18 MAINTAINING THE PEDESTRIAN NETWORK

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Maintenance in the short and long term

Planning for pedestrians during maintenance works

18.1 Introduction

Both pedestrian-related and other infrastructure-related maintenance can affect pedestrian movements. It is important to manage it correctly to avoid it having major effects on the pedestrian network.

18.2 Maintaining pedestrian-related infrastructure

All pedestrian facilities need adequate maintenance. Without it, facilities that initially encouraged walking can become hazards or obstructions to pedestrian movement [118] and a deterrent to walking trips.

The impact on pedestrians is not necessarily related to the physical size of the problem – a three metre damaged surface can create as much difficulty as one of 30 m [13]. Seemingly minor issues, such as a small vertical face or minor ponding, can also cause difficulties for some pedestrians [13]. Table 18.1 outlines treatments for differences in vertical levels.

Table 18.1 – Treatments for localised changes in vertical levels

Difference in vertical level	Treatment
Below 6 mm	No action required.
6 mm to 13 mm	Provide a bevel between surfaces or remove and reinstate.
More than 13 mm	Remove and reinstate one of the surfaces, or treat the area as a ramp.

Pedestrian infrastructure should be fully integrated within road controlling authority (RCA) road asset management systems, along with accurate records of where maintenance has been carried out, the actions taken and the timeframes within which problems were addressed [27]. This also helps identify high-maintenance locations and potential underlying problems.

18.3 Problems arising in the long term

Table18.2 shows some common issues that arise over time [13, 102, 118, 130, 139].

Table 18.2 – Problems that arise over the long term

Problem	Possible causes
Heave	Expanding the footpath section. Tree root penetration. Seismic activity. Vehicles parking or driving on the footpath.
Settlement	Rainwater penetration washing away the footpath base. Vehicles parking or driving on the footpath.
Obscured visibility	Vegetation intruding both from the sides and from above. Dirt and debris from vehicles.

An ongoing 'rolling' programme of planned preventive maintenance will address these issues. It should include a timeframe within which every footpath and other pedestrian facility in the RCA's area will be inspected and assessed [27, 118, 139].

Each section of infrastructure should be assessed as being:

- life-expired or significantly damaged, causing a significant barrier for pedestrians and requiring immediate attention, or
- worn but with residual life or slightly damaged, causing inconvenience for pedestrians, which should be addressed within a given timeframe, or
- satisfactory, requiring no attention.

Since the types of damage are fairly limited, 'pro forma' guidance for appropriate corrective actions and timeframes will help streamline the process. The RCA should determine the thresholds for remedial actions and the nature of those actions and timings, and provide adequate funding for the identified maintenance.

It is usually cost effective to group sites with similar problems and undertake the remedial actions at the same time. Some could also be done as part of an adjacent roading scheme. However, there may be safety implications in delaying works, and it is important to ensure the condition does not get significantly worse.

Photo 18.1 – Competition for footpath space suggests need for education and enforcement (Photo: Victoria Lawson)

Photo 18.2 – Vegetation narrows path (Photo: Victoria Lawson)

18.4 Problems arising in the short term

Some problems appear more suddenly, although the planned preventive maintenance programme will go some way to addressing them. Table 18.3 covers some of the issues [13, 118, 130, 139].

Complaints by members of the public often alert RCAs to problems. They should respond quickly [6] and arrange for a competent person to visit the site within a specified timeframe appropriate to the problem [13].

The person visiting the site should assess the extent of the problem and identify likely causes, with remedial actions prioritised and programmed using criteria similar to those in section 18.3. The problem can sometimes be solved quickly and with minimal cost, such as through street sweeping, relocating the item(s), or enforcement.

Table 18.3 – Problems that arise in the short term

Problem	Possible causes
Slippery surfaces	Loose debris (such as leaves and oil). Ice, frost or snow.
Obstructions and barriers	Shop advertising signs/boards. Shop stock. Café tables and chairs.
Faults in other infrastructure	Drainage failure, leading to ponding after inclement weather. Traffic signal failure.
Inconsiderate use by other road users	Vehicles parked on the footpath. Dog fouling. Dropped rubbish. Broken glass. Other accidental damage, vandalism and graffiti. Street vendors. Vagrants.

18.5 Winter maintenance

Footpaths and crossings should stay open at all times. In colder areas, a winter maintenance programme will help keep pedestrian routes free from frost and ice. The programme should respond to local conditions, and focus on how to improve footpath traction for pedestrians and clear pedestrian crossing points [118].

When keeping the main road open, problems should not be moved onto footpaths, pedestrian islands and medians. For example, some techniques for clearing snow from the roadway result in it being heaped onto the footpath. These should be discouraged [118].

18.6 Maintaining non-pedestrian infrastructure

Pedestrian infrastructure is often used as part of maintaining other facilities, plant and equipment. This means access may be temporarily restricted or some of the footpath may need to be removed. In all cases pedestrian needs must be fully considered and alternative arrangements made [6, 118]. The *Code of practice for temporary traffic management measures* [155] sets out details of how this is accomplished.

Whenever a roadway is resurfaced, crossing points must continue to comply with best practice [13, 118]. This will avoid problems such as:

- an upstand or 'lip' being created between the gutter and the roadway, creating problems for the mobility impaired using kerb ramps
- an increase in the gradient created for pedestrians as a result of the roadway crossfall becoming more severe.

18.7 Planning for pedestrians at temporary works

The *Code of practice for temporary traffic management measures* [155] details how to accommodate pedestrians at temporary works. Layouts E2.22 and E2.23 in that code show potential pedestrian diversion routes.

