

D2 Design for accessibility

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Purpose

This module aims to ensure that access to pedestrian facilities is available to as many potential users as possible.

Introduction

The main facilities needed for pedestrian mobility are paths: either footpaths, or paths shared with cyclists, usually segregated by a raised kerb from motor vehicle traffic.

To achieve accessibility for pedestrians, there must be a systematic approach to identifying and tackling the difficulties that people face when walking to jobs and key services, including education and health services. (See the box 'Accessibility and mobility: what is the difference?').

Even for people with good access to a car, walking can improve accessibility by reducing the cost of travel. Typically, 1 in 10 car driver trips is less than 1 kilometre (12 minutes walking time), and 1 in 4 is less than 2 kilometres (24 minutes walking time). These short trips are mainly for shopping or to drop off a passenger (e.g. taking a child to school) and many could be made on foot.

Improving accessibility is not just about transport interventions. The location of services and the way they are delivered have as much impact on accessibility as transport provision (see also Module C2 *Walking and urban design*).

Accessibility and mobility: what is the difference?

'Accessibility' (or 'access') is the ease of obtaining goods or the benefits of an activity (such as work, recreation, education, shopping, medical services). Accessibility can be achieved through mobility, proximity or the use of electronic communications.

Access is the ultimate goal of most transportation, except the small portion of travel in which movement is an end in itself (e.g. cruising, historic train rides, horseback riding, jogging). Even recreational travel usually has a destination.

Mobility (i.e. physical movement) is one means by which access is achieved.

Three general factors affect accessibility (Litman 2004):

- **Mobility:** which can be provided by walking, cycling, public transit, ride-sharing, taxis, automobiles, trucks and other transport modes. Increased speed, service quality or affordability of a mode improves access provided by that mode.
- **Mobility substitutes:** for example, telecommunications and delivery services. These can provide access to some types of goods and activities, particularly those involving information.
- **Land use:** that is, the geographic distribution (and proximity) of activities and destinations. The dispersion of common destinations increases the amount of mobility needed to access goods, services and activities, reducing accessibility. When real estate experts say 'location, location, location' they mean 'accessibility, accessibility, accessibility'.

In the short term, mobility is the key to accessibility. In the longer term, it is possible to alter activity patterns so that people can have improved accessibility with reduced time and travel costs (see also Modules C2 *Walking and urban design* and C3 *Developing walking networks*).



An accessibility audit will find out whether people can safely and reliably get to jobs and key services in a reasonable time and for a reasonable cost (Department for Transport 2004). Such an audit should also identify specific issues relating to access by walking, including safety issues. Queensland Transport and Main Roads have developed a pedestrian safety and accessibility audit tool. More details are provided in D5.1 *Audit tools and guidelines*.

D2.1 General accessibility of pedestrian facilities

Accessibility of pedestrian facilities to all potential users is important to ensure that the maximum benefits of the facilities are achieved (see D2.4 *Provision of universal access*). Functional design elements will be heavily influenced by the needs of the local environment. Key functional design elements which should be considered include:

- ▶ accessibility by other modes, which will depend on the type of facility, the type of users it is likely to attract and its location
- ▶ the need for facilities (or links to facilities) close to 'home'
- ▶ the level of comfort and safety (perceived and actual) of a facility and the links to accessing the facility.

Pedestrian facilities should be designed in accordance with the Austroads (1995) *Guide to traffic engineering practice*, 'Part 13: Pedestrians', which covers:

- ▶ walkways and footpaths
- ▶ treatments for enabling pedestrians to cross roads (crossing roads must be as convenient and safe as possible for pedestrians) (see also Main Roads 2002, TRUM, Part 3.13 (Draft Sept 2004); VLGA 2004)
- ▶ pedestrian guidance measures
- ▶ pedestrian access to public transport (also seek guidance from the later *Disability standards for accessible public transport* (Attorney-General 2004))
- ▶ pedestrian facilities at worksites
- ▶ vehicle parking layout and design to assist pedestrians, recognising that car parking areas, whether off-street or on-street, can be hazardous for pedestrians (see Figure D2-1)
- ▶ supplementary and special treatments (e.g. lighting, surfacing, shared zones, railway crossings)



Figure D2-1
Measures may be needed to ensure that accessibility is maintained (e.g. bollards protecting pedestrians from parked vehicles)

- ▶ complementary activities and programs (e.g. crossing supervisors, safety programs, signs and maps).

