

# Minimising Pedestrian-Cyclist Conflict on Paths



Information Notes

January 2006



## Overview

Most urban transport strategies in Australia include the desire to increase walking, cycling and public transport and, correspondingly, to reduce the extent of reliance on the private car. This has arisen for a range of reasons, initially environmental and sustainability-related, but increasingly related to issues of community and individual well-being.

Pedestrians and cyclists, whilst both being vulnerable road users compared to the occupants of a motor vehicle, differ greatly from each other in terms of speed of travel, ability to take evasive action and even the nature of the movement activity. This activity is much more likely to be of a social nature for the pedestrian. Interacting (e.g. conversing) with a fellow pedestrian is likely to make pedestrians less aware of the presence of other users, including cyclists.

The interaction between pedestrians and cyclists is increasingly causing safety concerns, exacerbated by the use of wheeled recreational devices, including wheelchairs, powered scooters and go-karts. Some of these concerns are real and others are perceived, but nevertheless important in terms of people's willingness to walk. The more governments are successful in increasing the amounts of walking and cycling, the greater these concerns will become – potentially limiting the extent and sustainability of such gains.

Conflict between pedestrians and cyclists often arises from pressures exerted by motorised traffic. In order to minimise conflict, holistic solutions are needed where conditions are improved for cyclists and/or pedestrians, but not for one at the expense of the other.

Looked at another way, the key objective should be to minimise the extent to which interaction between cyclists and pedestrians becomes a cause of conflict – there are many types of positive interactions that should be encouraged. Even manifestly 'inadequate' path width can be overcome with goodwill and consideration.

'Prevention is better than cure'. It is desirable to plan/provide for staging the conflict minimisation options to get it right at the beginning rather than retrofit. Retrofitting is inefficient and constrained by the original construction.

It should also be noted that behavioural initiatives can be a form of 'treadmill' if not self-sustaining. Measures that require continual reinforcement (as, for example, with some types of enforcement or awareness initiatives) run the risk of requiring substantial resources on a continuing basis – resources that could otherwise be used for new initiatives.

A number of strategies can be applied in both the short term and long term to minimise conflict between cyclists and pedestrians. Key conflict minimisation strategies addressed in this toolkit are:

- Integrated policy, strategy and planning
- Urban design and place-making
- Infrastructure planning
- Infrastructure design
- Infrastructure construction and maintenance
- Information
- Regulation
- Enforcement
- Education and awareness-raising
- Travel behaviour change.

The issue of conflict on paths is by no means a new one. Nevertheless, it may be becoming more serious as the number of people walking or cycling increases after a prolonged period of decline in many places, combined with a high level of reliance on shared facilities. It is most unlikely, therefore, that there is any single 'silver bullet' that will, on its own, achieve the objective of minimising conflict. It follows that a combination of measures is likely to be required to reduce conflict on paths effectively. However, since both the existing situation and the opportunities for change differ from place to place, the appropriate packages will need to be configured individually to suit specific situations.

Given that a combination of initiatives is likely to be required and that the packaging of issues will need to be situation-specific, it is more likely that a suitable package can be found for specific situations if each issue is potentially addressed by a number of strategies. The extent to which this is so is indicated in the table below. The table is hyperlinked, so you can click on the applicable strategy and it will take you to the Contents page which gives a brief description of each strategy.

If you are viewing this electronically, as a single document, or using a web browser, the [Contents list](#) is also hyperlinked to take you directly to the individual guidelines or information sheets.

