

## **Auckland Council**

## Best Practice Guidelines for Universal Access During Change and Construction

Iteration: July 2023

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#### Preface

These Best Practice Guidelines for Universal Access During Change and Construction have been developed by Be. Lab in collaboration with Auckland Council's department of Infrastructure and Environmental Services - Development Programme Office and Maynard Design Consultancy.

The guidelines draw on best practice from NZ Transport Agency regulations and standards; RTS 14 - Guidelines for facilities for blind and vision impaired pedestrians, 2015; International Standard ISO 21542, 2021 Building construction - Accessibility and usability of the built environment; suppliers of construction materials in New Zealand and overseas; and Be. Lab's experience in conducting accessibility assessments of the built environment including public works construction.

The aim of these guidelines is to provide Auckland Council, Auckland Transport and their contractors with practical guidelines that can be implemented in a consistent manner across all public works to ensure the safe and equitable use of the built environment by the public during change and construction.

This document is intended for use by Project/Site Managers to provide guidance in implementing and managing a safe and usable environment around change and construction areas for the public whatever their access need.

The emphasis of these guidelines is on people with access needs (see table People Impacted by Change and Construction and Key Factors Affecting Route Navigation). The reason being that if the environment is designed to be accessible for people with access needs, it will be accessible for everyone. Whereas, if it is designed with access for able bodied people in mind, then it will be inaccessible and/or hazardous for a considerable number.

Developing and implementing best practice guidelines during change and construction is a collective responsibility requiring a collaborative approach between Auckland Council, Auckland Transport and contractors. These guidelines are not intended to be static but to be developed according to any changes in regulations/legislation, feedback on their practical implementation, new product development/changes in materials, cost/benefit analysis.



#### Tactile Ground Surface Indicators (TGSI)

Tactile ground surface indicators (TGSI) provide people who are blind or have low vision with visual and sensory information.

There are two types of TGSI:

- 1. Directional indicators provide directional orientation and designate the continuous accessible path of travel when other tactile or environmental cues are insufficient.
- 2. Warning indicators alert to hazards in the continuous path of travel, indicating that the person should stop to determine the nature of the hazard before proceeding. They do not indicate what the hazard is.



Directional and warning TGSI at pedestrian crossing

#### International Symbol of Access (ISA)



International Symbol of Access (ISA)

The International Symbol of Access (ISA) is an internationally recognisable primary information symbol. It is used to identify, mark or show the way to buildings and facilities that are accessible to and usable by all people whose mobility is restricted.

The standard format consists of a blue square overlaid in white with a stylized image of a person using a wheelchair.

Ensure that the International Symbol of Access symbol orientation is correct:

- 1. When identifying a facility figure to face right.
- 2. For indicating the direction to a facility the figure shall face direction to be indicated.





### Accessibility

Accessibility is about enabling every member of society to fully participate and enjoy products, services, and places throughout New Zealand.

# We know that there are 25% of New Zealanders who identify with having an access need.

We also know that improved accessibility helps older people, pregnant women and parents with young children, people with neurodiversity, people with temporary injury or Chronic conditions, English as a second language and their friends, family, and caregivers.

**OOOO OOOO OOOO New Zealanders** have a disability



### **Examples of Common Problems Encountered**

#### Pedestrian Crossing Points



Photo 1: Cones on accessible crossing point



Photo 2: Hit sticks and cones at crossing point cause an obstruction and make people unsure if they can cross the road there



Photo 4: No temporary TGSIs at intersection



Photo 5: Signs do not line up on each side of the road at crossing point and no kerb ramp installed



Photo 3: Cones around drum mounted signal pole make the push button unreachable for many people



Photo 6: Crossing point has a wide sweeping radius, with no clearly marked direction of travel, making it confusing for people who are Blind or sight impaired



Photo 7: Parked cars blocking view for both pedestrians and drivers at temporary crossing point



Photo 8: Mural on crossing point could cause confusion for people who are sight impaired or neurodiverse



## Introduction



#### Signage



Photo 9: Multiple signs providing a variety of information creates visual clutter and make it hard to determine what is important



Photo 10: Incorrect signage positioning. Sign with ISA and right pointing arrow needs to be on the right side. Street names on signs would assist navigation



Photo 11: Directional signage arrows pointing in different directions



Photo 12: Directional sign fixed to a cone. Do not expect to see signs on cones and there is no colour contrast



Photo 13: Signage on both sides of footpath narrowing the clear width



Photo 14: Signage on both sides of footpath narrowing the clear width and blocking the building line often used by Blind and sight impaired people





#### Cones



cones required? They narrow the clear path width and block the guideline provided by the raised yellow temporary kerbing that a Blind or sight impaired person may use. The raised



Photo 16



Photo 17: Cones on footpath on right of photo, narrow the clear footpath width





Photo 18: Redundant cone left on footpath



#### Footpaths



Photo 19: No defined footpath to differentiate footpath from retail parking and road



