Date: Tuesday 17 September 2019
Time: 4.00pm
Meeting Room: Devonport-Takapuna Local Board Chamber
Venue: Takapuna Service Centre
Level 3
1 The Strand
Takapuna

Devonport-Takapuna Local Board
OPEN MINUTE ITEM ATTACHMENTS

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Note: The attachments contained within this document are for consideration and should not be construed as Council policy unless and until adopted. Should Councillors require further information relating to any reports, please contact the relevant manager, Chairperson or Deputy Chairperson.
At the final business meeting of the Devonport-Takapuna Local Board for this triennium we say thank you and farewell two of our long serving and influential members. Life at the D-T LB will never be the same without Mike Cohen and Grant Gillon around the table to bring their views and considerable experience to the discussions.

Michael Cohen, QSM:

Whether Mike remembers but I was at the former Devonport Borough Council office at 3 Victoria Road in 1998 when he was sworn in as a member of the Devonport Community Board. That was at a time when Paddy Stafford-Bush ruled the local government affairs in Devonport. Mike and I were newbies to local politics.

In his second term Mike shared the chairmanship with John Duder with Mike taking over the chair role on 8 April 2003 and then remaining in the role as chair until October 2010. At that time Mike was then elected to the first Devonport-Takapuna Local Board. In the second term he served as chairman from 2013 to 2015.

Mike has been instrumental in leading changes, especially in the area of park and reserve restoration, beach water improvements and biosecurity implementation but some other notable issues are: in Devonport, with the Devonport business area and waterfront revitalisation planning and implementation, at Fort Takapuna and Narrow Neck with the restoration of the military heritage area, keeping a watchful eye on the development of the Bayswater Marina reclamation and then more latterly preparing area plans for Takapuna Milford and Sunnynook.
In the development of community facilities Mike has had a strong rapport with groups across the Devonport-Takapuna Local Board area whether it has been on the arts and culture front at the Bruce Mason theatre, Pump house theatre, Rose Centre, Lake House Arts Centre or the Depot Artspace.

Mike attended numerous residents and ratepayers meetings and was always able to give the answers to the questions that locals wanted in relation to their important pet projects.

Preparation for meetings was an important job that Mike has been a stickler to ensure that detail is explored with care and attention. His blue, green and yellow marker pens got great use when he was reading through agendas.

Nationally Mike played an important role representing the community boards and then local boards at zone and national level. He played an important role on the executive of Local Government New Zealand. Ensuring that community boards and more latterly local boards had a voice in LGNZ was something that Mike pushed at zone level.

Mike, we will miss your distinctive red car pointing out the location of a meeting and your contribution to public meetings where you were able to give important background information on issues that were being discussed.

Mike received the Queens Service medal for public service in the 2004 Royal New Year’s Honours list.

On behalf of the community that makes up the Devonport-Takapuna Local Board area and from your fellow board members we sincerely thank you for your contribution and efforts that you have put into your role over the last 21 years.
Grant Gillon:

Grant is doing what four other board members are doing in standing for another term as an elected member at Auckland Council; however, you are leaving the Devonport-Takapuna Local Board after six years on this board. Your quest is a seat on the Governing body of the Council representing this area.

We wish to record our thanks and gratitude for the commitment you have shown over the last two terms. You certainly got immersed in issues and were prepared to put your views forward with conviction and determination.

You have certainly had a varied and interesting career in politics whether it was your six years in Central Government as a member of parliament, your one term as a councillor on the former North Shore City Council or your three terms as a local board member, with one of those terms as a dual local board member on Devonport-Takapuna and Kaipatiki local boards.

We thank you for your commitment and efforts in being a member of the Devonport-Takapuna Local and what you have contributed to our communities.
Presented to the Local Board 17 / 09 / 2019 by Grae Burton

Kia ora koutou,

Thank you for opportunity to speak on behalf of Lake House Arts the proposed Korean Gardens on Fred Thomas Drive.

Lake House Arts has long supported the continued development of the reserve at 37 Fred Thomas Drive and continues to support the development of the Korean Garden on the empty Southside field which adjoins the Lake House facility. Lake House Arts was the original venue for the launch and fundraiser to support the garden, many years ago. Lake House Arts will continue to support any such development which brings more community and diversity to the neighbourhood.

That said, it is important to address the impact this could have on Lake House Arts. Since the original plan was proposed a number of years ago, Lake House Arts has undergone significant development in it’s own right. In the last 5 years Lake House Arts annual visitor and user numbers have doubled to approximately 65,000 per annum.

To accommodate growth, Lake House Arts has for over 20 years maintained, designed, excavated, built and developed the carparks and grounds at it’s own expense. Any short or long term action that could restrict current parking, in the excavation and development of the Korean Gardens would significantly, negatively impact our ability to deliver programmes to the community and have continuity of business.

Regularly, 2-3 days during peak use in the week, both carparks, the sealed east side carpark and the unsealed south side carpark will be filled with Lake House visitors, users, students and residents, by 9.30am, and will turn over by 12.30pm for afternoon sessions, and again at 4pm and 6pm with evening Lake House users. In a single day that is approximately 200 vehicles using the existing parking.

We hope the Devonport / Takapuna Local Board recognises and acknowledges the significant investment Lake House Arts has already made in 37 Fred Thomas Drive and ensures that the development and build of the Korean Gardens does not negatively impact public access and goodwill Lake House Arts has spent the last 20 years building and growing.

We also hope that Devonport / Takapuna Local Board will take the opportunity to significantly develop parking on Fred Thomas Drive for the betterment of it’s stakeholders and users, and the excellent, under utilised Akoranga Bus Station. There is also an opportunity to improve signage from the Bus Terminal to facilities on the reserve, including Lake House Arts. We encourage the Local Board to consider developing other parking options in the surrounding area.

Once again, thank you for the opportunity to have input in this important process and we look forward to future developments with the Korean Gardens.

Grae Burton
Operations Manager
Lake House Arts
COMMENTS FROM DAVID AND PATRICIA SCHNAUER.

HAVING THE COUNCIL AS A NEIGHBOUR

1. Sylvan Park is a great area to live. We enjoy our neighbours - except that having the Council as one of those neighbours, is disconcerting. Council appears to have numerous staff involved with Lake Pupuke. Few of these staff appear to talk to each other. Those known to me so far include:

- Ms Graham at Parks (who has been promoting the cycleway);
- Planners who worked on the Milford Town Centre plan, and then developed an involvement with the Lake;
- a branch of Council at Northcote, which runs the kids Kayaking courses;
- Stephen Krebbs who gets involved with trees around the lake, (and a month ago opposed any pruning 25m from the proposed Waterpark site, because it is a Sensitive Environmental Area);
- a whole water quality section, headed by Ebrahim Hussain, working as project Baseline with Global Underwater Explorers and the Crawthron Institute, on lake water quality. They are undertaking elaborate and constant monitoring of lake water quality;
- another branch, which approves subdivisions, and which has apparently approved discharge of stormwater into Quarry Lake from a new subdivision development;
- Ateed, which I understand has a role in granting permits for activities in the parks and on the lake;
- The council officers who have written a report on this Waterpark project.

I am sure this list is incomplete. Some of those involved with the lake are Shore based; some City based. Some know more about the lake than others. I would be very surprised if Mr Hussain and the water quality section know about this Waterpark proposal; and equally surprised if the Northcote based section running the kids Kayaking is aware of the application.

This lack of co-ordination among Council staff has meant residents living on or near the Lake have developed an unease about what the Council staff will propose next. Because there appears little cross consultation within the staff, different proposals in conflict with each other can appear in quick succession.

An ideal answer would be for Council staff to be more co-ordinated and tightly lead. Failing that development, residents opposing the cycleway decided to try and form a residents group, with a role in relation to the lake. The Local Board approved the new group in a preliminary way, at one of its most recent meetings, and we thank you for that. If that new Guardians of Lake Pupuke group can get off the ground, the first thing the new group will seek to do, is call for a meeting with ALL the Council arms dealing with the lake (if we can find them all) and want to get them talking to each other (and to the residents), so the present disjointed approach can hopefully be improved.