Austroads Part 13 (1995) also provides guidelines for the installation of pedestrian facilities. Further detailed design guidance is included in Module D1 *Designing good quality pedestrian facilities*.

D2.2 Access via the pedestrian facility

In all journeys, pedestrian movements form an important link in the transport chain. All trips, except where the non-walking mode of transport delivers the user directly into the destination (e.g. a car trip to a basement car park or to a drive-through business), involve walking to some extent. Facilities for pedestrians and the quality of the walking environment are important for all such trips, but even more so for those trips made entirely on foot and for which no alternative transport is available.

Ultimately, the viability of most businesses and other activities and services depends on walking access, even if only between car parks and the business premises. Footpaths provide physical access to premises and visual access to promotion of goods and services offered by businesses. Care must be taken to ensure that displays and furniture do not unduly compromise the movement/physical access function of the path (see D1.2 *Designing good quality shared facilities*).

Case study: Hervey Bay Living Streets Program

As part of the *Living Streets Program*, Hervey Bay City Council has transformed the old railway reserve. This is now a highly functional and accessible shared-use facility running through the centre of town. With flat grades and a wide corridor from the existing railway reserve, the land provided the perfect opportunity to establish a trunk route pedestrian and cyclist facility that is readily accessible by a significant percentage of the population.



Source: ARRB

Figure D2-2

The Hervey Bay pedestrian and cyclist facility in a former rail corridor

People with disabilities in Queensland

- ▶ 34,000 people in Queensland have a reported disability
 - ▶ 190,900 Queenslanders require mobility assistance, with 107,300 using some kind of mobility aid
 - ▶ 67,000 Queenslanders have a physical condition related to their eyes.
- (ABS 2003)

The role of the pedestrian facility in providing access requires consideration of:

- ▶ critical links in urban centres between place of residence, transport modes (including car parks), employment, shopping or recreational areas (see Module C2 *Walking and urban design*)
- ▶ coherence and directness of the facilities, including interconnection, consistency, clarity of layout, availability of the facility and weather protection (see Module C3 *Developing walking networks*)

- ▶ safe and efficient management of the interaction between vehicles and trains while meeting the overall desire lines or preferred route of users. This includes specific consideration of crossings for pedestrians, especially where traffic is heavy (see Module C3 *Developing walking networks* and D1.1 *Designing good quality walking facilities*).

D2.3 Pedestrians and railway corridors

Railways are often substantial barriers to access, especially for pedestrians (see also Module C2 *Walking and urban design*). Crossings may be widely spaced and are often designed around motor vehicles, with pedestrians either walking on the road or having to use a separate facility with mazes, poor surfaces and often a lack of active security.

Where the railway is elevated above or depressed below the natural ground level, grade-separated crossings may be provided, but design would need to give specific consideration to user amenity, security and usability (see D1.1 *Designing good quality walking facilities*).

Rail reserves are increasingly being used for providing regional shared paths, as they provide direct routes and good grades, as well as serving activities that develop around train stations (see the case study '*Hervey Bay Living Streets Program*' and Figure D2-2). At stations and shared mall and light rail facilities, there is potential conflict between cyclists travelling at relatively high speed along the route, and passengers arriving at or leaving the station, or crossing the railway. In some cases, grade separation may need to be considered, but in others segregation, speed control, signage and pavement markings may be enough to reduce conflict to an acceptable level.