Photo 20: Unused mobile traffic lights left on footpath



Photo 21: Drop off along the footpath edge creating a fall hazard for ambulant people and an overturn hazard for mobility equipment users



Photo 22: Carpet over gravel is folded and not secure. No clearly delineated line of travel for Blind and sight impaired pedestrians



Photo 23: Car parked on footpath whilst unloading items for business. No loading spaces provided for local businesses during construction



### People Impacted by Change and Construction and Key Factors Affecting Route Navigation

	Key Factors Aff	Key Factors Affecting Safe Route Navigation								
Access Need	Prior public notification: • alternative routes • timeframes	Wayfinding signage	Cues to path of travel	Evenness of footpath surface	Road crossing points: • kerb ramps • signals • line of sight • TGSIs • road markings	Obstructions to clear path of travel	Footpath width	Traffic controller assistance	Degree of slope	Travel distance
Mobility	$\checkmark$	$\sim$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$
Blind and low vision	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$		
Deaf and hearing impaired	~ ~	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$					
Cognitive, Mental health, Neurodiverse	$\checkmark$	$\checkmark$	$\checkmark$		$\checkmark$			$\checkmark$		
Older People	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$
Parents with strollers and young children										



### **Table Key**

Each recommendation has been classified according to level of priority.

= Non-negotiable requirement that provision must be provided for during planning, implementation and duration of a works or construction event.

• Of primary importance in terms of safety and overall accessibility for people with a disability or any access need, e.g. older people, parents/caregivers with a pram. Implementation will also benefit the wider community.

**BP** = Best Practice, recommend that these be implemented where applicable and practical.

**Aim** = Recommendations that would enhance the usability of the environment for people with access needs. Aim to implement these where appropriate and practical.

### **Detour Layout**

#### **Background Information**

When planning a detour route, consider the differing access needs of people who may use the route. For example, mobility equipment users, the elderly and parents with strollers can be adversely affected by the degree of slope, ground surface structure, travel distance. Blind and sight impaired people rely on good cues to path of travel. People who are neurodiverse can be adversely affected by noise, busyness and disruption from construction environments. The safety of all users, especially those with access needs is particularly important around the design and setup of road crossing points

Where a pedestrian detour is required due to closure of a footpath or of a complete route during construction, consider the following:

Notific	ation and Signage	
1.	When a main pedestrian route, e.g. CBD or town centre, is to be closed and detoured provide:	
	a. Prior warning signage onsite	
	b. Inform businesses and residents in vicinity of closure	1
	<ul> <li>c. Inform support/advocacy groups to share with members, i.e. PTAG, CPAG</li> </ul>	
	d. Auckland Council and Auckland Transport websites	



	Information should include alternative detour route(s), estimated length of closure, reason for closure.	
2.	<ul> <li>If closing a pedestrian route, use signage to inform of the closure in a minimum of two locations.</li> <li>a. In advance of the closure point at the nearest alternate crossing or diversion point.</li> <li>b. At the closure point itself.</li> <li>Signage to be positioned to be easily viewed from afar on all pedestrian approach routes.</li> </ul>	
Planniı	ng Detour Routes	
1.	Ensure pedestrian routes avoid conflict with work site vehicles, equipment and operations.	!
2.	Ensure that detour routes maintain accessible pedestrian access to businesses, residences, hotels, public transport stops, ferry and cruise ship terminals, public toilets and other access points.	!
3.	Avoid having a detour route double-back on itself, particularly to a crossing point. People are not likely to go back the way they came to a crossing point and then come back on the other side of the road. People will likely cross before the work zone impact, if visible, or at the closure point.	
4.	Midblock work sites should not induce pedestrians to attempt to skirt the work site or cross the road where a pedestrian crossing point is not provided.	!
5.	As far as is practically possible, minimise any additional travel length of the detour.	BP
6.	Consider significant pedestrian generators, e.g. offices, shopping, café and restaurant areas, ferry and cruise ship terminals, hotels, bus stops.	BP



7.	Consider paths pedestrians would naturally follow to limit unsafe shortcuts, e.g. desire lines, kerb lines and building edges for cane guidance.	BP
8.	Consider existing pedestrian travel patterns and times of peak activity.	BP
9.	Detours to provide a convenient, continuous route that ideally equals or exceeds the existing level of accessibility.	BP
10.	Check whether any works/construction is planned to be carried out along the proposed detour route during its use.	BP
11.	Temporary facilities replicate, as nearly as practical, the accessibility features present in the existing pedestrian facility, e.g. seating, public transport stops, accessible drop-off areas that are on or connected to the accessible route.	Aim
12.	Detour routes to provide to the maximum extent possible, the characteristics and environment of the existing route, e.g. if the original route is relatively flat, avoid slopes on the detour route.	Aim
13.	Where a footpath is closed and people are diverted onto the opposite footpath, consider additional alternative parallel routes that people could use to avoid the construction area.	Aim
Impler	nentation	
1.	Use traffic controllers who have training to encourage good communication between a range of access users, at decision points along the route where the environment could be confusing for pedestrians and in particular for people with access needs.	BP
2.	Wherever practicable, schedule movement of construction site traffic around peak rush hours in the morning and afternoon, to minimise impact and potential conflict with pedestrians and motorists.	Aim



### Footpaths

#### **Background Information**

Provision of required path width allows sufficient space for people to walk alongside each other or two people using wheelchairs or parents with strollers to pass comfortably.