NO DIRECT KNOWLEDGE OF WATERPARK

I was not in Auckland when the last Waterpark was operating, and did not see it: so I can’t comment in detail on the operation itself.

LAKE ALREADY INTENSIVELY USED

Lake Pupuke and Sylvan Park both appear to me already to be intensively used by a wide range of volunteer groups and individuals. It is great to see.
COMMERCIAL OPERATIONS – WINDSURF SCHOOL

The only commercial operator on the Lake at present is the windsurf school. We are the closest house to them. This commercial use is particularly appropriate for the Lake- it is not easy to imagine too many other places more suited to teaching kids to windsurf. If someone un-connected with the school got into trouble, I am sure the school would assist them if it could- so it provides a positive safety factor as well. I also understand the Windsurf school pays rent or a charge to the Council.

Over the years, the school has expanded. At its busiest, the windsurfing school takes up all the launching area to the right of the drive down. The school is I think is an appropriate commercial use on the lake; but it definitely adds materially to the pressure on the launching area, and the lake.

SUGGESTED CRITERIA FOR COMMERCIAL ACTIVITIES ON LAKE PUPUKE

If the Council management of Lake Pupuke was to become more co-ordinated, I suggest there should be a policy on commercial usage of the lake. If there was such a policy, I suggest it might include the following considerations:

- Public usage, volunteer groups and non-profit activities be given priority over commercial usage.
- The lake is already intensively used, so commercial activities which add to that pressure should generally be refused.
- Commercial activities should generally be compatible with the beauty, tranquility and wildlife aspects of the lake- especially in the vicinity of the wildlife reserve around the Sylvan Park/ Henderson Park areas.
- Commercial activities should pay for the privilege granted to them to use the lake.
- Commercial activities which need and utilise Lake Pupuke’s unique features (for example the windsurf school) should be given more favourable consideration than other commercial activities, which can just as effectively be operated elsewhere.
- Commercial activities should be compatible with other aspects of the lake- such as water quality.
- Commercial creep should be avoided- where for example because an activity is approved once, it has a shoe in for future applications.

WATERPARK SCORES LOW ON THESE CRITERIA

If Waterpark is assessed on these factors, it does not score well. Dealing with them in turn:

- Combined with the Windsurf school, the two commercial activities will basically render the launching area unusable by the public for a month.
- Even if the lake is quieter over the New Year period (with people away) there will certainly still be times when the launching area and carparks (with picnickers, etc) will be busy. The added pressure on the Lake’s facilities resulting from Waterpark is a negative.
- Waterpark is apparently not being asked to pay- so provides little public benefit to offset its activities.
- There are water slides and similar facilities at many Council swimming pools. Waterpark could be located at many places on the harbour, and does not need to be on Lake Pupuke. So Waterpark does not offer unique attributes; nor can it (unlike the windsurfing school) realistically only be located at Lake Pupuke.
- The activity is not overly compatible with the tranquility and bird related aspects of the nearby wildlife reserve.
- I have no knowledge, but doubt the proposal would impact adversely on water quality.
- My understanding is that last time, Waterpark was approved by the Board urgently just before Easter- so this prior consent should not carry forward as a precedent to be approved again.

CONCLUSION

If kids want some water activities, they can readily get water slides etc at Council pools- so Waterpark is not a critical project, providing recreational opportunities which cannot be replicated elsewhere. Activities such windsurfing and sailing are much more ideal for Lake Pupuke, and should have priority, including unrestricted access to the launching area. Waterpark appears to be a project which adds to the pressure on the lake; with few offsetting benefits.

For all these reasons, we respectfully suggest the Board should refuse approval for Waterpark to operate on the lake again.

David and Patricia Schnauer.
**Member’s Report – Grant Gillon**

*Provided for 17 September 2019 meeting of Devonport-Takapuna Local Board*

There are a number of things I could leave the board with, to consider. But I didn’t get it in, in time. However, I feel the board should request the below from Auckland Transport.

The footpath length of about 285m from Tonkin Drive to the Sunnybrook Primary School on the southern side of Lyford Crescent is old and broken and not conducive to safety for the local school children. The footpath is only 1.2m wide and the standard is a minimum 1.8m or even 2.4m (refer attachment).

I am advised that until recently, the National Land Transport Programme (NLTP) hasn’t allocated funds for footpath maintenance or renewal, this being the responsibility of local councils, or in Auckland’s case, Auckland Transport.

However good news - this activity is now financially supported at the standard Auckland Transport financial assistance rate of 51%. The footpath programme is managed by Auckland Transport alongside their road maintenance and renewals programmes. Urgent cases can be brought forward in the programme.

The requested lighting along the pathway by the Sunnybrook scout den might also come under this category and could be looked into as well. This is a walkway from the bus station and its current unlit state is seen by residents as a safety risk. The board could seek advice on this project as well as it might not be entirely a park’s issue, but NZTA and AT could fund lighting, see below. I request officers investigate.

The new work category includes a range of qualifying activities. Examples of qualifying activities include, but may not be limited to:

- footpath patching and pothole repairs
- maintenance of associated facilities including signs, lighting, and hand rails/guard rails
- footpath renewals, such as resurfacing or reconstruction.

**Attachment:** NZ Transport Agency Pedestrian Planning and Design Guide, Chapter 14 – Design of Pedestrian Network

**Recommendation**

That the Devonport-Takapuna Local Board:

a) request Auckland Transport to urgently assess the footpaths leading to Sunnylea Primary School, especially in Lyford Crescent, to assess safety improvements for the school children, including the option of widening the footpath to the required standard or more.
THE DESIGN OF THE PEDESTRIAN NETWORK

When designing for pedestrians, quite often the devil is in the detail. This section gives detailed guidance on best practice so that those who design, operate and maintain the road network can better provide a quality walkable environment for all.

Higher standards of footpath design are required for two main reasons. Falls on footpaths are a serious problem, and existing designs are difficult to negotiate by people with impairments.

The main obstacle to walking is difficulty crossing roads. Well designed crossing facilities can make a real difference to safety and convenience. Specific attention is given to physical features such as kerb crossings, islands, kerb projections and platforms. Attention to intersection details can make quite a difference.

Consideration of directional guidance, lighting and maintenance issues completes this part.
14 FOOTPATHS

Provide footpaths wherever pedestrians will use them.
Use footpath dimensions and geometry that provides access for all.
Choose surface materials for safety, convenience and aesthetics.
Manage design and location of street furniture.
Locate and design driveways appropriately.
Manage conflict on shared paths by good design and operation.
Provide quality connections to public transport.

14.1 Where footpaths should be provided

Table 14.1 is a guide to providing footpaths in urban and rural environments [86].

<table>
<thead>
<tr>
<th>Land use</th>
<th>Footpath provision</th>
<th>Existing roads</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>New roads</td>
<td></td>
</tr>
<tr>
<td>Commercial and industrial</td>
<td>Preferred</td>
<td>Preferred</td>
</tr>
<tr>
<td>Residential (on arterials)</td>
<td>Both sides</td>
<td></td>
</tr>
<tr>
<td>Residential (on collector roads)</td>
<td>Both sides</td>
<td>Minimum</td>
</tr>
<tr>
<td>Residential (on local streets)</td>
<td>Both sides</td>
<td>Minimum</td>
</tr>
<tr>
<td>Three to 10 dwellings per hectare</td>
<td>Both sides</td>
<td>One side</td>
</tr>
<tr>
<td>Fewer than three dwellings per hectare (rural)</td>
<td>One side</td>
<td>One side</td>
</tr>
</tbody>
</table>

Where only the minimum provision is made, the road controlling authority (RCA) should be able to demonstrate clearly why walking is not expected in that area (although for new or improved developments, this is the developer’s responsibility). Retrofitting footpaths is more costly than providing them in the first place, so the preferred standard should be installed for any new or improved development [35, 41, 145] unless:

- it is not accessible to the general public
- the cost of suitable measures is excessive (more than 20 percent of the scheme cost)
- it can be shown to benefit very few pedestrians.