Issue		Brief description	Summary of strategies
<b>Users and usage</b>			
<b>Footpath users</b>	Cycling on footpaths	In some States/Territories, cyclists of all ages are permitted to ride on footpaths. Whilst this has caused concern for some, it appears that the perception of resulting pedestrian/bicycle conflict is greater than the actual number of incidents.	<ul style="list-style-type: none"> <li>● Integrated policy, strategy and planning</li> <li>● Urban design and place making</li> <li>● Infrastructure planning</li> <li>● Information</li> <li>● Regulation</li> <li>● Enforcement</li> <li>● Education and awareness-raising</li> </ul>
	Education issues	Different rules on roads and paths may send confusing messages to path users.	
	Other legal users of paths	Wide range of legal users adds to the complexity of interactions and conflicts between pedestrians and cyclists.	
	Unauthorised use of paths	Cyclists using walking paths and trails, or riding illegally on footpaths. May include anything from in-line skates and motorised (2-wheel) scooters to horse riders and trail bikes. May include illegal parking of vehicles on paths.	
	Non-movement uses in activity centres and other busy places	High level of competing, non-movement uses, with consequent pedestrian distraction, as well as high volumes of pedestrians and cyclists in a low-speed environment.	
<b>People with disabilities</b>	Range of abilities	People with disabilities may have physical, sensory, cognitive or intellectual impairments, which are not always apparent to other path users.	<ul style="list-style-type: none"> <li>● Integrated policy, strategy and planning</li> <li>● Urban design and place making</li> <li>● Infrastructure planning</li> <li>● Infrastructure design</li> <li>● Enforcement</li> </ul>
<b>Young and inexperienced users</b>	Child pedestrians and cyclists	Younger people have little perception of left, right and give way and have immature peripheral vision. They have limited skills, control and co-ordination. Uncontrolled child pedestrians may exacerbate the conflict.	<ul style="list-style-type: none"> <li>● Infrastructure planning</li> <li>● Infrastructure design</li> <li>● Information</li> </ul>
	Novice and returning adult cyclists	Inexperienced adult cyclists are likely to be most comfortable riding on paths, rather than on the road, as a way of gaining experience and developing confidence necessary for riding on the road. They may lack knowledge, competence and/or confidence.	
<b>User behaviour: awareness</b>	Lack of awareness	Users may be unaware of the fact that the paths are to be shared with other users, and/or of the speed characteristics of the other users. Many pedestrians do not realise they cannot walk on a cycle only path.	<ul style="list-style-type: none"> <li>● Infrastructure planning</li> <li>● Information</li> <li>● Regulation</li> <li>● Enforcement</li> <li>● Education and awareness-raising</li> <li>● Travel behaviour change</li> </ul>
	Lack of etiquette knowledge	Both cyclists and pedestrians may lack knowledge as to the rules/guidelines on shared path etiquette and laws.	
	Lack of courtesy	Cyclists may not slow down when overtaking pedestrians, or pedestrians may not move over to let the cyclist pass. The conflict may be exacerbated by inattention by pedestrians using earphones and portable music players, hence unable to hear the cyclist.	
	Lack of give way	Cyclists not giving way to pedestrians. Complicated by removal of requirement for pedestrians to keep left on paths.	

Issue	Brief description	Summary of strategies
	Poor conspicuity	Users wearing dark clothing, and cyclists not using proper lighting at night.
<b>User behaviour: operational</b>	Users not keeping left	<ul style="list-style-type: none"> <li>● Infrastructure planning</li> <li>● Infrastructure design</li> <li>● Information</li> <li>● Regulation</li> <li>● Enforcement</li> </ul>
	Users travelling in groups	<ul style="list-style-type: none"> <li>● Education and awareness-raising</li> <li>● Travel behaviour change</li> </ul>
	Unpredictable user behaviour	Some users such as dog-walkers, children, adults getting a fright may behave unpredictably.
	Lack of warning of presence	Cyclists may lack bells or fail to use them at all or with no sufficient warning, due to image problem, poor enforcement and general poor knowledge of the device.
	Sudden entry onto path	Users entering the path at right angles to approaching users. Poor lateral sightlines especially at property boundaries and minor intersections. Lack of 'access control' (e.g. continuous accessibility from beaches or recreation areas). Can also occur at train and bus stations, where there may be large numbers of people moving across the path at times.
	Users with ancillary equipment	Pedestrians or cyclists carrying large loads occupy more space (e.g. on entering path with long items such as a surfboard). Load itself may be 'unstable' – light but large items (e.g. surfboard) may blow across path in side breezes. Users may pay attention to managing the load rather than to other users of the path.
	Uncontrolled dogs	Dogs may run out under cyclists if owners are not keeping them on a leash or within arm's reach. Also, parents pushing prams (or people riding bikes) whilst walking the dog may be an issue. Some types of leash not readily visible. Extendable leashes do not necessarily prevent dog from rushing across path away from owner.
<b>Speed</b>	Speed differential between cyclists and pedestrians	<ul style="list-style-type: none"> <li>● Infrastructure planning</li> <li>● Infrastructure design</li> <li>● Information</li> <li>● Regulation</li> <li>● Enforcement</li> <li>● Education and awareness-raising</li> <li>● Travel behaviour change</li> </ul>
	Speed differences of different types of pedestrian or cyclist.	Neither pedestrians nor cyclists are homogenous groups. Speed (and style of use) differences within each group will add complexity to interactions between the two groups.
	Speed of other users	Other users will travel at a variety of speeds and may be less predictable – either objectively, as their speed varies, or subjectively, as pedestrians and cyclists are less familiar with them.