It is important to remember that Blind and sight impaired people will often use a building or fence line to aid navigation and so maintaining a clear path of travel together with a detectable building or fence line is important.

Prevention of the formation of puddles is important as they can lead to glare in bright sunshine after other parts of the footpath have become dry and they can become a hazard in frosty weather.

Path W	/idth			
1.	Provide an unobstructed accessible route width where possible at least 2,000mm wide.	I		
2.	If paths are less than 1,800mm wide, provide a passing and turning space at intervals of not more than 20 metres. Passing and turning spaces are to be at least 1,800mm wide and 2,000mm long.	!		
3.	Where there is a change in direction along the accessible route of more than 45 degrees, provide an unobstructed manoeuvring space of at least 1,500mm x 1,500mm for people to pass each other with strollers, wheelchairs or assistance animals. Larger powered wheelchairs and mobility scooters may require at least 2,000mm x 2,000mm.	!		
4.	Whenever possible, maintain a consistent path width throughout the accessible route.	BP		
Clear Height Above Footpaths				
1.	Ensure that routes have a minimum continuous, clear height throughout of 2,400mm (2,500mm recommended). Where necessary, cut back foliage that overhangs the footpaths.	!		
2.	If objects need to project into the upper space of a path, e.g. signs, ensure they are mounted with the lowest edge of the sign not lower	!		



	than 2,100mm above ground level and colour contrast with the background to enhance their visibility.	
Acces	s to Facilities	
1.	Provide continuous accessible routes to link multiple facilities, i.e. retail and business entrances, residences, hotels, public transport stops, accessible public toilets.	!
Groun	d Surfaces	
1.	Ensure that all surfaces along the detour route(s) are firm, stable, slip resistant and well drained under normal environmental conditions.	I
2.	Unbonded gravel, clay, bare earth, sand and cobble surfaces, are not acceptable under any circumstances as they are a hazard particularly for mobility equipment users and can be slippery when wet.	I
	Where such surfaces are unavoidable for limited periods, consider appropriate means to cover the surface, e.g. metal plates or carpet. Ensure that coverings are as firmly fixed to the substrate as is practical to avoid upstands or bunching of carpet that could cause a trip hazard or movement of the covering when stepped upon.	



- 3. Check all footpaths along planned detour route prior to their implementation and correct any areas that could cause a hazard to users:
  - a. Repair uneven ground surfaces, e.g. potholes, broken pavers, raised/broken ground due to tree roots.
  - b. Ensure that sudden changes in height on otherwise even surfaces are less than 5mm, e.g. joints between concrete paving sections, joints between concrete and asphalt surfaces.
  - c. Any changes in level (height) of 6-13mm must be bevelled at 45° to reduce the risk of a trip hazard and it acting as a barrier to users of mobility equipment.
  - d. Ensure that utilities service covers are flush with the surrounding surface and are slip resistant, even when wet. Where raised utilities coverings are unable to be rectified immediately, consider the use of bolted down carpet to eliminate the trip hazard (Photo 24), or highlight with high visibility slip resistant paint.
  - e. Any drainage gratings that are within the boundaries of the footpath to be set flush with the surface and have maximum grating openings of 10mm perpendicular to the dominant path of travel.



Photo 24: Bolted down carpet over raised utilities cover





4.	Ensure exterior accessible routes and pedestrian walkways are laid to even falls, with no more than a 1:50 (2%) crossfall, for positive drainage to prevent the formation of puddles.	!
5.	Ensure that footpath edges are level with adjacent grass/soil/wood chip levels. Where necessary, backfill with soil/wood chip to the same level as the footpath.	!
6.	<ul> <li>When there are uneven surfaces or holes in the pedestrian line of travel due to work being undertaken in a limited area, ensure that any steel trench covers used are:</li> <li>a. Firm and well secured (do not bounce)</li> <li>b. Preferably cushioned with rubber matting to prevent rocking,</li> </ul>	!
	moving and/or unnecessary noise c. Slip resistant d. Colour contrast to the surrounding ground surface	
	e. Laid so as not to create a trip hazard	
7.	Ensure there are no isolated single steps along the accessible route as these are a barrier to mobility equipment users and a fall hazard for all users.	!
8.	Check routes regularly and remove leaves and mud that may have accumulated.	l
9.	If there are steps, provision of a ramp with handrails needs to be provided and/or an alternative step free accessible route recommended. See Appendix 2 Ramps for best practice design guidelines.	!
10.	Where construction vehicles are entering and leaving a site, ensure that the crossing footpath is kept clean and clear of mud, loose gravel and debris and in dry weather if dust suppression is required.	!
11.	Ensure consistent monitoring of the site perimeter and all detour routes to pick up on any hazards that may eventuate.	!
12.	Avoid the use of warning tactile ground surface indicators (TGSI) except where they would be expected by people reliant on them for	BP