For new developments, project timetables can sometimes mean footpaths are not proposed at the initial stages [145]. In these cases, the RCA can reasonably request a written agreement from the developer to provide footpaths in future, potentially with a bond payment.

14.2 Footpath widths

14.2.1 Footpath zones

Most footpaths within the road reserve lie between the edge of the roadway and the frontage of adjacent private property. There are four distinct zones within this area (see table 14.2) and it is important to distinguish between the total width and the width of the zone likely to be used by pedestrians (the through route) [15, 21, 46].

When determining the width of the frontage or street furniture zone, a ‘sky distance’ of 0.15 m should apply from any object next to the through route. This area should then be excluded from the through route width as it is unlikely to be used by pedestrians. For example, if a lamp post is near the through route, the sky zone would be the area next to it. This area would then be included in the zone where the lamp post is located and the through-route width would be reduced.

In off-road environments the same principles apply, however, one or more of the zones in table 14.2 may be absent or duplicated on the opposite side of the through route. Figure 14.1 illustrates some arrangements for these zones.
Table 14.2 – Zones of the footpath

<table>
<thead>
<tr>
<th>Area</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kerb zone</td>
<td>- Defines the limit of the pedestrian environment.</td>
</tr>
<tr>
<td></td>
<td>- Prevents roadway water run-off entering the footpath.</td>
</tr>
<tr>
<td></td>
<td>- Deters vehicles from using the footpath.</td>
</tr>
<tr>
<td></td>
<td>- Is a major tactile cue for vision impaired pedestrians.</td>
</tr>
<tr>
<td>Street furniture zone</td>
<td>- Used for placing features such as signal poles, lighting columns, hatch covers, sandwich boards, seats and parking meters.</td>
</tr>
<tr>
<td></td>
<td>- Can be used for soft landscaping/vegetation.</td>
</tr>
<tr>
<td></td>
<td>- Creates a psychological buffer between motorised vehicles and pedestrians.</td>
</tr>
<tr>
<td></td>
<td>- Reduces passing vehicles splashing pedestrians.</td>
</tr>
<tr>
<td></td>
<td>- Provides space for driveway gradients.</td>
</tr>
<tr>
<td>Through route (or clear width)</td>
<td>- The area where pedestrians normally choose to travel (this should be kept free of obstructions at all times).</td>
</tr>
<tr>
<td>Frontage zone</td>
<td>- The area that pedestrians naturally tend not to enter, as it may contain retaining walls, fences, pedestrians emerging from buildings, 'window shoppers' or overhanging vegetation.</td>
</tr>
</tbody>
</table>

Figure 14.1 – Examples of footpath zones

Photo 14.1 – Kerb zones, Hamilton

Photo 14.2 – Café in street furniture zone, Wellington
14.2.2 Width of zones

The width of the various footpath zones will depend on the environment and those to which the route connects [24, 115]. Table 14.3 has minimum widths that apply to typical pedestrian and vehicle flow conditions [24, 40, 69, 99, 116]. Generally, wider street furniture zones are required in areas with:

- high adjacent vehicle speeds, and/or
- high adjacent vehicle volumes

and wider through-route zones are generally required in areas with:

- high pedestrian volumes, and/or
- a high number of pedestrians stopping on the footpath.

If the flow of pedestrians per minute (p/min) exceeds the maximum in table 14.3, refer to Fruin: Pedestrian planning and design [75].

<table>
<thead>
<tr>
<th>Location</th>
<th>Maximum pedestrian flow</th>
<th>Kerb</th>
<th>Zone</th>
<th>Through route</th>
<th>Frontage</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arterial roads in pedestrian districts</td>
<td>80 p/min</td>
<td>0.15 m</td>
<td>1.2 m</td>
<td>2.4 m +</td>
<td>0.75 m</td>
<td>4.5 m</td>
</tr>
<tr>
<td>CBD</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alongside parks, schools and other major pedestrian generators</td>
<td>60 p/min</td>
<td>0.15 m</td>
<td>1.2 m</td>
<td>1.8 m</td>
<td>0.45 m</td>
<td>3.6 m</td>
</tr>
<tr>
<td>Local roads in pedestrian districts</td>
<td>60 p/min</td>
<td>0.15 m</td>
<td>0.9 m</td>
<td>1.8 m</td>
<td>0.15 m</td>
<td>3.0 m</td>
</tr>
<tr>
<td>Commercial/industrial areas outside the CBD</td>
<td>60 p/min</td>
<td>0.15 m</td>
<td>0.9 m</td>
<td>1.5 m</td>
<td>0.15 m</td>
<td>2.7 m</td>
</tr>
<tr>
<td>Collector roads</td>
<td>50 p/min</td>
<td>0.15 m</td>
<td>0.0 m</td>
<td>1.5 m</td>
<td>0.0 m</td>
<td>1.65 m</td>
</tr>
<tr>
<td>Absolute minimum*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

# Consider increasing this distance where vehicle speeds are higher than 55 km/h.

* Only acceptable in existing constrained conditions and where it is not possible to reallocate road space.

All new and improved developments should comply with the above widths. Where footpaths have not been provided to a suitable standard in the past, RCAs should develop works programmes to bring them up to a suitable standard.

When there appears to be not enough space available to install the appropriate footpath width, the step-by-step process in figure 14.2 should be used [116].

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The design of the pedestrian network

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The design of the pedestrian network

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14.2.3 Passing places
Where through route width is constrained to less than 1.5 metres wide, passing places should be provided – but only where it is not possible to widen the footpath over a longer distance, and never as a low-cost alternative to a full-width footpath. The advantages of passing places are:
- two wheelchairs can pass each other
- walking pedestrians can pass stationary pedestrians, such as those waiting to use a crossing or waiting for public transport.

Table 14.4 outlines passing place dimensions and spacing.

<table>
<thead>
<tr>
<th>Reason</th>
<th>Passing place dimensions</th>
<th>Location and spacing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wheelchair users</td>
<td>Minimum through route width 1.8 m. Minimum length 2.0 m (see figure 14.3)</td>
<td>At least every 50 m, and preferably more frequently, where the footpath is less than 1.5 m wide.</td>
</tr>
<tr>
<td>Passing pedestrians</td>
<td>Minimum through route width 1.8 m. Minimum length equivalent to the average group of obstructing pedestrians, plus at least 1 m.</td>
<td>As required, according to the RCA’s assessment of where pedestrians may wait.</td>
</tr>
</tbody>
</table>

[10, 42]

14.3 Overhead and protrusion clearances
Overhead clearance
To prevent head injuries to pedestrians, footpaths shall have a vertical (overhead) clearance over their entire width (including the street furniture and frontage zones) that is free of all obstructions, such as vegetation, signs and shop awnings. Table 14.5 shows the minimum overhead clearances.

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Clearance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ideal clearance</td>
<td>2.4 m</td>
</tr>
<tr>
<td>Absolute minimum*</td>
<td>2.1 m #</td>
</tr>
</tbody>
</table>

* Only acceptable in constrained existing environments.
# The clearance shall never be less than this, even for a short distance.
Protrusions
A protrusion is an object projecting into the footpath from the side. Very minor protrusions are acceptable, as long as they are not within the pedestrian through route and comply with the dimensions in Table 14.6.15.

Every item protruding into the footpath shall have an element (which can include any mounting post) within 150 mm of the ground, so that the vision impaired who use canes can detect it.

