Roads for All

The Trunk Road Network

Disability Equality Scheme

and

Action Plan

Appendices

Transport Scotland
Glasgow
4 December 2006

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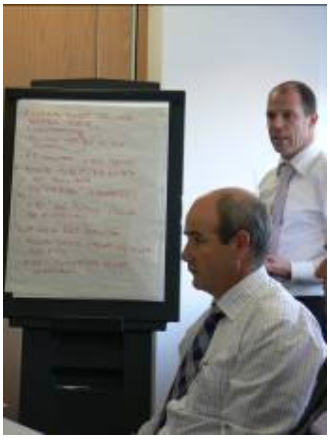
Introduction

These appendices are in support of the Transport Scotland Trunk Road network Disability Equality Scheme and Action Plan.



Appendix 1 Involvement strategy

The objectives of the involvement strategy were:

- To identify issues that disabled car drivers, car passengers, bus passengers and non motorised road users experience when using Trunk Roads in Scotland

- To identify specific examples of issues, barriers and hazards that disabled people face

- To identify possible solutions and recommendations to address the issues

Involvement methodology

The initial involvement was carried out between September and December 2006.

The involvement comprised open meetings, focus discussion groups, and drop-in discussion sessions.

The information gathering and involvement phases have been completed and ongoing feedback will continue throughout the life of the Disability Equality Scheme.

Information gathering

- Data research
- Telephone consultations with organisations

Involvement

- Working group workshops and review groups
- Discussions with stakeholder groups, organisations, Access Panels and individuals
- Focus/review group discussions
- Review and discuss specific problems
- ‘Planning for Real’ to identify solutions & measures to implement
- One week travel experience diary with disposable camera

Ongoing feedback

Feedback will include regular review meetings, emails, and postal newsletters.

Who we involved

The following disability groups were involved in identifying the key issues they experience when using Trunk Roads in Scotland as car drivers, car or bus passengers and non-motorised road users.

Aberdeenshire North Access Panel
Angus Access Panel
Angus Disabled Ramblers
Banff Disability Network
Caithness Access Panel
Capability Scotland focus groups
Central Aberdeenshire Access Panel
Dundee Access Panel
Dumfries and Galloway Access panel
East Lothian Access Panel
East Renfrewshire Access Panel
Fife Access Panel
Glasgow Access Panel
Inverness Access Committee
Lochaber Access Panel
Nairn Access Panel
Orkney Islands Disability Forum
Renfrewshire Access Panel
Ross and Cromarty Access Panel
Roxburgh Access Panel
Shetland Island Access Panel
Skye and Lochalsh Access Panel
South Ayrshire Access Panel
Sutherland Access Panel
Tweeddale Access Panel
Uist Access Panel

The following stakeholder groups and organisations were involved in identifying the key issues which disabled people experience when using Trunk Roads in Scotland as car drivers, car or bus passengers and non-motorised road users.

Association of Chief Police Officers

Capability Scotland

City Link buses

Confederation of Passenger Transport

Describe online

Disability Action Scotland

Dumfries and Galloway Constabulary

Glasgow Centre for Independent Living

Glasgow Shopmobility

GO Glasgow

Inclusion Scotland

Inverclyde Disability Council Ltd

Journeyplan

Living Streets Scotland

Mobility Access Committee for Scotland

People Friendly Design

Real Inclusion Ltd

RNIB Scotland

Scottish Accessible Transport Alliance

Scottish Disability Equality Forum

Appendix 2 Involvement findings

As a result of the involvement, the following anecdotal comments and statements were made by disabled people. Whilst these comments are clear and respected, some have not yet been verified by audit. Where this is the case, the perceptions alone are understood to provide a barrier.

Car drivers and car passengers

Condition of roads

- Roads are believed to be poorly maintained
- Road humps are very uncomfortable for some disabled drivers and passengers
- Road humps are perceived to be different in different areas and it was thought that speed cushions would be a better solution and these would also allow emergency vehicles and buses good access
- Twists and turns in roads are very uncomfortable for some disabled drivers and passengers
- Most pedestrian crossings were believed to lack anti skid surfacing on the approach. The lack of anti skid surfacing was perceived to reduce the feeling of safety when using such crossings

Hard shoulders

- Hard shoulders are too narrow for wheelchair users to be able to get out of the car safely

Emergency telephones

- Most emergency telephones are inaccessible
- Some emergency telephones are behind a barrier
- Most emergency telephones are too high to reach
- Lack of a hard standing, dropped kerb and lighting
- Lack of clear understandable information, large print information, text phone facilities and inductive coupler to assist hearing aid users
- The distance between emergency telephones is unknown
- There are no instructions when a telephone is broken

Bridge Toll Booths

- Most disabled drivers cannot easily reach the ticket machine or booth
- Most ticket kiosks do not have induction loops or amplification systems
- Most ticket machines have text which is too small to read, clear enough information is unclear, and there is a lack of good colour contrast to highlight important features

Road signs

- Road signs do not have emergency or breakdown contact telephone numbers
- Road signs do not have a reference number, making it difficult to describe your location in an emergency situation
- Overgrown trees can cover road signs
- Some road signs are in inappropriate places, such as too close to junctions for adapt-a-cars which are slower to manoeuvre
- Brown tourist signs do not advertise if accessible toilets are available
- Some signs have poor colour contrast

Lay-bys and roadside rest areas

The lack of the following features were identified

- Accessible parking spaces lack the necessary space to safely get out of the car
- Safe walking footpaths and safe places to stand
- A barrier or grass verge between the lay-by and traffic
- Accessible toilets, seats and level areas for wheelchair users
- Dropped kerbs, hard standings and firm smooth surfaces

In addition

- More ‘French’ style rest areas are required

Petrol stations

- Most petrol stations do not have a service call facility and most petrol stations do not offer staff assistance to assist drivers
- Most petrol stations do not have accessible toilets and the pay points and counters are too high to reach for wheelchair users and people of short stature
- Many petrol stations do not have induction loops

Service stations

- Most service stations do not have accessible parking spaces
- Most accessible parking spaces are too small for wheelchairs to manoeuvre and some spaces block the dropped kerb
- Most service stations do not have accessible toilets and often there is no emergency cord within the facility
- Most service stations do not have accessible toilets which unlock with a RADAR key or PAMIS facilities (facilities for changing incontinent adults)
- Most service station do not have designated pedestrian footpaths, safe crossing places or dropped kerbs
- Most service stations do not have any information on the facilities available to disabled people such as accessible toilets and so some bus drivers just say ‘Here for 20 minutes’ and don’t provide facilities information
- Most service stations advertise facilities incorrectly. For example, accessible toilet were used as a store rooms, and do not have any signs in Braille