	communication of specific information, such as pedestrian road crossings, bus entry points, stairs and ramps.			
Avoidance of Obstructions				
1.	Ensure that traffic control devices, equipment or any construction materials and features do not intrude into the clear width of the footpath. When equipment, e.g. mobile traffic lights, are not in use, store them away from pedestrian routes.	!		
2.	Any free-standing posts, columns or bollards within the accessible route to be clearly marked with visual indicators. The visual indicators to have a minimum width of 75mm and be placed at a height between 900mm to 1,000mm and 1,500mm to 1,600mm above ground level and be visible from all approach directions.	!		
3.	If there are bollards along the detour route, ensure the following is provided:	!		
	a. A minimum of 1,200mm clear width between for accessible pedestrian pathways			
	b. Strongly colour contrasted with surroundings			
	<ul> <li>Lighting or reflector band around the top (visible from any direction)</li> </ul>			
4.	Ensure that detour routes, as far as is practicable, have a clear, unobstructed path on at least one side of the route that is free from utilities poles and cabinets, seating, rubbish bins and retail signage boards.	BP		
5.	Any objects standing within the route(s) or projecting more than 100mm into the movement space between 300mm and 2,100mm above ground level, to be detectable by a Blind or sight impaired person using a cane and to be clearly visible with a strong colour contrast to the background.	BP		
6.	Encourage onsite teams whenever they see e-scooters, bikes, cones, sandbags etc. left on the footpath to reposition them away from the pedestrian path of travel as they are a hazard.	BP		
7.	Where restaurants/cafes have outside seating areas, ensure that a detectable barrier is installed to warn and guide Blind and sight impaired people around the area.	Aim		



8.	Where construction reduces the clear path width in front of retail outlets, communicate with the business owners and request that the outlets keep the footpath clear of signage and any other street furniture during the construction period. Note: Businesses must comply with Auckland Council and Auckland Transport Signs Bylaw 2022. Regulations regarding the display of portable signs in different zones within the Auckland Isthmus are available on the Auckland Council website.	Aim
Separa	ation of Pedestrians and Traffic	
1.	Separate accessible routes and pedestrian pathways from parallel traffic lanes (including cyclists) with a kerb, railing, high or low impact barrier or berm.	!
2.	Ensure physical barriers colour contrast to the background.	!
3.	Where a footpath is closed and pedestrians are diverted into the roadway around the construction area, ensure that the appropriate high or low impact barriers are installed according to the traffic conditions to protect pedestrians from vehicles.	!
4.	Pedestrian channelizing devices are to provide a solid barrier with no gaps. Do not use tape, rope or chain strung between devices, barrels or traffic cones as controls for pedestrian movement.	!
5.	Channelizing devices to include, if required, a continuous cane detectable edging positioned with the bottom of the edging a maximum of 6cm above the ground surface and at least 15cm high. Note: Existing curbs are considered a detectable surface.	!









8. Recommend solid temporary safety barriers, e.g. Clearpath Safety Barrier with anti-trip feet (Photo 26); safety barrier on Quay Street (Photo 27).



Photo 26: Clearpath Safety Barrier with anti-trip feet



Photo 27: Solid safety barrier on Quay Street

Guida	nce Where Route of Travel is Unclear	
1.	Where the building or fence line is not clearly defined or is frequently interrupted, consider a painted guide path (two perimeter colour contrasting painted lines with an image of person walking at regular intervals) using slip resistant paint.	BP
2.	Where there is level access between the roadway and commercial businesses for the length of the business frontage, consider a colour contrasting painted warning line along the kerb line using slip resistant paint, as a warning for people who are sight impaired.	BP
Lightin	g	
1.	Ensure there is adequate lighting along the full length of the route during all daytime weather conditions and at night. If a detour route includes an area with no permanent streetlights, install temporary lighting to improve safety for the public to use the route at night.	!



2.	If existing street lighting is removed for construction, the existing level of street illumination must be maintained.	!
3.	Ensure all lighting over pedestrian routes is evenly distributed and minimizes any shadows cast.	1
4.	Lighting must not create a disabling glare for road users.	!
5.	<ul> <li>Key areas where additional lighting may be required:</li> <li>a. To improve visibility and/or highlight crossing points.</li> <li>b. Allow identification of any change in ground surface height.</li> <li>c. Highlighting of wayfinding signage.</li> </ul>	BP
6.	Artificial lighting to the appropriate level required by Australian and New Zealand Standard 1158.1.1:1997 Road lighting - Vehicular traffic (Category V) lighting - Performance and installation design requirements (AS/NZS 1158.1.1:1997) may need to be installed.	BP
Detou	Routes and Perimeter Site Management	
1.	Recommend regular, consistent monitoring of the site perimeter, adjoining footpaths and all detour routes to pick up potential hazards.	!