14.4 Gradient
The gradient of a through route is the slope parallel to the direction of travel. Movement becomes more difficult as gradient increases. Table 14.7 shows the three parameters that should be assessed when considering the gradient required. Parameters can be calculated using the procedure outlined at the end of this section.

Through routes in existing developments may have gradients higher than the maximums in Table 14.7. Where the mean gradient exceeds the maximum value, the through route should ideally be redesigned as a ramp, which includes rest areas. This allows maximum through-route gradients of up to eight percent while still remaining accessible to wheelchair users. Where this is not possible, and the through route is next to a road, the mean and maximum gradients should be no more than that of the adjacent roadway. Section 14.10 gives advice on designing through routes as ramps.

Generally, through routes in all new developments should be less than the permitted maximums. If they exceed them, the developer should show why this was unavoidable. Section 14.11 advises on situations where footpaths cross driveways.

### Table 14.6 - Acceptable protrusions

<table>
<thead>
<tr>
<th>Mounting</th>
<th>Maximum protrusion into footpath on street furniture ones</th>
<th>Height</th>
<th>Protrusion examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attached to walls</td>
<td>160 mm</td>
<td>Between 0.7 m and 2 m</td>
<td>Window sillss Business signs Parking meters Public art Benches Post boxes Vegetation Traffic signs Drinking fountains Some litter bins Some sandwich boards</td>
</tr>
<tr>
<td>Freestanding or mounted on poles</td>
<td>300 mm</td>
<td>300 mm</td>
<td></td>
</tr>
</tbody>
</table>

### Table 14.7 - Through-route gradients

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Definition</th>
<th>Maximum value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean gradient</td>
<td>The change in vertical elevation measured between two points.</td>
<td>5%</td>
</tr>
<tr>
<td>Maximum gradient</td>
<td>The change in vertical elevation measured at 0.6 m intervals along a route.</td>
<td>8%, over a distance no greater than 9 m. Gradients greater than this are not suitable for wheelchair users.</td>
</tr>
<tr>
<td>Rate of change of gradient</td>
<td>The total variation in slope measured at 0.6 m intervals along a route.</td>
<td>13%</td>
</tr>
</tbody>
</table>

The following equations are used to calculate mean and maximum gradient:

\[
\text{Gradient} = \frac{\text{difference in height}}{\text{horizontal distance between points}} \times 100\%
\]

\[
\text{Rate of change of gradient}^* = \frac{\text{Gradient at point 2}}{} - \frac{\text{Gradient at point 1}}{}
\]

* Downward slopes are expressed as negative gradients.

**Example**

The following is an example of calculating mean, maximum and rate of change of gradient along the length of the through route.

![Diagram of a through route with points A, B, C, and D labeled and gradient calculations shown.]

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Calculation</th>
</tr>
</thead>
</table>
| Mean gradient (between A and D) | \[
\text{Gradient} = \frac{\text{difference in height}}{\text{horizontal distance between points}} \times 100\%
\] |
|                           | = \[
\frac{(0.12 - 0.05)}{(4.8)} \times 100\% = 1.5\%
\] |
| Maximum gradient (between A and D) | = 8% This is the steepest gradient of the three sections between points A and B (2%), B and C (8%) and C and D (4%). |
| Rate of change of gradient (at point B walking from left to right) | = \[
\frac{\text{gradient to right of B}}{} - \frac{\text{gradient to left of B}}{}
\] 8% - (2%) = 10% |

Figure 14.4 - Example of gradient calculation

The design of the pedestrian network
14.5 Crossfall

Crossfall is the slope of the footpath at right angles to the direction of travel. Some crossfall is required for drainage, but excessive crossfall in the through route requires people using wheelchairs and walking frames to use extra energy to resist the sideways forces. As the crossfall is invariably towards the road where footpaths are in the road reserve, anyone losing their balance is directed towards motorised traffic.

Through route crossfalls should always be between one percent and two percent [9, 19, 20, 42, 56, 116]. Where conditions could lead to greater crossfall, the footpath can be raised or lowered over the whole width. Alternatively, steeper crossfalls can be created in the street furniture and/or frontage (Figure 14.5).

Where land next to the footpath's frontage zone has a significant downwards crossfall (greater than 25 percent) or a vertical drop of more than one metre, pedestrians should be prevented from straying from the through path by, for example [9, 1465]

- a 1.2 m-wide strip of a contrasting coloured and/or textured material between the edge of the footpath and the start of the hazard
- a raised mountable kerb at the edge of the footpath, together with a 0.6 m-wide strip of a contrasting coloured and/or textured material between the kerb and the start of the hazard
- a barrier at the edge of the footpath that is at least 1.1 m high.

Figure 14.5 – Correct and incorrect provision of crossfall
14.6 Surfaces

General design

All surfaces on which pedestrians walk should be firm, stable and slip resistant even when wet [48, 90, 115, 120]. Slip resistance requirements are discussed in section 3.11. Sudden changes in height on otherwise even surfaces should be less than five mm [90]. To minimise stumbling hazards, undulations in otherwise even surfaces should be less than 12 mm [138]. Both the above are achieved where the maximum deviation of the surface under a 500mm straight edge is less than five mm [90] (figure 14.6). This also prevents puddles from forming. Dished channels for drainage should not be incorporated within the through route [90].

![Footpath Surface 500mm Straight Edge](image)

Figure 14.6 – Measuring the maximum deviation of the surface

Short, sudden changes in the surface, such as single steps, should be avoided particularly in areas such as the CBD, commercial areas and at tourist attractions. A wide range of material can be used as long as it is firm, stable, even, slip resistant when wet, and does not give misleading signals to the vision impaired. As well as the initial costs, the costs and ease of maintenance, repair, reinstatement and replacement should be considered along with the drainage properties of different footpath materials.

Decorative surfacing

RCAs are increasingly promoting high-quality and distinctive environments by installing different footpath surfaces, particularly in areas such as the CBD, commercial areas and at tourist attractions. A wide range of material can be used as long as it is firm, stable, even, slip resistant when wet, and does not give misleading signals to the vision impaired. As well as the initial costs, the costs and ease of maintenance, repair, reinstatement and replacement should be considered, along with the drainage properties of different footpath materials.

Vision impaired pedestrians often use differences in texture, contrast and colour as a way-finding cue, so material standardisation and consistency are important. At all times there should be a clear visual and textural contrast between the footpath and the roadway to ensure the vision impaired can define the boundary between the two. For more information on designing for vision impaired pedestrians and providing tactile paving, see the appropriate section of this guide or Guidelines for facilities for blind and vision-impaired pedestrians [138]. To avoid excessive changes within an area and promote

The design of the pedestrian network

![Photo 14.6 – Brick-laid asphalt path, Nelson (Photo: Tim Hogben)]

![Photo 14.7 – Traffic-calmed area with contrasting surfaces, Wellington (Photo: Shane Turner)]
consistency, RCAs should develop
guidelines on when particular surface
types should be used.

Materials
Concrete and asphalt are generally
considered the most appropriate
footpath surfaces, although stone pavers
and unglazed brick can also be used.
Material combinations are
possible, such as a concrete through
depth edge with unglazed brick
to provide visual contrast for vision
impaired pedestrians. Table 14.8 gives
examples of different materials used
for footpaths and their advantages and
disadvantages.