- Restaurants do not have menus in large print, audio or Braille
- Restaurants do not have enough space for wheelchairs to manoeuvre between tables. The seating is often fixed and most restaurants do not allow advance bookings, for example to reserve a table with additional space for wheelchair users
- Service stations often have poor lighting and poor colour contrast
- Most service stations do not have accessible automatic door opening buttons and induction loop systems and it is perceived that staff do not have disability awareness training
- Service stations can be in pairs on opposite sides of the Trunk Road. Service station link footbridges are often inaccessible with a lack of lighting and security. Sometimes only one station is open at night and because operators do not advertise which side is open, access can be difficult

On street car parking

- Lack of accessible on street parking spaces
- Most accessible parking spaces are too small for wheelchairs to manoeuvre and are often misused
- Need larger parking spaces for long vehicles for 4WD vehicles as overhanging tow bars are a hazard. Longer vehicles obstruct dropped kerbs, junctions and visibility for all other road users
- Traffic Regulation Order parking signs have text which is too small to read and the signs are too high to read

Car parks

- Lack of accessible parking spaces
- Most accessible parking spaces are too small for wheelchair users to manoeuvre and most accessible parking spaces block the dropped kerb
- Most accessible parking spaces do not have hatched areas at both sides or at the front and rear, and do not have a dropped kerb nearby
- Most accessible parking spaces have small signs and so spaces are misused
- The signs for most accessible parking spaces are fixed to a wall, rather than on a sign pole and can be easily obscured

Information and advice

- Lack of accessible information
- Lack of information about mobile phone black spots, locations of accessible toilets, locations of road works and traffic delays
- Drivers are told to get out of the car in an emergency, but it is unsafe for wheelchair users on hard shoulders
- There is little or no ‘whole’ journey information or journey planner available
- Most information is too small to read and has inadequate contrast with its background
- Most information is not available in Braille or in audio format
- The ‘Traffic Scotland’ website is not user friendly

Integration with other transport

- Lack of signs to provide information on facilities at ferry terminals, bus stations etc

Miscellaneous

- A lack of information results in many disabled people not being confident enough to travel
- Different issues in different areas and a lack of consistency
- Travel between home, roads, ferries, airports, bus and rail should all be seamless
- A perception that engineers, architects and designers don't have accessibility training
- A perception that breakdown and emergency services personnel have not had disability awareness training
- A perception that professionals do not understand the frustrations that disabled people face when travelling, do not consult or involve disabled people in schemes and developments and do not use local knowledge and local expertise

'There are only two emergency telephones between Aberdeen and Peterhead. We do not know where the mobile telephone black spots are. We don't know what we would do in an emergency'

Disabled car drivers, Aberdeen

'There aren't any accessible toilets between Perth and Inverness so it is impossible to travel' *Disabled car driver, Perth*

The disabled people involved suggested a number of recommendations which included the following.

- Providing advice for disabled drivers on what to do in an emergency situation
- Disabled drivers could be provided with a ‘distress’ or ‘help’ sign and GPS equipment as part of the Motability lease agreement
- Road signs should have a reference number so people can tell emergency services the last sign that they passed e.g. 7km from Aberdeen
- Service stations should provide a description of the facilities and information available for ‘meet and greet’ assistance staff
- Travel information should be reviewed by SAIFE Scottish Accessible Information Forum
- Brown tourist sites should advertise if they have accessible toilets and other useful facilities
- Designated accessible parking spaces should be provided in lay-bys and rest areas
- Maps of accessible toilets and emergency telephones could be made available

Bus passengers

Location of bus stops

- Many bus stops are on grass verges and are inaccessible for wheelchair users
- Many bus stops do not have any hard standing
- Often traffic is too fast to be able to cross the road to get to the bus stop
- There is a lack of safe crossing places to reach bus stops
- Often the visibility is very poor so its not safe to cross the road to the bus stop
- Often bus stops are located in awkward places
- Often rural bus stops are inaccessible for most disabled people
- It is very difficult for most visually impaired people to find flag pole bus stops

Bus stop facilities

- Many bus stops in pairs on opposite sides of the road do not have a raised kerb or raised kerbs on both sides of the road
- Many bus stops do not have a bus shelter and do not have seats
- Perch rails are too high to use
- Perch rails are not appropriate seating for some people
- Many bus stops do not have internal lighting or street lights
- Many bus stops do not have timetables or travel information

- Many bus stop flag poles are too high to see or read
- Bus stops do not have timetable and travel information in audio, large print or Braille
- Bus stops do not have information on the nearest accessible toilet, Police station or shop
- Many bus shelter entrances are too narrow for wheelchair users

Hazards and obstructions at bus stops

- Litter bins are often in the middle of the shelter causing an obstruction
- Often the flag pole is in the middle of the raised kerb obstructing entry to the shelter or bus
- Often the flag pole prevents the bus pulling in close enough to use the raised kerb
- Parked cars obstructing bus stops

Bus travel information

- Many bus numbers and destinations are difficult to read
- Timetables do not state which buses are accessible buses
- Some bus timetables are difficult to understand
- There is little or no audio timetable information
- Real time information is too small to read
- British Sign Language users have difficulty reading bus timetables

Onboard bus facilities

- Lack of accessible buses
- Accessible buses only have space for one wheelchair user
- Most buses have too few priority seats and priority seats are not at the front of the bus
- Lack of hand rails on buses
- No two buses have the same interior layout
- Intercity buses do not have space for wheelchair users
- Many wheelchair passengers cannot reach the ticket machine or the driver's kiosk to pay
- Hearing impaired passengers are unable to hear the driver because of the driver's safety screen
- Sometime the bus wheelchair ramp is broken or has seized up

Bus driver awareness

- Many bus drivers do not bring the bus close enough to the pavement for disabled people to easily board and alight
- Most bus drivers drive away from the bus stop before people have had time to find a seat
- Many bus drivers do not know why customers have a Thistle Card or have a free travel entitlement ticket
- Some drivers ignore passengers with white canes
- Often bus drivers ask disabled people to move to allow parents with buggies to use the priority seats
- Disabled people feel embarrassed explaining their disability

- Bus drivers do not announce bus stops
- Most people feel pressurised to stand up and go to the front of the bus before they reach their stop because the driver is in a rush
- Some disabled bus passengers feel that they are a 'burden' to the bus driver

Other issues

- There is little or no information on accessible taxis to meet buses
- There is little or no audio journey planner information
- Often bus shelters are moved without any warning
- Often bus routes are changed without consulting with customers
- Disabled people are given a free travel ticket but no additional information on using buses
- If an accessible bus breaks down the replacement bus is often not accessible

'My local bus stop was moved. The council didn't tell anyone and because I am visually impaired I couldn't see the bus stop had moved. I waited for an hour for a bus which had stopped at the new bus stop further down the road'

Bus passenger, Glasgow

'I was travelling by bus from Inverness to Glasgow. The bus terminated early and the driver told me to wait for the next bus. I had to wait for two hours for the next bus. I was too scared to leave the bus stop in case the bus arrived and left without me but also too scared to leave the bus stop because I didn't know where I was and I am visually impaired'

Bus passenger, Glasgow

'There is only one wheelchair space on the bus, so either I can go out for the day or my wife can but we can not go anywhere by bus together' *Bus passenger, Angus*

The disabled people involved suggested a number of recommendations which include.