D2.4 Provision of universal access

In pedestrian planning, the term 'accessibility' can also refer to 'accessible design or universal design', that is, facilities designed to accommodate people with disabilities and other special needs. For example, a pathway designed to accommodate people in wheelchairs may be called 'accessible'.

All infrastructure and service providers have responsibilities under the Commonwealth *Disability Discrimination Act 1992*, and most, including state and local governments, also have responsibilities relating to accessibility under state legislation, such as the *Disability Services Act 1992* in Queensland.



The essential principle of such legislation is that people with disabilities shall have equal access to facilities and services (see the box 'People with disabilities in Queensland').

Also relevant under this legislation are the Commonwealth Disability Standards for Accessible Public Transport. These standards are more related to transport infrastructure and outline specific Australian Standards to adhere to regarding width of paths, TGSI placement and dimensions, and wheelchair manoeuvrability.

Pedestrian facilities designed for people with disabilities will cater to the needs of all pedestrians, including, for example, parents with children in pushers/prams and people with wheeled shopping trolleys. People with disabilities and people without a driver's licence make considerably fewer trips than people with a driver's licence. They have correspondingly poorer levels of access to the range of activities and opportunities that most people take for granted. Their lack of access to driving a private car makes it all the more important that other transport modes, including the pedestrian environment, do not present obstacles.

Those without access to a car are disproportionately the young (100% of those younger than 17), the aged (43% of those over 60 do not have a driver's licence) and women (25% of women over 17, and 60% of those aged 60 and over, do not have a driver's licence) (Ker & Tranter 1997). Walking (with mobility aids where necessary) is correspondingly more important for these groups in the community.

Different types of disability have different implications for the pedestrian environment; for example:

- ▶ People with little or no sight feel vulnerable about tripping on uneven ground or colliding with obstacles in their path (including hazards such as umbrellas, trolley rails and tree branches) and have difficulty orientating themselves and finding their way in unfamiliar environments. For people with low vision, luminance contrast, colour contrast and good signage will be helpful, while tactile information may help those with no vision (Main Roads 2004).
- ▶ People with hearing loss may need visual rather than audio warnings and announcements.
- ▶ People with poor balance or coordination find it difficult to walk and are at risk of falling. Handrails and other supports (e.g. walls) will often help.

- ▶ People with respiratory problems or poor stamina will not be able to walk long distances or up steep slopes or steps, and may need to rest more often (Standards Australia 2001).
- ▶ In some cases, the design solutions to improve accessibility for one type of user may reduce accessibility for others (e.g. the use of tactile cues on ramps for people with vision impairments can be a disadvantage for people with mobility impairments). Stakeholder consultation at a local level may help ensure the best outcome for all users.



Source: ARRB

Figure D2-3

A non-continuous walking path: in this case, the footpath does not continue on the far side of the intersection

A key concept in universal access, as it relates to walking, is the 'continuous accessible path of travel' or 'access path'.

In relation to the pedestrian environment, an 'access path' is defined in the *Accessible public transport standards* (Attorney-General 2002) as 'a path that permits independent travel for all passengers within public transport premises, infrastructure or conveyances'. Standards Australia (2001 p. 8) further notes that, for non-ambulatory people, 'the uninterrupted path of travel ... does not incorporate any step, stairway, turnstile, revolving door, escalator or other impediment which would prevent it from being safely negotiated by people with disabilities'.

It is of the utmost importance that an access path is truly continuous, as it takes only one barrier to make the whole route unusable (see Figure D2-3). Examples of barriers include:

- ▶ to someone in a wheelchair: the lack of a kerb ramp, or a poorly constructed ramp with a 25 mm lip at the roadway

Case study: City of Marion, South Australia, access and footpaths

Objective 6

Provide equal access to footpaths, and all open spaces and public areas within the City of Marion.

Council plans to provide:

- ▶ open space reserves and recreation opportunities for all
- ▶ safe and accessible paths with easy-to-use ramps throughout the city.