<table>
<thead>
<tr>
<th>Surface</th>
<th>Advantages</th>
<th>Disadvantages</th>
<th>Design issues</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concrete and asphalt</td>
<td>Require minimum ongoing maintenance.</td>
<td>Can be aesthetically displeasing.</td>
<td>Textures with a broom finish (perpendicular to the direction of travel) to enhance friction and improve drainage. Concrete shall not be painted. Joints between units shall be less than 13 mm.</td>
</tr>
<tr>
<td></td>
<td>Any maintenance is inexpensive.</td>
<td>Asphalt can be confusing for pedestrians as it is associated with a &quot;road&quot; surface. Asphalt can &quot;sink&quot; and produce puddles, especially in wet spots.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Surface can easily be maintained if removed.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Provide longest service life.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stone pavers and unglazed brick</td>
<td>Highly decorative.</td>
<td>Small units can move independently and create a trip hazard. Can be difficult to maintain crossfalls. Can cause vibration to users. Some pavers or joints are susceptible to moss.</td>
<td>Consider stamped or stained concrete instead. Joints between units shall be less than 13 mm. Needs a firm base (preferably concrete). Ensure good installation and regular maintenance to prevent moss growth and minimize set displaced pavers.</td>
</tr>
<tr>
<td></td>
<td>Easy to replace if damaged.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Easy to reset if displaced.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Split-face stone, cobblestones</td>
<td>Highly decorative.</td>
<td>Not easily crossed by the mobility impaired or walking pedestrians wearing some fashion shoes. Prone to moss and weed growth.</td>
<td>Avoid use in the through route. Can be used to delineate places to walk, and within other areas of the footpath.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Loose surfaced, such as exposed</td>
<td>Inexpensive to install.</td>
<td>Can cause severe problems for the mobility impaired if not well compacted. Requires significant maintenance commitment. Very prone to weeds.</td>
<td>Avoid use in the through route unless there is an extremely high aesthetic justification (such as in a botanical park). Use to manage vegetation and street trees only (and take measures to prevent materials spilling into the through route).</td>
</tr>
<tr>
<td>aggregate, gravel and bark</td>
<td>Can be aesthetically pleasing.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Can fit well in &quot;rural&quot; environments.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tactile paving</td>
<td>Provides a positive tactile way finding cue for the vision impaired.</td>
<td>Can be aesthetically displeasing.</td>
<td>Should be used in a consistent way and only in specified locations.</td>
</tr>
</tbody>
</table>

Table 14.8 - Footpath surfaces

The design of the pedestrian network
14.7 Grates and covers

Whenever possible, covers and grates should be sited within the street furniture zone [4, 43]. If this is not possible, they can be placed at the edge of the through route [49].

To minimize pedestrian hazards, grate openings should be less than 13 mm wide and 150 mm long [14, 49]. Any elongated openings should be placed perpendicular to the main direction of pedestrian movement [14, 49].

Covers should have a rough surface texture, but without regular, large protrusions that could result in the vision impaired mistaking them for a tactile surface [44]. However, they can incorporate attractive designs that can lead to a more interesting streetscape. They should always be flush with the surrounding surface [36, 42] and be slip resistant, even when wet.

14.8 Landscaping

Landscaping can create an attractive visual environment and a buffer between the footpath and the roadway [45]. It creates the appearance of a narrower road and can encourage drivers to travel more slowly [45], as well as possibly providing shade and shelter from wind for pedestrians.

Permanent planting

Permanent planting should be sited within the street furniture zone and consist of trees, flowers, shrubs or grass [45]. Species should be selected with care to ensure they fit in the surrounding area and are appropriate for the environment. It is particularly important that [24, 46, 49]:

- root systems do not damage buried utilities or buckle the footpath surface
- canopies do not interfere with overhead lighting
- plants do not obscure pedestrian or driver visibility when installed or when mature, at any time of the year. This generally requires new trees to be five metres tall at installation
- vegetation and tree limbs do not protrude into the through route or block sight lines when installed or when mature, at any time of the year
- plants are capable of surviving with minimal maintenance and (in drier areas) preferably do not need irrigation
- the landscaping does not create cover for criminal or antisocial activities.
Attachment B

Item 20

Landscaping also should not create a hazard to vehicles that unintentionally leave the roadway. Outside of traffic-calmed areas (where speeds are greater than 40 km/h), but within urban areas, only collapsible or fragile landscaping should be placed within four metres of the edge of the nearest traffic lane. This distance should be increased on the outside curves where there is a higher chance of vehicles leaving the roadway. Trees within this area should:

- have a trunk diameter less than 100 mm when mature, measured 400 mm above the ground
- not be hardwood species
- be fragilisable

Moveable planters

Moveable planters can be placed in the frontage zone (or street furniture zone in a traffic-calmed area) as long as they do not protrude into the through route. For design purposes, planters should be considered to be street furniture (see section 14.9).

14.9 Street furniture

The footpath is the main location for street furniture. Some furniture is designed to benefit pedestrians and enhance the walking environment, while other furniture is provided mainly for other road users.

Placement

Furniture can create a visually interesting environment for pedestrians and encourage greater use of the street as a public space. However, it can also create obstructions and trip hazards, obscure visibility and intimidate pedestrians. Nelson, Tauranga, 

Every piece and type of street furniture should be easily detectable (and avoidable) by the vision impaired. This means each should:

- be at least one metre high where possible/practical
- have an element within 150 mm of the ground for its entire length parallel to the ground, so that it is detectable by the vision impaired who use a cane
- be placed outside the through route
- be placed in a consistent way within the same environment.

For more advice on catering for the vision impaired, see Guidelines for facilities for the blind and vision impaired pedestrians (NPS).
Outside of traffic-calmed areas (where speeds are greater than 40 km/h), but within urban areas only collapsible or freestanding street furniture should be placed within four metres of the edge of the nearest traffic lane, so as not to create a hazard for vehicles that leave the roadway. This distance should be increased on the outside of curves where there are higher chances of vehicles leaving the roadway.

Typical characteristics

Street furniture design should be sympathetic to the surrounding environment and, where it is intended for use by pedestrians, should be accessible to all types of user. There should be a good colour contrast between street furniture and background surfaces to ensure it is conspicuous to the vision impaired[42, 134]. Generally, grey colours should be avoided as they blend into the general background[43].