- Yellow lines in bus stops to prevent obstructive parking

- Travel information touch screens in public places like Tourist Information Centres have

- Text telephones are needed at bus stops

- Disabled bus passengers guide

- Drop off and pick up car parking spaces near rural and trunk road bus stops

- Colour coded bus routes and buses would be easier to identify and use

Non-motorised road users

Tactile paving

- Tactile paving is often incorrect and inconsistent
- Worn out and broken tactile paving is not replaced or repaired
- Guide Dogs do not always recognise tactile paving (tactile paving is intended to provide information to people not dogs)
- Some dropped kerbs do not have tactile paving
- Brass tactile paving should not be used as metal becomes slippery when wet

Dropped kerbs

- Dropped kerbs get flooded in heavy rain and when drains get blocked
- Most dropped kerbs are not dropped flat or flush with the road
- Some dropped kerbs are too steep
- Bollards which have been put in the middle of dropped kerbs to stop cars parking on them prevent many wheelchair users from using them
- Often there is only a dropped kerb on one side of the road
- Dropped kerbs are not always easy to see for motorists who then sometimes park obstructively

Underpasses

- Underpasses are often not accessible for wheelchair users
- Underpasses do not have directional signs for each exit
- Entry and exit ramps are often too steep
- Shared space with cyclists causes difficulties
- Many people feel vulnerable using underpasses

Safe crossing places

- There are not enough safe crossing places

Pedestrian crossings

- Some crossings do not have an audible signal
- Some crossings do not have a rotating cone
- Many visually impaired people do not know how to use the rotating cone
- The green man time does not last long enough
- Zebra crossings are too dangerous for visually impaired to use
- No two crossings are the same
- Some press button control boxes are too high to reach and some are not at right angles to the pavement
- Cars jump the red light when there is a long pause between the red light and the green man
- Some crossings are not well lit and some are not very visible

Pedestrian islands in the middle of the road

- Most do not have enough space for all users
- Most islands are too small relative to traffic speeds

Pavements and footways

- Many pavements have uneven surfaces, cracked paving slabs and potholes
- Many pavements are too narrow for two wheelchair users to pass
- Pavements and footways are sometimes poorly maintained
- Overgrown trees overhang footways and leaves on pavements are very slippery
- Some shared space pavements are too frightening to use because of possible conflicts with cyclists
- Some gully gratings and manhole covers are in the middle of the pavement and present a trip hazard
- There is little or no colour contrast between the road and the footway
- Some paving materials are very slippery and do not have slip resistant surfaces
- Some pavements come to an end without any warning
- Lots of pavements slope too steeply towards the road
- Cobbles and setts are not suitable for people with mobility impairments
- Wheelchair wheels get stuck in gravel and small stones

- Some grey shiny paving stones cause reflective glare in the sun and rain
- Some pavements are too high above the road to be able to access
- The aesthetics of pavement design takes precedence over user practicalities and tapering steps and public art can be dangerous to negotiate for people with visual impairments.

Street clutter

- There are too many litter bins, sign posts, bollards and light columns
- All litter bins, benches and sign poles should be at the back of the pavement and most do not contrast adequately with their background
- Portable toilets on pavements are usually not ‘accessible toilets’
- Benches should be provided in appropriate places to create rest areas for people with mobility impairments

Obstructions and hazards

- Litter, and litter bins overflow make pavements difficult to negotiate
- Missing or damaged manhole covers present a trip hazard
- Hanging flower baskets, shop banners and flags can be a hazard
- Low level bollards on pavements are difficult to detect
- Bollards often have no colour contrast

- Bulk refuse collections result in large household objects obstructing the pavement
- Wheelie bins and bags of rubbish outside shops obstruct the pavement
- Bus shelters often make the pavement very narrow
- Some shops sign boards, pavement displays and café outdoor tables and chairs obstruct the pavement
- A parked car with the engine running is confusing for visually impaired people
- Vehicles parked on the pavement cause an obstruction

Steps and footbridges

- Steps need handrails and highlighted nosings
- Many footbridges only have steps and not ramps

Signs

- There is a lack of easy to understand directional signage
- Text is often too small to read
- Some sign colour combinations can be difficult for visually impaired people to read
- Signs do not give specific information on the route e.g. if wheelchair accessible
- Temporary road signs placed on pavements may have very sharp edges

Street Lighting

- Some streets are not well lit
- Street lights need to be at the back of the pavement to light up both the pavement and the road
- Some street light poles are in the middle of the pavement
- White street lights are better than orange street lights

Road works

- Some road works do not have enough barriers around them and do not have a suitable alternative route with dropped kerbs
- People are not told before a pavement is dug up
- A perception that road maintenance workers do not consider disabled people when they are working
- Temporary signs on the pavement often fall over as they are only held down by a sandbag
- Road works signs and barriers are not cleared away properly when work is finished
- Holes in pavement are sometimes only covered with a sheet of timber
- Some disabled people feel uncomfortable asking for assistance

Information

- Many town centres do not have a map to show the location of accessible toilets, accessible car parking spaces, safe crossing places, and the shopmobility.

- Many visually impaired people have not been told why tactile paving is used or how to use revolving cones

People do not understand the difficulties that disabled people experience

- A perception that town planners and urban designers do not consider the needs of disabled people when designing streetscapes
- A perception that planners and engineers do not use the guidance prepared by disability organisations
- A perception that road maintenance workers do not have disability awareness training
- A perception that people do not consider disabled people because there are not enough campaigns to raise awareness
- Vehicles park across drop kerb, corners and on road junctions which stops them from being used

Communication

- Most disabled people do not know to whom to report problems
- Different Councils do different things
- Councils do not consult with disabled people when planning a new scheme and need to use local knowledge to solve local problems

'The dustmen had thrown the wheelie bins back on the pavement which caused a huge obstruction. I tried to get past the wheelie bins but the pavement was too narrow for my wheelchair and the wheelie bins. I could not get past the bins and I fell out of my wheelchair into the road' *Wheelchair user, Forfar*

'Shops leave piles of cardboard and rubbish outside their shops. It makes it really difficult to be able to walk down the street without tripping over' *Visibility group, Glasgow*

'The slope to the accessible toilet is really steep. It is really difficult to be able to get my wheelchair up the slope into the toilet…. I won't complain because if I do I am sure they will close the toilets' *Wheelchair user, Edinburgh*

The disabled people involved suggested a number of recommendations which included the following.