Actions

- ▶ In conjunction with the Infrastructure Department, have input into the pavement management programme according to priorities identified from data locating people with disabilities within the city.
- ▶ To construct, repair or replace footpaths according to a standard that provides a continuous access path around the city's streets for people with disabilities.
- ▶ Ensure that street furniture is suitable for use by people with a disability and does not restrict free movement on footpaths.

(City of Marion 2001)

- ▶ to someone who uses a non-wheeled mobility aid, like a walking frame: a crossing over a road with heavy traffic
- ▶ to someone with vision impairment: the lack of audible signals at signalised crossings or the lack of tactile paving at a road crossing.

Provision of universal access requires attention to detail and a process ensuring that issues are identified at an early stage. Such a process does not need to be complex. For example, in response to the Commonwealth *Disability Discrimination Act 1992*, the City of Marion in South Australia implemented an access action plan for the municipality. For an excerpt from that plan, see the case study 'City of Marion, South Australia, access and footpaths'.

References

- Attorney-General 2004, *Disability standards for accessible public transport, Amendment 2004*, Attorney-General's Department, Canberra, viewed 22 October 2004, <[http://www.ag.gov.au/agd/WWW/rwpattach.nsf/personal/9996DC13C48F6AD4CA256E3E002835C6/\\$FILE/0400114A-040217Z.pdf](http://www.ag.gov.au/agd/WWW/rwpattach.nsf/personal/9996DC13C48F6AD4CA256E3E002835C6/$FILE/0400114A-040217Z.pdf)>.
- Australian Bureau of Statistics 2003, *Disability, ageing and carers, summary tables, Queensland*, Publication 4430, Canberra.

Austrroads 1995, 'Part 13: Pedestrians', *Guide to traffic engineering practice*, Austrroads: Sydney, viewed 22 October 2004, <http://www.onlinepublications.austrroads.com.au/script/Details.asp?DocN=AR0000005_1004>.

City of Marion 2001, *Access action plan: in response to the Commonwealth Disability Discrimination Act 1992*, City of Marion, South Australia, viewed 22 October 2004, <[http://www.marion.sa.gov.au/Web%5Cwebmar.nsf/Lookup/City+of+Marion+Access+Action+Plan/\\$File/ActionPl.pdf](http://www.marion.sa.gov.au/Web%5Cwebmar.nsf/Lookup/City+of+Marion+Access+Action+Plan/$File/ActionPl.pdf)>.

Department for Transport 2004, *Guidance on accessibility planning in local transport plans*, Department for Transport, London, UK, viewed 22 October 2004, <http://www.dft.gov.uk/stellent/groups/dft_localtrans/documents/page/dft_localtrans_030119.pdf>.

Ker, I & Tranter, P 1997, 'A wish called Wander: reclaiming automobility from the motor car', *World Transport Policy and Practice*, vol. 3, no. 2, pp. 10–16, viewed 22 October 2004 <<http://www.ecologica.co.uk/wtpp03.2.pdf>>.

Litman, T 2004, *Accessibility: defining, evaluating and improving accessibility*, TDM Encyclopaedia, Victoria Transportation Policy Research Institute, Victoria, British Columbia, Canada, viewed 22 October 2004, <<http://www.vtpi.org/tdm/tdm84.htm>>.

Main Roads (in preparation), *Guidelines for blind and vision-impaired pedestrians*, ARRB Transport Research, Brisbane.

Main Roads 2002, *Traffic and road use management manual (TRUM)*, 1st edn (September 2002), Department of Main Roads, Brisbane.

Standards Australia 2001, AS 1428 Design for accessibility and mobility – Part 1: General requirements for access – New building work, Standards Australia, Sydney.

VLGA 2004, *Thinking transport: pedestrians*, Toolkit of the Victorian Local Governments' Integrated Transport and Mobility Project, Victorian Local Government Association, Melbourne, viewed 22 October 2004, <<http://www.thinkingtransport.org.au/pedestrians.shtml>>.