### **Pedestrian Crossing Points**

1.	All pedestrian crossing points, whether permanent or temporary to be designed to be accessible for all users.	!
2.	Consider line of sight for pedestrians, users of mobility equipment who are at a lower height, children and approaching drivers/cyclists. Where appropriate, cut back vegetation and remove on-road parking spaces that may limit line of sight.	1
3.	Prioritise pedestrians over vehicles and bicycles. Clearly alert drivers, cyclists, pedestrians and mobility equipment users to the	!





	crossing point. This may be achieved by signage, ground markings and where appropriate traffic control lights.	
4.	Provide a clear, visual and where appropriate, tactile ground surface finishes between pedestrian and vehicle routes.	!
5.	At pedestrian crossing points (zebra) avoid inappropriate use of colour or roadway art as it can be misleading or confusing for pedestrians and other road users (see section Examples of Common Problems Encountered: Photo 8). Ensure compliance with NZ Transport Agency legislation for pedestrian crossings (zebra).	!
6.	For temporary crossing points where a full pedestrian crossing is deemed unnecessary, mark the boundary width of the crossing with white lines using slip resistant paint.	!
7.	Ensure that crossing points and pedestrian signage line up on both sides of the road.	Į
8.	Ensure that the kerb ramp on either side is the full width of the marked crossing point.	I
9.	<ul> <li>Ensure that at automated crossings:</li> <li>a. Pedestrian signal controls are located close to any kerb ramp, to be predictably located throughout.</li> <li>b. The push button is reachable by people using a wheelchair or mobility scooter, people small in stature and children.</li> <li>c. The location beeps are functional.</li> <li>d. The location beeps are turned off and the signals covered on crossings that are closed.</li> </ul>	
10.	Recommend that pedestrian signals have both an audible and mechanical alert to assist people who are Blind, sight impaired or Deaf.	!
11.	Crossing points are to be fully illuminated at all times.	!



12.	Use of temporary tactile ground surface indicators (TGSI) at pedestrian crossing points during change and construction needs to be assessed on a case-by-case basis.	!
	Key points to consider are:	
	1. Duration of temporary crossing point.	
	<ol> <li>Location, road classification and traffic levels, level of pedestrian activity both during and out of work hours when traffic controllers are not available.</li> </ol>	
	3. Could someone who is blind or sight impaired easily locate the crossing point independently and determine where to safely stop before stepping out into the roadway?	
	If during the work phase the layout of the crossing point is changed, the temporary TGSI may need to be removed and relayed to ensure they are directing people who are blind or sight impaired to cross the road in the right direction.	
	Temporary TGSI must be removed at the completion of the work.	
13.	Use traffic controllers who have training to encourage good communication between a range of access users, where there could be ambiguity or potential hazards at temporary crossing points along any detour route.	BP
14.	Avoid the use of hit sticks or cones at pedestrian crossings as they need to be free of any obstructions to users. They can also cause confusion as it could appear that pedestrians are not permitted to cross at that point.	BP
15.	Where practical, use existing intersection corners and pedestrian crossing points.	Aim
16.	Consider appropriate traffic calming measures to slow traffic as vehicles and bicycles approach pedestrian crossing points.	Aim



## Kerb Ramps

1.	Locate kerb ramps so users have an unobstructed view of traffic approaching from any direction.	!
2.	Kerb ramps to be provided at all pedestrian crossing points and where footpaths cross a kerb at road intersections.	!
3.	Offset kerb ramps from intersection corners to align with the direction of travel. When not able to be offset from intersection or where intersection allows pedestrian traffic to cross in any direction, kerb ramp is graded and carried around quadrant.	!
4.	Ensure kerb ramps line up on both sides of the road.	!
5.	Ensure that all hot mix asphalt kerb ramps are a minimum 900mm wide (kerb ramp to be the width of the crossing) and have flared sides so there is no drop edge to side of ramps.	!
6.	Ensure there are no gaps in hot mix asphalt around kerb areas that can be a trip hazard and collect mud and debris.	!
7.	Gradient of kerb ramps no steeper than 1:8	!
8.	Maximum length of kerb ramp 1,500mm	!
9.	No variation of slope of kerb ramp from side to side.	!
10.	Ensure there is no upstand between the channel/gutter and kerb ramp.	!
11.	Ensure adequate drainage for kerb ramps to avoid puddling and mud/debris collection.	!
12.	HDPE (high density polyethylene) temporary ramps may be used for short term kerb ramps as they have a high tensile strength and density making them reasonably rigid. Ensure the ramp is secured	!



