 61-68.

Oxley P R and Richards, M. J (1995). 'Disability and Transport: A Review of the Personal Costs of Disability in Relation to Transport', Transport Policy**, 2**,1, 57-65.

Oxley P R and Short J. (1995). 'Rights, equity and practicality'. . 7th International Conference on Transport and Mobility for Elderly and Disabled People. Conference Proceedings, Vol 1, 86-92.

Perry C (1995). 'Establishing an accessible transport network in South-West Birmingham'. 7th International Conference on Transport and Mobility for Elderly and Disabled People. Conference Proceedings, Vol 2, 43-50.

Porter A (2002). 'Compromise and constraint: examining the nature of transport disability in the context of local travel'. <u>World Transport Policy and Practice</u>, **8**, 2, 9-16.

RNIB (2002). <u>Travellers' Tales</u>: making journeys safer for blind and partially sighted people. London: Royal National Institute for the Blind.

RNIB (1999). <u>Rights of Way</u>: Transport and Mobility for Visually Impaired People in the UK. London: Royal National Institute for the Blind.

Rutenberg U and Ling Suen S (1998). 'Wayfinding technologies in air terminals for travellers with sensory impairment'. <u>8th International Conference on Transport and Mobility for Elderly and Disabled People</u>. Conference Proceedings, Vol 1, 9-15.

Rye T, Seaman D, McGuigan D and Siddle D (2002). 'Concessionary Fares in Britain: what we need to know'. <u>World Transport Policy and Practice</u>, **8**, 2, 36-41.

Scottish Executive (2001a). <u>Transport (Scotland) Act 2001</u>. HMSO.

Scottish Executive (2001b). <u>Integrating Disability into Transport Policy and Establishment of a Mobility and Access Committee for Scotland, Scottish Statutory Instrument 2001</u>. http://www.scotland.gov.uk/consultations/transport/MACS/idit-01.asp (20/10/2003).

Scottish Executive (1998). <u>Travel Choices for Scotland</u>: Scottish Transport White Paper. [Now out of date – http://www.scotland.gov.uk/deleted//library/documents-w6/lts-06.htm 25/10/2003].

SEU (2003). <u>Making the Connections</u>: Final report on transport and social exclusion. Report by the Social Exclusion Unit. London: ODPM.

Sharma N (2002). <u>Still Missing Out?</u> Ending poverty and social exclusion: messages to government from families with disabled children. Ilford: Barnardo's.

Short J (2002). 'Mobility of older and disabled people'. <u>Conference on improving and implementing accessibility for people with reduced mobility</u>. Paris: European Conference of Ministers of Transport.

Simon R M and McCloskey M (1998). 'Putting customers first: Amtrak/PVA ADA training program for railroad personnel'. <u>8th International Conference on Transport and Mobility for Elderly and Disabled People</u>. Conference Proceedings, Vol 1, 381-387.

SRA (2002). <u>Train and Station Services for Disabled People</u>: a code of practice. London: Strategic Rail Authority.

Taylor J and Lavery I (1998). 'Evaluating community transport in an urban area – theory and practice'. <u>8th International Conference on Transport and Mobility for Elderly and Disabled People</u>. Conference Proceedings, Vol 1, 61-70.

Tisato P. (1997). 'Travel Affordability for People with Disabilities' <u>Urban Policy and Research</u>, **15**; 3,175-188.

Toffin Y (1998). 'Giving a new impetus to access to air transport for people with disabilities in Europe'. <u>8th International Conference on Transport and Mobility for Elderly and Disabled People</u>. Conference Proceedings, Vol 1, 153-159.

Tyler, N (ed). (2002). <u>Accessibility and the bus system: from concepts to practice</u>. London: Thomas Telford Publishing.

Tyson, W J (1995). 'Cost effective approaches to improving mobility in urban areas'. <u>7th International Conference on Transport and Mobility for Elderly and Disabled People</u>. Conference Proceedings, Vol 1,193-201.

Williams K, Savill T and Wheeler A (2002). <u>Review of the road safety of disabled children and adults</u>. Report TRL559. London: Department for Transport.

Williams P J G (2003). 'Consultation on transport aspects of the Disability Discrimination Act'. <u>Access by Design</u>, **94**, pp6-9.

Withers N and Hampton M (2003). <u>Research Analysis on Disabled Vehicular Access</u>: the abuse of disabled parking bays in retail car parks. 23/10/2003. www.spacehog.org.uk/University%20Analysis%20Supermarkets.pdf.