- Tactile paving should be used consistently and to the recommended standard
- Dropped kerbs should be consistent, and built to recommended standards
- Bollards in the middle of dropped kerbs should be removed
- Double yellow lines should be provided in front of all dropped kerbs to prevent obstructive parking
- Underpasses should be made more accessible for disabled people

- Reduce conflicts between pedestrians and cyclists in underpasses
- All pedestrian crossings to have audible signals, revolving cones and green man symbols
- Ensure crossings are more visible to pedestrians and motorists
- Increase the size of pedestrian islands
- Make pedestrian islands more visible to motorists
- Pavements to be less slippery and of materials favourable to people with mobility impairments
- Pavements more practical than artistic
- Street furniture at the back of pavements
- More accessible public toilets
- Location of A boards, banners, tables and chairs enforced by Local Authorities
- Reduce parking and refuse on pavements
- Ramps installed in addition to steps
- Improve street lighting and ensure lighting covers pavements and roads
- Ensure that disabled people's needs are considered when digging up pavements
- Ensure that where the pavement is dug up appropriate barriers and safe accessible alternative routes are provided
- Improve the quality and quantity of information

- Ensure disabled people are informed how to use specialist facilities
- Disability awareness training for professionals
- Provide information on who to report problems and complaints too
- Bollards should be provided near crossing places to stop cars parking
- Double yellow lines should be provided in front of dropped kerbs
- Greater use of fluorescent paint to assist visually impaired people

Appendix 3 Audit strategy

Why the Audit was carried out

An audit of a representative sample of Trunk Roads in Scotland was carried out in September/October 2006.

The audit team members were qualified safety auditors who received training in accessibility standards prior to undertaking the audit. Training was delivered by disabled people who were suitably qualified with expertise in accessibility for disabled people.

The main objective of the sample audit was to record physical features and maintenance and operational issues which are barriers to accessibility.

An action of the Disability Equality Scheme will be to carry out an audit of the entire Trunk Road network.

The audit criteria

The accepted standards of accessibility for disabled people were drawn from a review of literature and consultation with representatives of Inclusion Scotland with whom a “trial” audit was carried out on the A82 at Dumbarton on 5 September 2006.

Key reference documents included.

- “Accessible Public Transport Infrastructure Guidelines for the Design of Interchanges, Terminals and Stops” (Published by the Department for Transport in 2001 as 'Inclusive Mobility’).

- TA91/05 – Provision for Non-Motorised Users

- HD42/05 – Non-Motorised User Audits

- Design of buildings and their approaches to meet the needs of disabled people - Code of Practice BS 8300:2001

- Environmental Audit Questionnaire, Inclusion Scotland

The guidance included in the reference documents was consolidated into a single Audit Criteria Checklist which was used in the audit to guide audit team members.

What the audit considered

The audit considered features found on or beside roads such as the following.

- Footways, footpaths, cycle paths and other surfaces used by people not driving vehicles
- Footbridges, underpasses, ramps and stairs
- Lay bys and other stopping places
- Bus stops
- Pedestrian crossing places
- Street furniture such as road signs, litter bins, bollards
- Street lighting
- Motorway hard shoulders and emergency telephones

Where the sample audit took place

It was important that the sample in the Audit was as representative as possible of all Trunk Roads in Scotland. Therefore, the Audit included all types of Trunk Roads including Motorways, Dual Carriageways, and Single Carriageways. These sample roads were located in cities, towns, villages, as well as open countryside. Trunk Roads in many parts of mainland Scotland were included in the Audit and are listed in the table below. There was also an accessibility audit carried out at one service area on the M74.

Road Type	Route	Location/Section	Length (km)
Urban			
Motorway	M8	Glasgow - Junction 8 to 12	7
Dual Carriageway	A90	Anderson Drive, Aberdeen	2
	A90	Kingsway, Dundee	2
	A8	Greenock Town Centre, East Hamilton Street to High Street	2
Single Carriageway	A7	Selkirk and Hawick Town Centres	4
	A92	Dundee, Dock Street	1
	A78	Largs Town Centre	2
		Urban Total	**20**
Rural			
Motorway	M90	Fife - Junction 3 to 8	21
Dual Carriageway	A77	Fenwick – Monkton	19
	A96	Aberdeen – Inverurie	20
	A92	Crossgates to Bankhead Interchange	24
Single Carriageway	A75	Dumfries to Castle Douglas	28
	A82	Tarbet – Tyndrum	35
	A86	Kingussie – Spean Bridge	65
	A96	Inverurie – Huntly	37
		Rural Total	**248**
		All Roads Total	**268**

What the Audit found

Main Points

On the sections audited, there was a lack of adequate access for disabled people across and along Trunk Roads.

Access provision often does not have a consistent approach and, on the whole, was not designed in accordance with good practice and often poorly implemented and maintained.

Many of the problems identified could be substantially improved through routine inspection and maintenance, for example by trimming back vegetation.

One of the most significant problems identified was the lack of safe crossing facilities on Trunk Roads.

Accessibility of public transport infrastructure, mainly in the form of bus stops, is generally inadequate.

Road Crossings

A lack of dropped kerbs was identified at many Trunk Road and side road crossings. The lack of dropped kerbs makes it difficult for many people with mobility impairments to overcome the change in level between the road and the pavement. Where dropped kerbs have been provided, few have tactile paving correctly installed.

Tactile blister paving is used to warn visually impaired people where there is a lack of a kerb height change in level between the road and the pavement. The faults observed included the use of red tactile paving at

uncontrolled crossings. Some visually impaired people depend on the correct layout and colour of tactile paving to know which type of crossing they have encountered and to orientate them to cross the road.

Incorrectly installed tactile paving

Where dropped kerbs are provided many are not flush and some have upstands more than 6mm. People who use wheelchairs and people who have difficulty walking can find such upstands difficult to negotiate.

Lack of dropped kerbs and tactile paving

Some crossings were found to have steep gradients on the approach to the dropped kerb. People who use wheelchairs can find this a problem because it can be difficult to go up or down a steep slope and there is a risk of rolling on to the road.

Steep approach to a dropped kerb

Poor drainage was observed at some crossing points. This can result in ponding. This is a hazard and a nuisance in wet and icy conditions and it also causes the build up of silt which can obscure the edge of the kerb and tactile paving slabs.

Poor drainage causing ponding at a crossing point

Controlled Crossings

All the issues raised in the previous section also apply to crossings controlled by traffic signals. At crossings activated by push buttons, many visually impaired people rely on the tactile paving layout to guide them to the control unit.

Lack of tactile paving at a controlled crossing

The audit did not find any controlled pedestrian crossings which included all the features of a “puffin” crossing. Some crossings included an audible signal to indicate to visually impaired people that traffic had been signalled to stop. However, very few installations included infra-red detectors to extend the green man time, red/green man indicators on the control unit, tactile rotating cones for deaf-blind people, or large push-buttons which can be used by people with limited manual dexterity.