Issue		Brief description	Summary of strategies
<b>Footpath and shared path planning</b>			
<b>Shared strategy and planning</b>	Potential conflict resolution at early stages.	Pedestrians and cyclists have issues in common (especially with respect to motor vehicle traffic) but also issues of conflict. Dealing effectively with these at the early stages of strategy and planning (including organisational structures) would be beneficial.	<ul style="list-style-type: none"> <li>• Integrated policy, strategy and planning</li> <li>• Urban design and place making</li> <li>• Infrastructure planning</li> <li>• Travel behaviour change</li> </ul>
<b>Network continuity</b>	Different types of users	Paths are often not suitable facilities for some users (e.g. high speed commuter cyclists). May be desirable to provide both on-road and off-road facilities for cyclists where there is substantial commuter-type use.	<ul style="list-style-type: none"> <li>• Integrated policy, strategy and planning</li> <li>• Infrastructure planning</li> <li>• Infrastructure design</li> <li>• Travel behaviour change</li> </ul>
	Lack of linkage	Lack of opportunities to link communities with open space networks, community facilities and public services as well as lack of good connection with local streets. Important to have information and visual linkage as well.	
	Interruption of path network	Path interrupted by roads and driveways. Lack of visual, as well as physical, continuity. Infill development can increase the number of driveways and the frequency of usage. Visual continuity can be impaired if crossover/driveway is continuous across path.	
<b>Path location</b>	Inappropriate path location	Inappropriate siting may contribute to conflict, e.g. where a cycle path is placed between a car park and BBQ areas, or in dog leash areas. People will tend to walk on the side of the path that has attractions. Attractions on both sides of path will increase the amount of movement across the path.	<ul style="list-style-type: none"> <li>• Infrastructure planning</li> <li>• Infrastructure design</li> </ul>
	Car parking adjacent to paths	<p>Angle parking adjacent to path at the kerb leads to parked cars overhanging the path and reducing the effective path width.</p> <p>Parallel parking adjacent to path at the kerb leads to problems with car doors opening into the travelled way and reduces the effective path width as users avoid the kerbside part of the path.</p> <p>Either can adversely affect usability of paths in close proximity to activities/destinations (e.g. schools, shops) for both pedestrians and cyclists.</p>	
	General location deficiencies	User unfriendly and commuter unfriendly paths. Paths adjacent to property boundaries/fences make it difficult and potentially dangerous for both path users and motorists exiting properties across the path – will be exacerbated with infill development (see Network Continuity).	
<b>Path design</b>			
<b>Design standards</b>	Historically variable, often constrained, with variety of users/usage, including people with disabilities.	<p>May need to design multi-purpose facilities for the 'higher' types of usage where there are multiple types of users, either together or at different times (but see, also, Network Continuity). A path may be recreational (relatively slow cycling and possibly high levels of walking) at weekends but commuter during the week.</p> <p>Primary issues are safety and amenity rather than simple capacity. It may be technically possible to carry a large number of users, but if people do not feel safe they will not use the facility.</p>	<ul style="list-style-type: none"> <li>• Infrastructure planning</li> <li>• Infrastructure design</li> <li>• Infrastructure construction and maintenance</li> </ul>