It is important to advertise any potential disruptions for pedestrians well before the works start. This can be done through paid advertisements in the local printed media, but displaying notices at the site is less expensive and better targets those most likely to be affected.

The temporary traffic management plan for the works [155] must consider how pedestrians will be affected, how their exposure to risk will change, and how they may be accommodated. For example, the route affected may have especially high pedestrian volumes or be used by high proportions of the mobility or vision impaired, the elderly, or the young (including a safe routes to school programme or walking school bus).

Photo 18.3 – Litter collection, Birmingham, UK (Photo: Tim Hughes)

Photo 18.4 – Weeds growing around tactile paving (Photo: Tim Hughes)

Photo 18.5 – Pedestrian diversion, Christchurch (Photo: Andy Carr)

The diversion route should comply with the *Code of practice for temporary traffic management* [155] by separating pedestrians from the work site and from motorised traffic. At the same time, it should minimise any extra walking distance, accommodate all groups of pedestrians at all times (including the mobility impaired), and be logical for the vision impaired to follow. If the route crosses the road, the crossing facility must be safe.

The initial pedestrian diversion should take place away from the immediate work site. This will avoid localised pedestrian congestion and prevent risky movements such as stepping into, or crossing the road next to, the work site where visibility may be restricted. Suitable temporary directional signing will be required, and it may also be necessary to physically barricade the original route [155].

If pedestrians have to walk alongside the site and on the roadway itself, the route should be clearly marked to discourage them from straying into the road. A 'buffer' zone will separate them from the adjacent 'live' traffic lane.

As figure 18.2 illustrates, reflectorised tape, plastic chain and rope do not provide a continuous edge for the vision impaired [6, 51] and should not be used. Wooden or metal barriers should also be avoided, as if struck they can create hazards for both pedestrians and vehicle occupants [6].

A temporary fence is one method of delineation, but concrete barriers should be used if there is a serious risk of vehicles intruding into the pedestrian route [4]. Whatever the method used, it should be consistent throughout the diversion route [155] and be between one metre and 1.2 m high [42].

Any on-road route should replicate, as far as possible, the conditions of the footpath on either side of the work site. It should be as wide as the footpath to avoid pedestrian congestion or, if this is not possible, at least 1.2 m. The surface must be of good quality, without steep grades, free of significant cracks and holes, and of a suitable texture.

The points at which pedestrians step into the roadway and regain the footpath must be suitable for all pedestrian types. Temporary ramps should be fixed firmly in place and covered with a suitable slip-resistant material. Drainage channels should be maintained to eliminate ponding [6, 51].

The pedestrian route must be kept clear of all obstructions, including plant and other equipment, at all times. A clear

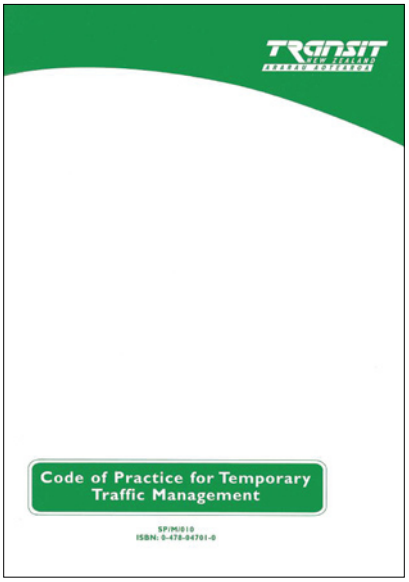

Figure 18.1 – Examples of temporary pedestrian warning signage

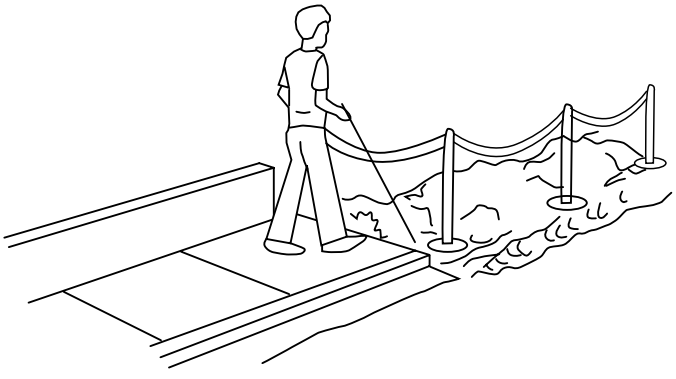

Figure 18.2 – Tape does not provide a continuous edge for the vision impaired

height of 2.4 m should be maintained [10] and there must be no intrusions into the route either from the side or from above. Canopies and boarding should be used if there is a risk of this [42].

Moving pedestrians to the opposite footpath is an alternative to providing an adjacent route. However, pedestrians must be able to cross the road safely – it is better to divert them to a nearby existing crossing point than create a temporary new one.

Finally, once works are complete, the affected pedestrian area must be reinstated to at least its original condition.

Photo 18.6 – Footpath diverted onto protected roadway with temporary kerb crossing and rail (Photo: Tim Hughes)

18.8 Maintaining the temporary route

Any temporary pedestrian route should be regularly assessed to ensure it remains adequate and no equipment has been accidentally damaged, vandalised or removed. The names and contact details of companies undertaking works should be clearly displayed so the public can report any problems immediately [42].

For longer-term works, a maintenance programme may be required to keep the route free of debris. The RCA can undertake on-the-spot inspections to ensure pedestrians are adequately accommodated [51].