Controller with red/green man symbols and tactile rotating cone but without large push-button

At some crossings, green-man times were found to be of inadequate duration to allow people with mobility impairments to cross.

Pavements and Footpaths

The audit found many examples of pavements and footpaths which present difficulties for people with impairments.

Narrow pavements mean that it can be difficult for people to pass safely or without inconvenience. This particularly affects wheelchair users and motorised scooter users and people who use guide dogs or canes to aid their mobility. Causes of narrow pavements observed in the audit included the encroachment of vegetation at both ground level and above. Overhanging vegetation and sign poles are a particular problem for visually impaired people.

Vegetation overhanging the pavement

Obstructions on the pavement can be either fixed or movable. Those obstructions observed during the audit included badly sited street furniture, sign poles, street lighting columns, shop displays and parked cars. In some cases, there are a series of obstructions located at different positions on the pavement which can combine to cause a “slalom” effect.

Parked cars obstructing the pavement

Shop display and signboards obstructing the pavement

The audit findings found that most street furniture did not contrast in colour and tone with the background. This makes it difficult for visually impaired people to detect and as a result can be a collision hazard.

Bollards lacking colour contrast and scaffolding obstructing the pavement

Uneven surfaces were found on many pavements and footpaths. These were caused by such features as tree roots, manhole covers, uneven or broken surfacing materials.

Uneven footway and bollards obstructing the pavement

Some remote footpaths, particularly those leading to footbridges over motorways, were found to be overgrown, defaced by graffiti and in a poor state of repair. These conditions make such routes unattractive. They are therefore less accessible for vulnerable people to use for personal security and safety reasons.

Overgrowing vegetation, graffiti and litter give this footpath a feeling of insecurity

Lay-bys and Roadside Facilities

Many lay-bys were found to lack a footway or pavement which means that people have no safe place to get out of their vehicle.

In most lay-bys without a separation strip, there was insufficient clearance between the car and passing traffic to open the door safely and exit the vehicle. This is a particular problem for people with mobility impairments including wheelchair users.

Narrow lay-by and lack of pavement

Some lay-bys have been created from redundant sections of road. Often these are on curves and have steep cross-falls or slopes. These can be difficult for wheelchair users transferring from their vehicle to their wheelchair.

Steep slope in lay-by

The audit found that in rural areas, it was common for footpaths to start and stop haphazardly. This was particularly evident on the edges of rural villages and at certain visitor attractions where the lack of continuity of the route would prevent many disabled people from making a full journey.

Sudden end of pavement

Some roadside facilities such as seating areas and toilets were found to be inaccessible because of kerbs, steps or discontinuous footways.

Very few accessible toilets were found on any of the routes audited. This can make longer journeys particularly uncomfortable for many disabled people and prevent journeys being undertaken.

Bus Stops

A major concern noted along several rural roads, including high-speed dual carriageways, was the lack of safe crossing points between bus stops on opposite sides of the road. In some instances, although a crossing place was indicated, it would be especially difficult for anyone with a mobility or visual impairment to cross safely thus making return journeys problematic.

Crossing between bus stops on this high-speed road is difficult

Many rural bus stops were noted to be some distance away from the footway network and housing. This remoteness makes journeys by bus difficult or impossible for some people.

Remote bus stop unconnected to other pavements or footpaths

At bus stops, there was a lack of raised kerbs making boarding and alighting buses difficult for people with mobility impairments.

Most bus shelters on the routes audited were not accessible to wheelchair users. Problems observed included narrow entrances, overgrown and uneven footpaths, and slopes that were too steep for wheelchair users and others with mobility impairments.

Inaccessible bus shelter with no raised boarding kerb

In general, bus shelters did not have seating and where seats were provided, most were perched rails that are not suitable for many disabled people.

Bus shelter with narrow 'perched rail' seating

The lack of adequate lighting was evident, particularly in rural areas. This creates a number of problems, including personal safety issues and the inability to see and read information, especially for visually impaired people.

Text used for timetables and travel information was too small to be read easily by many people. This is compounded by inadequate lighting and information positioned wrongly at many bus stops.

Timetable information not provided in suitable format

Ramps and Stairs

The audit found that the gradients on many routes exceeded those recommended by ‘Inclusive Mobility’; the recognised good practice standard for transport infrastructure.

There was a general lack of corduroy tactile warning surface at the top and bottom of steps which is recommended good practice. Therefore, there is no warning of this hazard for visually impaired people.

Some steps and ramps were found to lack handrails on one or both sides. This feature is important for the safe use of steps for many groups of disabled people including people with mobility impairments.

Stairs lacking handrails, corduroy tactile paving and colour contrast nosings.

Steps with inconsistent rise and going were found in many locations. This makes their use problematic for many users, especially for visually impaired people.

Stepped ramps were found on a number of footbridges. These are dangerous and difficult to use for many, and are extremely difficult to negotiate independently by wheelchair users.

Stepped ramp unsuitable for wheelchairs

Motorways and High Speed Dual Carriageways

The audit found that the width of some hard shoulders and emergency lay-bys on motorways makes it difficult for some wheelchair users to safely exit a vehicle. This situation provides an incompatibility with the current recommended advice to all users, which is to exit vehicles in an emergency situation. Safety fences, kerbs, and steep embankment slopes also create barriers which prevent people heeding this advice.

Emergency lay-by width too narrow for some wheelchair user to exit vehicle safely

Many emergency telephones were found to be inaccessible for a number of reasons including being obstructed by safety fences, no dropped kerbs, uneven paving, the lack of hard-standing and the height of the telephone. There was also a lack of internal emergency telephone lighting, illegible hand-written information and the lack of alternative means of communication such as a text phone.

Emergency telephone not accessible to all

Service Stations

Service stations are not the direct operational responsibility of Transport Scotland. However, given its responsibility to promote disability equality in its broadest sense, Transport Scotland should encourage good practice by operators of services adjoining the Trunk Road. As service providers, service station operators have their own obligations under Part 3 of the Disability Discrimination Act.

A pilot audit was undertaken at one service area by a disabled person, which identified a number of deficiencies.