Table 14.9 shows the typical characteristics and conventional locations of common street furniture for new or improved streets[24, 42, 134].
<table>
<thead>
<tr>
<th>Furniture</th>
<th>Typical footprint</th>
<th>Typical height</th>
<th>Locations and frequency</th>
<th>Ideally sited</th>
<th>If ideal is not possible, consider</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bench</td>
<td>2.4 m by 0.75 m</td>
<td>0.4-1.0 m</td>
<td>Provide every 50 m in commonly used pedestrian areas, or more frequently on sloping footpaths. Provide also at bus stops and shelters.</td>
<td>Within street furniture zone if zone is more than 0.9 m wide. Within frontage zone if zone is more than 0.9 m wide. At least 0.5 m from the edge of the through route. At right angles to the through route.</td>
<td>Facing the through route.</td>
</tr>
<tr>
<td>Rollerd</td>
<td>0.3 m diameter</td>
<td>0.6 m to 1.2 m</td>
<td>As required, but no more than 1.4 m apart.</td>
<td>At least 0.3 m from kerb and wholly within street furniture zone.</td>
<td>As per ideal.</td>
</tr>
<tr>
<td>Bus stop shelter (see section 14.13)</td>
<td>2.6 m by 1.4 m</td>
<td>2.5 m</td>
<td>As required by bus services.</td>
<td>Where there are large numbers of passengers, within the street furniture zone. The through route width should be maintained which may involve using kerb extensions. Most within street furniture zone but can protrude into the through route as long as the minimum width is maintained.</td>
<td>Where there is a maneuvering depth of 2.7 m at the locker door. This distance may include the through route.</td>
</tr>
<tr>
<td>Cycle locker</td>
<td>2 m by 1.9 m</td>
<td>2.1 m</td>
<td>As required. In consultation with cycle user groups. Provide also at transport interchanges/major stops.</td>
<td>Where there is a maneuvering depth of 2.7 m at the locker door.</td>
<td>Where there is a maneuvering depth of 1.8 m at the locker door. This distance may include the through route.</td>
</tr>
<tr>
<td>Cycle rack and stand</td>
<td>0.75 m by 50 mm</td>
<td>0.75 m</td>
<td>As required. In consultation with cycle user groups. Provide also at transport interchanges/major stops.</td>
<td>Parallel to the kerb, 0.9 m from it. Retain at least 0.75 m between the rack and the through route. Footpath should be at least 3.6 m wide. At right angles to any severe gradients.</td>
<td>Parallel to the kerb, 0.6 m from it. Retain at least 0.75 m between the rack and the through route. Footpath should be at least 3m wide. At right angles to any severe gradients.</td>
</tr>
<tr>
<td>Drinking fountain</td>
<td>0.3 m diameter</td>
<td>0.6 m</td>
<td>As required.</td>
<td>Wholly within street furniture zone.</td>
<td>As per ideal.</td>
</tr>
<tr>
<td>Litter bin</td>
<td>0.8 m diameter</td>
<td>1.3 m</td>
<td>As required. Consider for areas where litter may be generated, such as bus stops, transport interchanges and fast-food outlets.</td>
<td>Centred within street furniture zone if zone is more than 0.9 m wide.</td>
<td>Consider using a litter bin with narrower footprint and site wholly within street furniture zone.</td>
</tr>
<tr>
<td>Parking meter</td>
<td>0.3 m by 0.15 m</td>
<td>1.5 m</td>
<td>As required by on-street parking.</td>
<td>Centres of supporting post should be 0.8 m from kerb.</td>
<td>Centres of supporting post should be 0.8 m from kerb. If footpath is under 2.7 m wide, install within frontage zone.</td>
</tr>
<tr>
<td>Planter</td>
<td>Varies</td>
<td>Varies</td>
<td>As required. More effective if located down upon.</td>
<td>Within street furniture zone if zone is more than 0.9 m wide. Removable planters are permitted within the frontage zone as long as they do not intrude into the through route.</td>
<td>As per ideal.</td>
</tr>
<tr>
<td>Pole – lighting</td>
<td>Up to 0.6 m by 0.6 m</td>
<td>Varies</td>
<td>As required to provide a suitable lighting level.</td>
<td>Centre of supporting post should be 0.75 m from kerb or centred in street furniture zone if it is greater than 1.5 m. Poles should be aligned along the road corridor.</td>
<td>Centre of supporting post should be at least 0.41 m from kerb. Poles should be aligned along the road corridor.</td>
</tr>
<tr>
<td>Pole – signal</td>
<td>0.35 m by 0.35 m</td>
<td>Varies</td>
<td>As required under standards for traffic signal installations.</td>
<td>Centre of supporting post should be 0.75 m from kerb or centred in street furniture zone if it is greater than 1.5 m.</td>
<td>Set pole closer to kerb. Place pole within frontage zone.</td>
</tr>
<tr>
<td>Pole – utility</td>
<td>0.45 m by 0.45 m</td>
<td>Varies</td>
<td>As required.</td>
<td>Centre of pole should be 0.6 m from kerb.</td>
<td>Centre of pole should be 0.45 m from kerb.</td>
</tr>
<tr>
<td>Public art</td>
<td>Varies</td>
<td>Varies</td>
<td>As required.</td>
<td>Centred within street furniture zone.</td>
<td>As per ideal.</td>
</tr>
<tr>
<td>Public telephone</td>
<td>Varies</td>
<td>Varies</td>
<td>Not within 1.5 m of a building entrance. Not within 1.2 m of street light or traffic signals pole. No more than one public telephone within 30 m of an intersection. Single telephone or clusters should be at least 60 m apart.</td>
<td>Edge of unit should be 0.6 m from kerb. Minimum footprint width is 3.65 m.</td>
<td>As per ideal.</td>
</tr>
</tbody>
</table>
### Furniture Attachments

<table>
<thead>
<tr>
<th>Furniture</th>
<th>Typical footprint</th>
<th>Typical height</th>
<th>Locations and frequency</th>
<th>Ideally Sited</th>
<th>If denied is not possible, consider</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sign – public transport</td>
<td>65 mm diameter pole</td>
<td>2.1 m</td>
<td>As required by bus operating companies.</td>
<td>Use existing sign post or utility pole to place sign. For new posts, centre of pole should be 0.45 m from kerb with the closest edge of the sign 0.3 m from the kerb.</td>
<td>Attached to building face. Place poles within frontage zone.</td>
</tr>
<tr>
<td>Sign – parking</td>
<td>65 mm diameter pole</td>
<td>1.5 m</td>
<td>As required by on-street parking.</td>
<td>Use existing signs to place signs where practice and legislation allows. For new signs, centre of pole should be 0.45 m from kerb.</td>
<td>Attach sign to building face. Place poles within frontage zone.</td>
</tr>
<tr>
<td>Sign – street name</td>
<td>65 mm diameter pole</td>
<td>2.1 m</td>
<td>As required (see Guidelines for street name signs p95).</td>
<td>Within street furniture zone if zone is more than 0.9 m wide.</td>
<td>Some signs may be attached to building face. Place poles within frontage zone.</td>
</tr>
<tr>
<td>Sign – traffic</td>
<td>65 mm diameter pole</td>
<td>2.1 m</td>
<td>As required by traffic control devices rule p119.</td>
<td>Within street furniture zone if zone is more than 0.9 m wide, with the closest edge of the sign 0.3 m from the kerb.</td>
<td>Locate pole closer to the kerb. Place poles within frontage zone. Some signs may be attached to building face.</td>
</tr>
<tr>
<td>Signal controller box</td>
<td>0.75 m by 0.6 m</td>
<td>Up to 1.75 m</td>
<td>At traffic signal installations.</td>
<td>Centred within street furniture zone if zone is more than 0.9 m wide. Parallel to kerb.</td>
<td>Mostly within street furniture zone but can protrude into the through route as long as the maximum width possible is maintained (at least 1.5 m). Perpendicular to kerb.</td>
</tr>
<tr>
<td>Street tree</td>
<td>As per tree grate 5 m tall when installed</td>
<td>Varies</td>
<td>Centred within street furniture zone. Minimum footpath width is 2.75 m. Leaves should be above pedestrian eye-line.</td>
<td>As per ideal.</td>
<td></td>
</tr>
<tr>
<td>Tree grate</td>
<td>1.2 m by 1.2 m</td>
<td>Flush</td>
<td>See ‘Street tree’.</td>
<td>See ‘Street tree’. See ‘Street tree’.</td>
<td></td>
</tr>
<tr>
<td>Utility vault</td>
<td>Varies</td>
<td>Flush</td>
<td>As required by utility companies.</td>
<td>Centred within street furniture zone if zone is more than 0.9 m wide.</td>
<td>Locate within private property.</td>
</tr>
</tbody>
</table>

**Café furniture/advertising signs**

There are currently no New Zealand guidelines for placing café furniture (tables and chairs). However, whatever placement is adopted (either frontage zone or street furniture zone), it is important to keep it consistent within the RCA – noting that there are advantages to placing café furniture in the street furniture zone as some visually impaired people use shop frontages as a cue to follow. It is important that café furniture placement should not reduce the through-route width below the appropriate minimum (see section 14.2).

Some RCAs allow footpaths to be used for displaying shop stock or displaying advertising signs and boards. In this case, there should be no interference, obstruction or hazard for pedestrians. Any items should only be placed in the frontage or street furniture zone and no part should be sited on, or extend into, the through route. Placement of hazardous items should be banned, and rules on these items enforced.

![Photo 146 – Brass plate on footpath delineates permitted trading area, Perth (Photo: Tim Hughes)](attachment)

**The design of the pedestrian network**
Constrained environments

In very constrained environments, there may not be enough space in the street furniture or frontage zones for even street furniture or equipment that is necessary for the street to be safe and function efficiently. Figure 14.7 shows the approach for determining the location of such items (24, 41).