	by bolting all four corners of the ramp into the ground to eliminate the risk of the ramp sliding when in use (Photo 28).	
13.	LDPE (low density polyethylene) temporary ramps must not be used under any circumstances due to their low tensile strength making them less rigid resulting in their bending/flexing.	!
14.	Before using existing temporary ramp stock or ordering new ramps, confirm that they are not constructed of low-density polyethylene (LDPE).	!
15.	Hot mix asphalt kerb ramps to always be used by preference.	BP

### **Road Cones**

1.	Avoid isolated cones as they add clutter to the footpath and can be a hazard for people with a sight impairment and those using mobility equipment.	1
2.	Do not use road cones as barriers or for channelization of pedestrians. They do not provide a clear guideline for people who are blind or sight impaired and are easily moved and can obstruct the clear path of travel.	!
3.	Whenever possible, keep footpaths clear of cones.	BP





#### **Construction Site Fencing**

#### **Background Information**

The block footings of the Heras fencing often used around construction sites are normally placed perpendicular to the fence line to provide stability. However, the block footings can cause a trip hazard for pedestrians and in particular, for people who are Blind or have a sight impairment.

Unnecessary placement of cones and sandbags can create both a trip hazard and narrow the clear path width that can adversely affect the safe navigation of the area by people with access needs.

People who are Blind or are sight impaired will often use the fence line as a guide, the elimination of trip hazards, e.g. block footings, cones and sandbags, and making the fence line detectable at ground level will greatly assist their ability to navigate the environment.

1.	Avoid placement of cones and sandbags around fence lines unless required to cordon off or provide warning of a specific hazard. Ensure collection of all cones and sandbags once the required work is completed.	l
2.	Protective screening adjacent to the worksite provided for activities that create flying debris or dust.	!
3.	Ensure that screening nets are secure on the fence so as not to pose a potential hazard to people using the footpath.	!
4.	Gates swing inward toward the work zone, away from the pedestrian footpath, and remain closed and securely fastened when not in use.	!
5.	Where Heras fencing follows the public footpath, avoid if at all possible, block footings that are perpendicular to the fence line as they can be a trip hazard. Where possible, replace the block footings with either:	BP
	The Heras fence stabiliser plate:	
	A flat metal strip used in combination with concrete footings on the works side of the fence.	
	No tripping hazard on the public side of the fence.	





6. Where construction site fencing does not go to ground level on the footpath side of the fence, install continuous cane detectable kickboards along the base of the fence, that colour contrast to the ground surface, to provide a detectable guideline for people who are blind or have low vision and who are using a cane (Photos 29 and 30).



Photo 29: Good example of Heras fencing with no protruding footings and continuous kickboards.



Photo 30: Excellent example of:

- a. Detectable, colour contrast edging firmly attached to Heras fencing footings.
- b. High visibility, interconnected vehicle protection barrier.
- c. Directional sign clearly visible and not affecting clear footpath width.

BP



7. Consider including windows in hoardings around construction site to allow more natural light through, particularly where the adjacent footpath runs through a narrow street or walkway, and to allow the public to observe the construction.



Photos 31 and 32: Windows in hoardings adjoining narrow walkways. Hoardings go to ground level, providing a clear guideline for blind and sight impaired people



Photo 32

### Signage

#### **Background Information**

Wayfinding signage that provides clear information, is consistent in design and placement is essential for people with access needs to navigate detours safely and effectively.

Placement of signs needs to be considered carefully so that they are visible to all users and do not cause and obstruction or hazard, particularly for users of mobility equipment or who are Blind or sight impaired.

See Appendix 1 – Signage for recommendations on signage design.







4.	Ensure signage placement does not interfere with line of sight or usage of bus stops, driveways and kerb ramps.	!
5.	Ensure that directional signs are pointing the correct way. Recommend including street names on directional signs as this gives people confidence that they are going in the right direction.	!
6.	Do not place general information and wayfinding signage in close proximity to each other as this can make them harder to differentiate.	!
7.	Ensure signage is as visible as possible, readable from both a seated and standing position, and is large enough to be read from a distance. Recommend directional and functional signs are located between 1,200mm and 1,700mm above ground level.	!
8.	Orientate signage perpendicular to the path of travel to make it easier to read.	!
9.	Ensure wayfinding and locational signage has a consistent layout so it can be easily recognised and understood by everyone.	BP
10.	The use of universally recognised pictograms and symbols can complement text information.	BP
11.	Provide supplementary lighting to highlight wayfinding signage as required.	Aim