Disabled parking bay blocking access to the dropped kerb

Appendix 4 Audit findings

During the audit the following key issues were identified

Deficiency	Consequences	People Affected	Further observations
General			
Lack of dropped kerbs at crossing points	Difficult to negotiate Trip hazard	Wheelchair users, mobility impaired pedestrians	Applies to both Trunk Roads and side roads intersecting footways
Lack of tactile paving at crossing points	Difficult to detect edge of footway results in trip hazard Risk of unintentional stepping on to road	Visually impaired pedestrians	Applies to both Trunk Roads and side roads intersecting footways
Inappropriate or incorrect use of tactile paving at crossing points	Difficult to differentiate between controlled and uncontrolled crossings Difficult to locate push buttons on controller Difficult to determine direction of crossing route	Visually impaired pedestrians	Applies to both Trunk Roads and side roads intersecting footways
Dropped kerbs not flush	Difficult to negotiate	Wheelchair users and mobility impaired pedestrians	Flush kerbs can result in ponding, requires upstream gully

Deficiency	Consequences	People Affected	Further observations
Steep gradients on approaches to crossing points	Difficult to negotiate	Wheelchair users and mobility impaired pedestrians	
Poor drainage at crossings results in ponding and silt encroachment on tactile paving	Tactile paving obscured Difficult to negotiate	Visually impaired pedestrians Wheelchair users and mobility impaired pedestrians	
Controlled pedestrian crossings lacking audible signals, rotating cones, red/green men symbols on controller	Difficult to establish when traffic is signalled to stop	Visually impaired and hearing impaired pedestrians, people with learning difficulties	
Narrow footways	Difficult to pass on narrowed routes	Visually impaired pedestrians, wheelchair users, mobility impaired pedestrians	Affects other pedestrians, for example prams and buggies
Encroachment of vegetation on surface of footways and footpaths	Trip hazard Difficult to pass on narrowed routes	Visually impaired pedestrians Visually impaired pedestrians, wheelchair users, mobility impaired pedestrians	Affects other pedestrians, for example prams and buggies

Deficiency	Consequences	People Affected	Further observations
Overhanging trees and shrubs	Collision hazard	Visually impaired pedestrians	Adjoining landowners' responsibilities
Lack of colour contrast on street furniture	Collision hazard	Visually impaired pedestrians	
Lack of safe crossing facilities on busy or high speed roads, particularly at junctions and roundabouts	Risk of serious road accident Long delays for safe gap in traffic May need to use alternative route involving detour	Visually impaired pedestrians, wheelchair users, mobility impaired pedestrians	Applies where crossing points are provided and where they are not Affects other pedestrians, for example prams and buggies
Poor maintenance of footways and footpaths resulting in uneven surface, especially service tracks and covers	Trip hazard Difficult to negotiate	Visually impaired pedestrians, wheelchair users, mobility impaired pedestrians	Affects other pedestrians, for example prams and buggies
Lack of edge definition on footways and footpaths	Makes navigation with guide dogs and canes difficult	Visually impaired pedestrians	

Deficiency	Consequences	People Affected	Further observations
Urban Roads			
Obstructions on footways	Difficult to negotiate, slalom effect Trip and collision hazards Risk of having to step into traffic	Visually impaired pedestrians, wheelchair users, mobility impaired pedestrians	Shop A-boards and displays, wheelie-bins, parked cars, sign poles, bollards, litter bins, lighting columns, slalom effects Affects other pedestrians, for example prams and buggies
Remote footways, enclosed by vegetation, poor lighting, e.g. accesses to motorway footbridges	Feelings of insecurity deter use	All disabled pedestrians and non-motorised users	Affects all vulnerable pedestrians, for example children and the elderly
Rural Roads			
Lay-bys lacking footways	No safe place to stand or walk	Visually impaired and mobility impaired	Affects other road users, for example children
Lay-bys with insufficient clearance to passing traffic	Difficult to exit from vehicle safely	Mobility impaired drivers and passengers, particularly wheelchair users	Affects other road users, for example children
Lay-bys formed from redundant sections of road with steep cross-falls	Difficult to stand, walk or use a wheelchair	Mobility impaired drivers and passengers, particularly wheelchair users	

Deficiency	Consequences	People Affected	Further observations
Footways start and stop haphazardly	Difficult to access facilities and follow a joined up route	Visually impaired pedestrians, wheelchair users, mobility impaired pedestrians	Typically at roadside visitor attractions where parking may be limited or informal
Kerbs, steps, or lack of smooth path to off-road facilities, such as picnic tables and seating	Difficult to negotiate Trip hazard	Visually impaired pedestrians, wheelchair users, mobility impaired pedestrians	
Lack of accessible toilet facilities	Severe discomfort	Disabled people and in particular passengers who need comfort facilities on a more regular basis	
Bus Stops			
Lack of safe crossing facilities between rural bus stops on opposite sides, especially on rural dual carriageway roads	Risk of serious road accident Long delays for safe gap in traffic May need to use alternative route involving detour	Visually impaired pedestrians, wheelchair users, mobility impaired pedestrians	

Deficiency	Consequences	People Affected	Further observations
Lack of raised kerbs	Buses inaccessible	Mobility impaired passengers	
Bus shelters with restricted entrance width	Wheelchair users cannot use bus shelter	Wheelchair users	
Bus shelters lack seats, or seats are inappropriate	Pain and discomfort	People with mobility impairments	
Bus stops lack adequate lighting	Feelings of insecurity deter use Information difficult to read	All potential disabled passengers Visually impaired passengers	Lack of a feeling of personal safety and security
Motorways			
Hard shoulder width	Too narrow for some wheelchair users to get out safely on off-side	Wheelchair users and other mobility impaired drivers and passengers	Some conflicts with advice to exit vehicles in emergency situations
Emergency telephones too high, behind barriers or across kerbs, lack of hard-standing	Emergency telephone inaccessible	Wheelchair users and other mobility impaired drivers and passengers	
Emergency telephones lack internal lighting	Difficult to read information and instructions	Wheelchair users and other mobility impaired drivers and passengers	Affects all road users

Deficiency	Consequences	People Affected	Further observations
Ramps and Stairs			
Excess gradients and lack of intermediate landings	Difficult to negotiate, no rest areas	Wheelchair users and other mobility impaired pedestrians	
Lack of correct tactile paving at top and bottom of stairs	Trip and falling hazard	Visually impaired pedestrians	
Lack of handrails	Difficult to negotiate	Visually and mobility impaired pedestrians	
Uneven stairs	Difficult to negotiate Trip hazard	Visually and mobility impaired pedestrians	

Appendix 5 Questionnaire and questionnaire findings

Real Inclusion Ltd in partnership with Transport Scotland, the workshop group and a number of disabled people designed a questionnaire to gather information from disabled people.

Transport Scotland, Inclusion Scotland, Scottish Accessible Transport Alliance, Capability Scotland, Sense Scotland, Glasgow Centre for Independent Living, Glasgow Shopmobility and various other organisations sent the questionnaire to over 200 disabled people and carers who were unable to attend organised involvement sessions.

In addition, a number of disabled people wrote, emailed, and telephoned to relay their issues, suggestions, and recommendations for the Action Plan. The completed questionnaire responses revealed the following additional key issues.