The last option should be chosen rarely; if it is used, it is important to:

- maintain the maximum possible clear through route at all times
- keep the length over which the through route is restricted to less than six metres (30)
- ensure that the through route width is at least 1.5 m and preferably 1.8 m (11)
- ensure that the colour of the obstruction contrasts with its surrounding environment (32).

14.10 Ramps and steps

A through route should be treated as a ramp if the mean gradient is greater than five percent. Note: test areas are required where the mean gradient exceeds three percent (see figure 14.8) (114).

Table 14.10 has key design features common to both ramps and steps (19, 24, 40, 119).

Figure 14.7 – Approach to determining location of necessary equipment

Photo 14.17 – Choice of ramps or steps, Queenstown (Photo: Tim Hughes)

Photo 14.18 – Steps, Wellington (Photo: Shane Turner)
### Figure 14.8 – Rest areas in ramp (for ramp lengths see Table 14.10)

![Longitudinal Section](image)

### Table 14.10 – Design features common to both ramps and steps

<table>
<thead>
<tr>
<th>Feature</th>
<th>Purpose</th>
<th>Location</th>
<th>Design issues</th>
</tr>
</thead>
<tbody>
<tr>
<td>Landing</td>
<td>Accommodates changes of direction after the ascent/descent is completed.</td>
<td>Top and bottom of every ramp or flight of steps.</td>
<td>At least 1.2 m long, 1.8 m preferred. Extends over the full width of the ramp/steps. Kept clear of all obstructions. Gradient should be less than 2%.</td>
</tr>
<tr>
<td>High contrast material</td>
<td>Tactile paving, to detect the top and bottom of the ramp/ steps.</td>
<td>Edge of the landings, adjacent to the ramp/steps.</td>
<td>Should cover the full width of the steps/ramp. On steps, it should be 55 mm deep.</td>
</tr>
<tr>
<td>Tactile paving</td>
<td>Tactile paving, to detect the top and bottom of the steps or steep ramps.</td>
<td>Edge of the landings, adjacent to the ramp/steps.</td>
<td>Install tactile ground surface indication coloured ‘safety yellow’, as described in guidelines for facilities for blind and vision-impaired pedestrians(s).</td>
</tr>
<tr>
<td>Signing</td>
<td>To inform pedestrians of the impending change in levels. To provide directions to an alternative route where available.</td>
<td>Top and bottom of every ramp or flight of steps.</td>
<td>No additional requirements to normal pedestrian signage.</td>
</tr>
<tr>
<td>Handrails</td>
<td>To provide a means of support, balance and guidance. To provide a means of propulsion for some types of pedestrian.</td>
<td>Continuous over the whole route. Provided on both sides.</td>
<td>Handrails should be 30 mm to 45 mm in diameter. Sited at least 50 mm from any surface. They should extend by at least 0.3 m into the top and bottom landings, and return to the ground or a wall, or be turned down by 0.1 m. Sited 0.8 m to 1.1 m above the step pitch line or ramp surface. Secondary handrails may be considered at a height of 0.55 m to 0.65 m. Colour should contrast with the background.</td>
</tr>
<tr>
<td>Rest areas</td>
<td>To allow pedestrians to recover from their exertions. To make changing direction much easier.</td>
<td>Frequency depends on the height gained (or lost). Rest area is required every 0.25 m change in height for the ramp to remain accessible to wheelchair users. For ramps, rest areas are required:</td>
<td>At least 1.2 m long, 1.5 m preferred. Covers the full width of the ramp/steps. Gradient should be less than 2%.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Gradient</th>
<th>4%</th>
<th>5%</th>
<th>6%</th>
<th>7%</th>
<th>8%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rest area frequency</td>
<td>19 m</td>
<td>15 m</td>
<td>13 m</td>
<td>11 m</td>
<td>9 m</td>
</tr>
</tbody>
</table>
Flights of steps and ramps should be straight, with corners where necessary. Curved ramps and flights of steps are not recommended because:
- they are harder for the mobility impaired to negotiate
- for ramps, the gradients between the inner and outer edges are different
- for steps, the tread length on the inner edge is always smaller than that on the outer
- it is much harder to provide rest areas of a suitable size.

It is important to minimise the risk of pedestrians colliding with the underside of freestanding stairs or ramps by ensuring they are positively directed around the obstacle.

Table 14.11 details design parameters for ramps (18, 42, 129).

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Range/Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surface</td>
<td>Should comply with the same best practice as other footpath surfaces.</td>
</tr>
<tr>
<td>Width</td>
<td>1.2 m absolute minimum, preferably 1.6 m (between handrails). If more than 2 m, a central handrail should be provided.</td>
</tr>
<tr>
<td>Maximum length</td>
<td>Preferably less than 50 m. Absolute maximum length of 130 m.</td>
</tr>
<tr>
<td>Maximum crossfall</td>
<td>2% (but no crossfall normally required).</td>
</tr>
<tr>
<td>Mean gradient</td>
<td>No greater than 8%.</td>
</tr>
</tbody>
</table>
| Maximum gradient  | Generally no greater than 8%. In highly constrained conditions, greater gradients are tolerated but only over short distances:
  - a gradient of 10% is permitted over a length of 1.5 m
  - a gradient of 12% is permitted over a length of 0.75 m
  - a gradient of 16% is permitted over a length of 0.6 m. |
| Rate of change of gradient | No greater than 1.3%. |

Table 14.12 details design parameters for steps (18, 24, 42, 114).

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Range/Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surface</td>
<td>Should comply with the same best practice as other footpath surfaces.</td>
</tr>
<tr>
<td>Width</td>
<td>0.9 m absolute minimum, preferably 1.2 m (between handrails). If more than 2.1 m, an additional handrail may be provided. This can be located to create a route on which the mobility impaired can hold a rail on either side.</td>
</tr>
<tr>
<td>Maximum crossfall</td>
<td>2%.</td>
</tr>
<tr>
<td>Tread</td>
<td>Depth no less than 0.31 m and consistent for the entire flight. No overhang at the edge of the tread. Nose of the step should be slightly rounded.</td>
</tr>
<tr>
<td>Riser</td>
<td>Height of between 0.1 m and 0.18 m and consistent for the entire flight. Solid risers are required.</td>
</tr>
<tr>
<td>Flight</td>
<td>A maximum rise of 2.5 m is permitted before a rest area should be provided. A minimum of three steps is required to avoid a tripping hazard. Long-handed, low-riser steps can be very helpful for the mobility impaired.</td>
</tr>
</tbody>
</table>
14.11 Driveways

**Location**

The following principles apply when locating driveways [24, 46]:

- Driveways should be located where the expected pedestrian activity is low.
- High-volume driveways and pedestrian accesses should be separated.
- The number of driveways should be reduced through pairing combining accesses to several properties, and not having separate low volume entrances and exits.
- Driveways should be located as far from street intersections as possible to avoid confusion and conflict.

**General design**

When designing driveways the following principles apply [24, 46]:

- Turning radii should be minimised to ensure slow vehicle speeds.
- The driveway width at both edges of the through route should not be significantly greater than at the property boundary.
- The driveway width should be minimised to slow vehicle speeds.
- The give way obligations of drivers and pedestrian should be clear.
- The road user rule states a driver entering or exiting a driveway must give way to a road user on a footpath.
- If it is desired that pedestrians give way at a high-volume access way to a development, the entrance should be designed as an intersection.

When deciding whether to design a high volume entrance as an intersection consider:

- Is the driveway busy enough? – at least above 500 vehicles per day?
- Is the driveway traffic volume substantially greater than pedestrian path volume?
- Is the strategic function of the pedestrian path less important than the traffic access function?

Drivers and pedestrians should be provided with clear cues that they are at either a driveway or an intersection.

Driveway cues include:

- The pedestrian path is continuous in grade, crossfall, colour and texture across the driveway, with no tactile warning tiles.
- The driveway changes grade to cross the kerb at a kerb ramp, and preferably changes in colour and texture to cross the pedestrian through path.
- The driveway kerb is continuous and cuts down to a concrete gutter crossing running straight across the driveway ramp – it does not return into the driveway.