12.	Consider including a QR code, reachable from both a seated and standing position, that links to the route map or information, so people can use their own technology to view.	Aim
Conta	ct Information	
1.	On public information signage include key contact information for the public to report any issues or who have questions. Include email and phone options for individuals who have a preferred mode of contact because of their access need.	Aim
Interno	ational Symbol of Access (ISA)	
1.	For the accessible route, the International Symbol of Access (ISA) using the white figure/wheelchair on a blue background must be used.	!
2.	Ensure that the International Symbol of Access symbol orientation is correct:	ļ
	a. When identifying a facility figure to face right.	
	<ul> <li>For indicating the direction of travel or direction to a facility the figure shall face direction to be indicated.</li> </ul>	



3.	Ensure that the ISA symbol is positioned to be easily viewable from all approach routes.	BP
4.	Where appropriate, ensure there is clear signage that includes the ISA symbol, to accessible toilets along the detour route.	BP

### **Route Maps**

#### **Background Information**

Route maps allow people to understand the detour routes, how long the detour is and where it leads, thereby giving them confidence in navigating the new route to their destination.

1.	Ensure that route maps are positioned to be easily viewed from both a seated and standing position.	!
2.	Each route map must include a "You are here" dot sticker so that people can identify where they are along a route that they may be unfamiliar with. This is especially helpful as the maps will all be identical and do not necessarily face the same way as the pedestrian on the footpath. Check maps regularly and replace any stickers that have been removed.	!
3.	If part of the detour route is not accessible, e.g. route is steep or has stairs, clearly indicate this on the route map and show an alternative accessible route (consider using colour contrast) together with the International Symbol of Access (ISA) so people with access needs can easily identify the accessible route.	!
4.	Provide route maps at each end of the detour, at turns and decision points along the detour route, i.e. at detour sign directing into another street.	BP
5.	For lengthy detour routes, provide an indication of travel time and distance in metres.	Aim



6.	Where appropriate, show on maps where the closest accessible public toilets (include the ISA symbol alongside for clear identification) and public transport stops are located.	Aim
7.	Consider including a QR code, reachable from both a seated and standing position, that links to the route map, so people can use their own technology to view.	Aim

## **Covered Walkways**

1.	Ensure that there is adequate lighting within covered walkways, whether formed by scaffolding or containers, for safe use in all lighting conditions, including at night. Advice on adequate lighting levels may be required from a specialist at Auckland Council.	!
2.	Ensure any flooring/carpet in the walkway is firmly secured to avoid a trip hazard.	!
3.	Where applicable, a ramp connecting the structural floor of the covered walkway with the existing footpath is installed. See Appendix 2 Ramps for specific design requirements.	!



BP



4. For long enclosed walkways, consider side windows to allow natural lighting and if possible and practical, escape exit(s) to avoid entrapment particularly when being used in secluded areas or at night.



Photo 34: Container walkway with side openings and optional external path

#### Ramps

See Appendix 2 Ramps for specific design requirements should a pedestrian ramp be required to be installed during the construction process.

#### **Stairs**

See Appendix 3 Stairs for specific design requirements should stairs be required to be installed during the construction process.

### **Public Transport**

<ol> <li>Where bus stops have been temporarily relocated, ensure</li></ol>	e their
new location is clearly marked both in-situ and on the routed	ute maps.



### Appendix

#### Appendix 1 – Signage

1	Ensure signage containing text uses sentence case - both upper and lower case. Words using all upper-case lettering are more difficult for those with low vision and cognitive needs to read. The shape of words that each start with a capital or upper-case and then use lower-case for the remainder of the word (Capitalised) are easier to distinguish and therefore understand.
2	Ensure signage text is left-justified.
3	Ensure that signs use short sentences and simple words. Abbreviations and very long words to be avoided.
4	Include universally recognised images or symbols on signage with text to assist those with cognitive needs and/or low vision who may have limited word reading capacity, or those for whom English is not their first language.
5	Ensure that lettering and graphical symbols are highly contrasted with the sign background colour.
6	Provide signage with a matte or low sheen finish to prevent glare and reflection.
7	For long-term projects where project information is displayed, consider including a QR code, located to be easily reached from both a seated and standing position, that links to the same information, so people can use their own technology to view. Some people with low vision like to use magnification or screen reading technology.