The key findings

- Lack of accessible car parking bays
- Abuse of accessible car parking bays
- Lack of accessible public transport and public transport waiting facilities
- Poor condition of the road surface
- Lack of colour contrast and text too small on signs
- Lack of good accessible facilities at service areas such as accessible toilets that are open to the public
- Insufficient space for wheelchair users in service station food areas and a lack of accessible doors

- Hard shoulder too narrow for wheelchair users to safely get out of the car
- Parking spaces not marked out properly and not wide enough to fully open car doors

'Disabled people, disabled organisations, and access panels need to be involved in the planning process at the outset'

Questionnaire respondent

'Investment is needed to create a fully accessible public transport network' *Questionnaire respondent*

'It is important to remember that there is no such thing as a one-size fits all solution. There are a diverse range of disabilities which affect people and a solution which may help one group could cause a hazard to another group for example shared surfaces are good for wheelchair users but dangerous for the visually impaired'

Questionnaire respondent

'Many disabled people are more disabled by society than their disability. I wish to work at helping to change this and to allow disabled people the chance to live in a totally barrier free community whether it be in housing, education or transport' *Questionnaire respondent*

'Disabled people have a vast range of views and experiences so it is time to let the professionals and politicians know what we need'

Questionnaire respondent

Appendix 6 Literature Review

Introduction

The main aim of this literature review is to identify the key legislation and guidance, as it applies in Scotland, on the subject of inclusive design in the road and pedestrian environment.

The Disability Rights Commission (DRC) publication Focus 7: Creating an Inclusive Environment (2001) defines inclusive design as a user centred approach to design which aims to create environments which can be used by everyone regardless of age, gender, or disability. The varying needs of people are too often considered as an afterthought, rather than as an integral part of the design process.

The Family Resources Survey reports there are about 10 million disabled adults and 700,000 disabled children covered by the DDA 1995 in Great Britain (Bajekal et al, 2004). Scotland is estimated to have almost 1 million disabled adults likely to be covered by the DDA 1995. The 2001 Census found that 20 per cent of the Scottish population reported having a long-term illness, health condition or disability (General Register Office Scotland, 2003). Scotland has an ageing population and the probability of having a disability increases with age. The average age of the population with a long-term illness, health condition or disability is 58 years (General Register Office Scotland, 2003). Because of all these factors, it is important that the principles of inclusive design are implemented by those who shape the built environment to ensure the increasing proportion of the population who are disabled can participate in mainstream society.

Legislation

Disability Discrimination Legislation

The Disability Discrimination Act (1995) (DDA 1995) places a duty on employers, educators and service providers to make reasonable adjustments to avoid discriminating against disabled people. This duty includes making adjustments to the physical features of buildings to remove barriers to access. There are a number of such services which Transport Scotland provide to the public, but the majority of the agency's work is likely to fall under the heading of public functions which were not covered by this Act.

The Disability Discrimination Act (2005) (DDA 2005) amends the DDA 1995 and extends the principles of Part III of the DDA 1995, which prohibits discrimination in the provision of goods, facilities and services and premises to the delivery of public authority functions. This amendment also brings in new duties for public authorities, including Transport Scotland, to actively promote disability equality. Public authorities will have a 'general duty' and most will have 'specific duties'.

The general duty covers:

- eliminating unlawful disability discrimination
- eliminating unlawful disability harassment
- promoting equality of opportunity

- taking steps to take account of disabled persons' disabilities, even where that involves treating disabled persons more favourably than other persons
- the need to promote positive attitudes towards disabled people
- the need to encourage participation by disabled persons in public life

The specific duties are intended to assist public authorities in meeting the 'general duty'. In particular, they set out what they should do to plan, deliver, and evaluate actions to eliminate discrimination and promote equality, and to report on the activity which they undertake by producing a Disability Equality Scheme every 3 years. Codes of practice are available from the DRC to assist public authorities in meeting their duties. In August 2006, the DRC published guidance which covers planning, buildings and streets. Promoting inclusive environments is one of the key aims in meeting the 'general duty'. Transport Scotland will be required to meet this duty. The Scottish Executive's overarching Disability Equality Scheme will be required to take a more co-ordinated approach to considering disabled peoples' needs across departments and functions.

Guidance

Introduction

The guidance considered below is split into general guidance on the subject of inclusive design and guidance specific to the road and transport environment. This is not an exhaustive list but the most relevant publications are included.

General Guidance and Advice

British Standards Institute (2001) BS8300: Design of buildings and their approaches to meet the needs of disabled people – Code of practice

This publication contains good practice and should be a key reference for anyone considering the needs of disabled people when designing new buildings or altering existing buildings. The document considers the design of buildings and the spaces surrounding them, up to the site boundary. The recommendations in this standard are based on user trials and validated desk top studies which formed part of a research project commissioned in 1997 and 2001 by the then Department of the Environment Transport and the Regions. The document was last revised in June 2005.

Disabled Persons Transport Advisory Committee (2004) Inclusive Projects

This guide offers good practice advice on how all participants in the development process can contribute to the delivery of a high quality inclusive environment that provides access to all members of society. In particular, the document gives guidance on writing a project brief to ensure inclusive design principles are included from the outset and it introduces the concept of an “Access Champion”. The guide gives information on what should be considered at key stages throughout the design and construction process.

Disability Rights Commission (2004) Access Statements

This is a guide on how to write access statements. Access Statements are written to justify how a design will address inclusive design issues. These Statements can also be used to justify deviation from recognised standards or in the case of an alteration to an existing building justify why a barrier to access cannot be overcome Access Statements are now a mandatory requirement as part of Building Warrant applications in England and Wales and are often required to support Planning Applications.

Fieldfare Trust (1997) Countryside for All Good Practice Guide: A good practice guide to countryside access for disabled people

The accessibility standards in this publication remain a UK wide benchmark of good practice in meeting needs of disabled people seeking access to the countryside. The standards provide practical advice to countryside access managers on how to develop and manage accessible paths through all countryside environments. The publication was last revised in 2005. The original document was based on the findings of the BT Countryside for All project between 1993 and 1997.

Office of the Deputy Prime Minister (2003). Planning and Access for Disabled People: A Good Practice Guide

This document describes in detail how all those involved in the development process can play their part in delivering physical environments which can be used by everyone. It encourages local planning authorities and developers to consider access for disabled people, and stresses the importance of early consultation with disabled people when formulating development plans and preparing planning applications. Although the guide explains legislation and policy frameworks in England, it is useful to consider the principles it describes within a Scottish context. It shows how local planning authorities can put in place appropriate Planning policies and Development Control processes, and suggests ways in which these can be implemented and enforced effectively. It pinpoints the role of developers and occupiers and underlines the benefits to them in providing environments which are accessible and inclusive.

Scottish Executive Planning Advice Note 78 Inclusive Design

Planning Advice Note 78 on inclusive design was published in March 2006 and builds on PAN 68 Design Statements. The Inclusive Design PAN explains the need for everyone involved in the development process, from client and designer through to planners and building standards officers, in ensuring that environments are designed inclusively. This PAN describes a framework for delivering inclusive environments and recommends the use of Access Statements.