Issue		Brief description	Summary of strategies
<b>Path capacity</b>	Narrow paths	Paths may be too narrow to comfortably cater for users each way, especially where usage is high and passing frequent. Cyclists may need to leave path if it is not wide enough, which can be dangerous.	<ul style="list-style-type: none"> <li>● Infrastructure design</li> <li>● Infrastructure construction and maintenance</li> <li>● Regulation</li> <li>● Enforcement</li> </ul>
	Insufficient path capacity	Paths may be of insufficient capacity to cope with high user volumes and numerous user types, or simply be adapted footpaths.	
	High usage	There will always be greater conflict on shared paths where there is heavy traffic. May require separate facilities for different users.	
<b>Path access and continuity</b>	Access issues	Issues such as footpaths lacking a ramp to road level or adequate road crossing points.	<ul style="list-style-type: none"> <li>● Integrated policy, strategy and planning</li> <li>● Urban design and place making</li> <li>● Infrastructure construction and maintenance</li> <li>● Travel behaviour change</li> </ul>
	Design unsuitable for people with disabilities	Persons with disabilities and seniors may be apprehensive about facilities that are not segregated by kerb or physical barrier, or have poor access. The detail of path design (and construction/maintenance) is critical for people with disabilities, as a single non-accessible point can preclude the whole journey.	
	Inappropriate landscaping	Poor landscaping may include lack of flat wide grassed area on both sides of the path.	
	Lack of detour provisions	Lack of detour provisions and signage when paths are closed.	
<b>Path geometry</b>	Design speed for facilities	Most footpaths are not designed for the speed at which cyclists travel – even ‘slow’ cyclists will often be travelling 10+km/h.	<ul style="list-style-type: none"> <li>● Infrastructure construction and maintenance</li> </ul>
	Poor line of sight	Poor line of sight on the path may result in collisions from not seeing each other.	
	Inappropriate path grades and curves	Paths can be unnecessarily winding, causing cyclists to speed up to reach their destination, have square corners, or be too hilly.	
	Path obstructions	Paths may be obstructed and constricted through the use of seating (formal and informal), bollards, grab rails, signs, safety barriers, bus shelters and bus stop furniture, and other obstacles.	
	Street furniture	Street furniture, not directly associated with the movement purpose of footpaths, may impede movement and exacerbate conflicts. Most important for cyclists, at one end of the spectrum, and people with disabilities (including vision-impairment as well as other physical disabilities) at the other.	
<b>Path quality</b>	Inappropriate path surface	Path surfaces may not be appropriate to shared use paths, e.g. brick paving, concrete joints. Also, surface changes may lead to confusion. Skid resistance in the wet may be an issue for some surfaces in some locations –affects cornering and braking and on hills.	<ul style="list-style-type: none"> <li>● Infrastructure design</li> <li>● Infrastructure construction and maintenance</li> </ul>
	Path surface irregularities	Potential conflicts between requirements for tactile ground surface indicators (for people with vision impairments) and other users (particularly those with wheels). Issues with utility service covers within footpaths.	
	Poor path lighting	Lack of lighting on paths reduces levels of safety and legibility. Includes path delineation as well as overhead illumination.	
	Control of loose material	In locations where loose material (e.g. beach sand) is a consistent hazard, path design/construction should also address management of such material.	

Issue		Brief description	Summary of strategies
<b>Signage and information</b>	Poor path signage and line marking	Signage could be missing or unclear, with no marked centreline. Poor directional/destination signage can affect levels of use and can also distract users from what is going on around them (other users).	<ul style="list-style-type: none"> <li>• Integrated policy, strategy and planning</li> <li>• Urban design and place making</li> <li>• Information</li> <li>• Regulation</li> <li>• Travel behaviour change</li> </ul>
	Unclear map information	Maps and directories not updated and/or not easy to read. Applies to both paper and e-maps. Refer to TravelSmart access maps and DPI (electronic) Access Map for central Perth.	
<b>Path safety</b>	Safety audit	For new shared facilities and modifications to existing facilities (including change in footpath/shared path status), impacts on safety and convenience of both pedestrians and cyclists need to be assessed.	<ul style="list-style-type: none"> <li>• Urban design and place making</li> <li>• Infrastructure construction and maintenance</li> <li>• Enforcement</li> <li>• Education and awareness-raising</li> </ul>
<b>Path maintenance</b>			
	Poorly maintained paths	Maintenance activities do not always happen in a timely manner, allowing dangerous conditions to remain. Common issues include flooding, cracks, broken edges, potholes, poorly maintained linemarking signage and landscaping (including overhanging branches).	<ul style="list-style-type: none"> <li>• Infrastructure construction and maintenance</li> </ul>
	Management of extraneous material	Loose material (e.g. drifting sand, leaves, broken glass and fruit drop from trees, litter) or other impediments (which may include long-term ones such as proximity to building sites) reduce the effective path width and also create hazards (e.g. reducing cyclist ability to steer or brake).	
	Public utilities	Local governments consistently have problems with path management during, and adequacy of reinstatement of paths following, work by utilities (e.g. water, gas, electricity, telecoms). Leads to uncertainty, lack of continuity and/or loss of effective width.	