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#### Appendix 2 – Ramps

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1	Provide ramps with a gradient of 1:14, or less steep if possible (1:20). This will make the ramp easier to use for someone using a manual wheelchair or someone who has difficulty travelling on a slope. A ramp on an accessible route shall not exceed 1:12, and only threshold and kerb ramps can be 1:8 for very short distances.
2	Maximum transverse gradient to be 1:50 (2%) as steeper gradients become uncomfortable to negotiate both walking with access needs and sitting in a wheelchair.
3	Ramps are at least 1,800mm wide.
4	Ensure that ramp surface materials are rigid, with a plain and slip resistant surface in both wet and dry conditions.
5	The required visual, tactile and auditory cues at top and bottom of the ramp are recommended to be achieved with colour contrasted tactile ground surface indicators (TGSI). This helps inform people – especially those with visual access needs – they are about to encounter a change in the environment. Ensure there is not a change in slip resistance or significant differences in frictional characteristics between different surface treatments to avoid a slip, trip or stumble hazard. Ensure TGSI are:
	a. warning indicator studs set out per NZTA RTS 14 Appendix B
	b. strongly colour contrasted – safety yellow to be used
	c. slip resistant
	d. the full width of the ramp
	e. set back 300mm from the top and bottom of the ramp
	f. at least 600mm deep
6	Handrails:
	a. Ramps with a gradient of 1:20 or steeper and a length of more than 800mm, handrails are provided on both sides of the ramp.
	b. Ramps with a gradient of 1:20 or steeper and a length of 800 mm or less, a handrail is provided on at least one side of the ramp.
	<ul> <li>Ramps with a gradient of less than 1 in 20 and for kerb ramps, handrails are not required.</li> </ul>
	<ul> <li>Handrails have a smooth matt finish surface that provides adequate resistance to hand slippage.</li> </ul>





	e.	Provide unobstructed passage of hand along the full length of the handrail.
	f.	Install handrails at a consistent height above ramp surface: 900mm above ramp surface; 32mm to 45mm diameter; with a rounded profile. Or 40mm to 50mm wide flat with rounded edges.
	g.	Handrails extend 300mm past top and bottom of ramp.
	h.	Handrails to be turned down 100mm, or turned towards a wall, or turned down and terminate at the floor/ground level. This serves to inform people with a sight impairment that the ramp has finished and also eliminates the risk of clothing being caught over the end of the handrails.
	i.	Domed button installed 150mm +/- 10mm from end of handrail at top and bottom of ramp to inform blind and low vision users that the ramp and handrail is at the end.
	j.	To enhance visibility of handrails, recommend that they have a strong colour contrast to the background.
7	Safety	y rail fitted mid-height on open side(s) of ramp.
8	lf ram by:	p is bounded on one or both sides by terrain that slopes downwards
	a.	Up to 30° - provide firm, level margin of at least 600mm. No upstand/guarding required unless margin less than 600mm.
	b.	More than 30° - upstand minimum height 150mm required with strong colour contrast for visibility.
	C.	Rise more than 600mm above adjacent ground, provide guarding and strong colour contrast upstand/tapping/kerb rail at a maximum height 300mm.





#### Appendix 3 – Stairs

1	A single, isolated step on an accessible route is never acceptable.		
2	Minimum width of a flight of stairs to be 1,200mm.		
3	The required visual, tactile and auditory cues at top and bottom of the stairs are recommended to be achieved with colour contrasted tactile ground surface indicators (TGSI). This helps inform people – especially those with visual access needs – they are about to encounter a change in the environment. Ensure there is not a change in slip resistance or significant differences in frictional characteristics between different surface treatments to avoid a slip, trip or stumble hazard. Ensure TGSI are:		
	a. warning indicator studs set out per NZTA RTS 14 Appendix B		
	b. strongly colour contrasted – safety yellow to be used		
	c. slip resistant		
	d. the full width of the stairs		
	e. set back 300mm from the top and bottom of the stairs		
	f. at least 600mm deep		
4	Handrails have a smooth matt finish surface that provides adequate resistance to hand slippage.		
5	Install handrails at a consistent height above floor level: 900mm to 1,000mm above floor level; 32mm to 45mm diameter; with a rounded profile. Or 40mm to 50mm wide flat with rounded edges.		
6	Handrails extend 300mm past top and bottom of stairs.		
7	Handrails to be turned down 100mm, or turned towards a wall, or turned down and terminate at the floor/ground level. This serves to inform people with a sight impairment that the stairs have finished and also eliminates the risk of clothing being caught over the end of the handrails.		
8	Domed button installed 150mm +/- 10mm from end of handrail at top and bottom of stairs to inform blind and low vision users that the stairs and handrail is at the end.		
9	To enhance visibility of handrails, recommend that they have a strong colour contrast to the background.		
10	Risers:		



	Append
	a. Ensure that risers are uniform over all steps in a flight.
	b. If possible, avoid open risers as they can be disorientating for people with balance disorders and there is a risk of foot slippage through an open riser.
	c. Maximum riser height to be 180mm.
11	Treads:
	a. Ensure that treads are uniform over all steps in a flight
	b. Minimum tread depth to be 310mm.
	c. Nosing a maximum 25mm overhang.
	d. Nosing colour contrasted with the tread:
	<ul> <li>Continuous slip resistant, visual warning line 40mm to 50mm wide the full width of the going. May run along upper edge of riser with width up to 10mm. Indicator may be set back maximum 15mm from front of nosing.</li> </ul>
	ii. Safety yellow to be used as the visual warning line.
12	Where practicable, consider providing a ramp alongside the stairs. Or whether provision of just a ramp would be a better solution.
	Photo 35: Steps and adjoining accessible ramp



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