Guidance Specific to Roads and Transport

Department for Transport (2002). Inclusive Mobility: A Guide to Best Practice on Access to Pedestrian and Transport Infrastructure

This guidance brings together good practice from around the world on making the pedestrian environment more accessible to disabled people. The pedestrian environments, including public open spaces, are the links between buildings. The design and management of pedestrian environments is key to many disabled peoples' ability to move around easily and safely. This document gives technical design advice on most aspects of the design of the pedestrian environment and should be the first point of reference for streetscape and landscape designers. The bibliography contains a useful list of reference material.

Guide Dogs - Shared Surface Street Design Research Project

Research into the design of shared surfaces is being undertaken in response to increasing numbers of reports from visually impaired people on the safety risk and loss of independence in shared surface environments. The concept of shared streets, where vehicles share the same surface as pedestrians, has been used extensively in the Netherlands for many years. A number of local Authorities in towns and cities in the United Kingdom are removing the separation between vehicles and pedestrians. The first part of the research included focus group studies both in the Netherlands and the United Kingdom, with blind and partially sighted people and designers with an interest in shared surfaces.

The ‘Shared Space’ website (shared-space.org) defines the shared space concept as the integration of traffic, pedestrians and other road users to reduce the dominance of vehicles on roads to create a more social space. The Guide Dogs organisation supports this aim.

This is said to be achieved through traffic management methods which rely on the design of the road, the environment around the road and the behavioural psychology. These principles inform the driver that the area is a shared space and extra caution should therefore be taken. Street users are said to negotiate priority and movement through the use of ‘eye contact’. The concept taken to it fullest requires the removal of the separation between motorised vehicles and other road users, mainly through the removal of the traditional footway and kerb and controlled crossing points, and replacement with a shared surface streetscape. The main concern of blind and partially sighted people is the removal of pedestrian only areas and the use of a shared surface. Visually impaired people often rely on a clear delineation between the road surface and pedestrian areas for their safety and independence in moving through the streetscape. The need to use ‘eye contact’ to negotiate these shared areas raises obvious concerns for blind and partially sighted people.

The focus groups have identified a lack of consideration of the needs of visually impaired people in the development of the concept. Focus groups of blind and partially sighted people reported cases of collisions and near collisions with vehicles, and a loss of the feeling of security on ‘shared streets’ and most avoided these areas unless accompanied by a sighted companion.

The research established that at the heart of the issue is the need to

distinguish between Shared Space and shared surfaces. The former can be successful in meeting everyone's needs provided that physical 'clues' including kerbs and tactile surfaces are retained.

The next stage in the research project will involve detailed research into potential solutions, and the findings will be published in a second report. Parallel research has also been commissioned by DPTAC into the implications for 'Home Zones'.

Scottish Executive research 'Improving Public Transport for Disabled People'

This 2006 research revisits research carried out in 2003 to analyse the accessibility of public transport for disabled people. In establishing the brief for this latest research it was clear that there had been little or no improvement since the original research was published. The previous research clearly identified the barriers and solutions. The biggest difference between disabled adults and non-disabled adults is not the way they make a journey or the reasons for their trip, but the fact that the former are far less likely to make a trip at all. In the light of the reduced number of trips made, disabled adults were less likely to report participating in a range of activities compared with non-disabled adults. The barriers to travel identified in the original research persist and no one single 'solution' is likely to make a difference to the travel opportunities of disabled people in Scotland.

Many disabled people, although eligible for concessionary travel on buses and trains, could not actually use such forms of transport largely due to the connecting journey between home and the bus stop or train

station.

The evidence suggests that although affordability is a key element of accessibility, concessionary fares alone are unlikely to have a major impact on travel behaviour unless other, more visible, barriers have been addressed.

By far the most common suggestion in relation to what might help disabled people use public transport more is 'transport from door to door/someone to pick me up' suggesting that the problem is not with existing modes of transport but with getting to stations and bus stops from home and getting to the final destination at the other end. The pedestrian environment has an important part to play in improving access to bus stops and train stations.

The 2006 research examines the structural reasons for the limited changes to date, outlines the specific recommendations required in order to make a real difference to the travel opportunities and travel behaviour of disabled people and discusses how such recommendations could best be introduced and implemented.

DfT and DCLG Draft Manual for Streets

The Manual for Streets is being produced with the intention of supporting the delivery of attractive, safe and well designed communities. The guidance is intended to be adopted for design and construction of new streets but it will also be applicable to existing streets where they are

subject of redesign. The first edition will focus on residential streets and lightly trafficked areas. Future editions will consider busier urban streets with the eventual aim of providing a comprehensive guide to the design of non-truck streets.

Technical Advice Note 91/05 - Provision for Non-Motorised Users and HD Highway Design Standard 42/05 - Non Motorised User Audits

These documents describe the requirements for Non-Motorised Users in the design of Trunk Road schemes including Motorways.

Design Standards are mandatory for Trunk Roads and must be followed unless a 'departure from standards' is granted. Technical Advice Notes (TAN) are good practice guidance or supplementary technical advice which designers are expected to take account of but which are not mandatory. However, in practice the advice in TANs is normally followed unless the case for not doing so is made.

TAN 91/05 – Provision for Non-Motorised Users gives general advice on what should be considered when designing for Non Motorised Users and the principles and process which should be followed to meet the wide range of needs of this group.

Non Motorised Users are defined as pedestrians, cyclists and equestrians. The needs of disabled people are specifically mentioned, including wheelchair users. Inclusive Mobility (2001) is also referred to. However, unlike cyclists and equestrians, there is no reference to a list of relevant consultees.

HDS 42/05 – Non-Motorised User Audits. This standard sets out a mandatory process for ensuring the needs of a wide range of Non Motorised Users are considered; the same definition of Non Motorised Users as described in TAN 91/05 and specifically mentions disabled people and Inclusive Mobility (2001). A Non Motorised Users Context report is required in the initial stages of the design of a scheme. This report considers the background information on the scheme including vehicle speeds, accident reports and pedestrian desire lines. This report is also required to set objectives for the scheme. A Non Motorised User Audit report is then required for each stage in the design process which compares the scheme against the objectives, and documents the process of consultation and design evolution which has been followed to address the needs of Non Motorised Users. This process considers road safety issues and the end result should improve road safety for Non Motorised Users. However, the Non Motorised User Audit process considers a wider range of issues than a Road Safety Audit.

Conclusion

There is an established body of guidance on the inclusion of the needs of a wide range of people in relation to the built environment, including the street environment. There is also an established process of considering these needs within the design of Trunk Road schemes, namely Non Motorised User Audits. The lessons learned in relation to the design of buildings, including the principles established in the use of Access Statements, could be adopted in the road design process.