Intersection cues include:

- Between the footpath and the side road there is a change in colour and texture, tactile paving, and preferably a kerb ramp at a kerb crossing.
- The vehicle path is kerbed and continuous with the road surface with no change in colour and texture.
- There is no kerb crossing or ramp to enter the roadway.
- The road kerb does not continue across but returns to follow the side road.

These design differences are shown in figure 14.9.

Photo 14.19 – Driveway with normal pedestrian path crossing maintained Queenstown (Photo: Tim Hughes)

Figure 14.9 – Comparison between driveway and higher volume access way
Driveways should have a level landing at the top (similar to a kerb ramp), and be at least 1.2 m wide across the through path. The crossfall should be less than two percent, with the gradient differing from the adjacent through path by less than two percent. To achieve this, the sloped part of the driveway should be within the street furniture zone and/or the adjacent private property. It may be necessary to lower the footpath (see figure 14.10).
Visibility

Footpaths on either side of the driveway should be kept clear of all obstructions [4, 6]. A five metre by two metre ‘visibility splay’ (see figure 14.11) should be installed in areas with high pedestrian flows and more than 200 expected daily vehicle access manoeuvres [4, 46].

Boundary treatments next to driveways should not obscure pedestrians – avoid tall, close-boarded fencing, solid structures and dense vegetation. They should also not adversely affect any formal visibility splay. If visibility splays cannot be provided in very constrained situations, install convex mirrors at the access way and/or visual and audio warnings to pedestrians.

Vertical visibility is also an issue for driveways that descend quickly from the footpath – ascending drivers may not be able to see pedestrians clearly on the through route, especially children. To prevent this a near level platform at the top of the driveway next to the through route can be provided (see figure 14.12). At higher volume access ways (200 vehicle access manoeuvres per day) where constrained circumstances do not allow such a platform, provide convex mirrors.

Driveways (especially residential driveways) should be carefully designed to minimise the risk to young children, especially those less than four years old. Where possible, physical barriers should be installed between homes and driveways, using features such as fences and self-closing gates [46]. Internal driveway layout should also encourage drivers to enter and exit the site in a forward direction if possible.

Signage for drivers should be provided at more heavily used driveways, such as those for servicing retail and industrial developments. This warns drivers of the presence of pedestrians and encourages a low vehicle speed [46].

Figure 14.11 – Driveway visibility splays for high volume driveways

Figure 14.12 – Steep driveway with a vertical visibility problem and one where the approach is closer to level
14.12 Shared-use paths

For both unsegregated and segregated paths, particular care needs to be taken:

- where cyclists join the shared route to ensure they can do so safely and without conflict with pedestrians
- where the shared routes end, to ensure that cyclists do not continue to use a route intended for pedestrians only
- where one route crosses another, at pedestrian, cyclist or shared-use route
- to ensure adequate forward visibility for cyclists, who are generally moving more quickly than pedestrians
- to provide adequate signage to indicate the presence of pedestrians and cyclists.

In both cases it is important to:

- leave a lateral clearance distance of one metre on both sides of the path to allow for recovery by cyclists after a loss of control or swerving
- maintain an overhead clearance of 2.4 m over the path and the lateral clearance distance
- ideally, keep a 1.5 m separation between the path and any adjacent roadway
- ensure the gradient and crossfall comply with the most stringent best practice for pedestrians and cyclists.

Table 14.13 shows the typical widths of the through route for unsegregated shared paths [11].

Segregated paths require pedestrians and cyclists to use separate areas of the path, delineated by contrasting surfaces or markings. To ensure the vision impaired do not stray into cyclists’ paths, the pedestrian and cyclist areas should be separated by:

- a raised mountable kerb
- a white thermoplastic line
- a median strip of a different surface, at least one metre wide
- a landscape barrier
- raising the pedestrian area by at least 75 mm.

Table 14.14 shows typical through-route widths for segregated paths [11].

Austroads [11] and the New Zealand supplement to Austroads Part 14: Bicycles [12] have more design details for shared routes. Comprehensive guidance on all the issues for shared paths is found in the toolbox developed for the Australian Bicycle Council: Pedestrian-cyclist conflict minimisation on shared paths and footpaths [14].
Shared areas
Cyclists are often excluded from pedestrian-only areas, such as malls. There can be little justification for this, as collisions between pedestrians and cyclists are comparatively rare (120). Nevertheless, some pedestrians do perceive a danger from cyclists due to their speed and quietness (122), and may feel intimidated by them. The elderly feel especially vulnerable when encountering cyclists in their walking space. As a result, a physically segregated route might be appropriate for cyclists in pedestrian-only areas (123). Signs outlining cyclists’ obligations in pedestrian-only areas should be provided if cycling is allowed. Such examples of signs may be ‘Cyclists: Walking Speed Only’ or ‘Cyclists: Give Way to Pedestrians’.

14.13 Public transport interface
Well designed public transport stops and their interface with the pedestrian network are essential to a usable system. In designing public transport interfaces, other sections of this guide are relevant, such as those covering crossfall, footpath width and materials. Good practice for designing stops includes (124):
- making bus stops clearly visible, to avoid passengers missing their stop;
- naming stops and shelters with locally recognisable names, to reduce confusion between passenger and driver, and to promote a sense in which the service is part of the local community;
- ensuring that the stop or shelter is well lit, or located in an area that is generally well lit;
- ensuring that stops and shelters remain unobscured by overgrown trees and foliage, or by other traffic signage;
- ensuring the boarding point is laid at right angles to the through route for clarity, with clear details of its location provided by signage and tactile cues;
- ensuring that boarding points are kept clear of street furniture and signage;
- minimising changes in level between the waiting and boarding areas;
- displaying a route map, timetable and real-time bus information at the stop;
- minimising changes in level from footpaths to buses (kerb ramps should not be provided at the boarding point and the stop should be oriented so that buses can extend their entrance ramp (if fitted) to the footpath).

The design of the pedestrian network
14-21
Vision impaired pedestrians need to identify public transport access areas. This can be done by environmental cues, but tactile paving can also be provided. Tactile paving should comprise directional indicators that intercept the thorough route and lead to warning indicators close to the entry door. Tactile warning indicators should also be provided 600 mm from the edges of train platforms and ferry wharfs. For more guidance, see Guidelines for facilities for blind and vision-impaired pedestrians [135].

Footpath width needs to be considered carefully at public transport stops where a large number of pedestrians are expected to board or exit, such as at railway stations. Table 14.3 covers the maximum pedestrian volumes for different through-route widths that result in a level of service B. Where expected pedestrian volumes at public transport stops exceed those in the table for a given through-route width, refer to Frimur: Pedestrian planning and design [136].

Shelters

To maintain an unobstructed through route the likely number of passengers using a bus stop needs to be considered. At very busy bus stops and interchanges, shelters should be provided in a widened street furniture zone. To achieve this, kerb extensions may be required. Alternatively, shelters should be in the frontage zone.

Bus shelters should be designed so that:
- approaching traffic can see them clearly
- there is adequate lighting for security
- they have adequate seating
- they are protected from the weather
- they are resistant to vandalism
- there is adequate security (such as with multiple exits at enclosed shelters, and transparent walls)
- they are located near existing land uses that provide passive security
- they are visually distinct from surroundings to aid visually impaired pedestrians [135].
Content of email sent to councillors and local board chairs – 'our staffing numbers'

Taken from email from Stephen Town, dated 16 September 2019

Good afternoon Mayor Phil, Councillors and Local Board Chairs,

As some of you will be aware, my leadership team and I have been working on our forecasting of staff numbers for the next (current) financial year and ways to manage the demands upon us to deliver essential projects and services, without exceeding our budgets or staffing targets.

This is currently being reported in the news media.

Without pre-empting the Annual Report, I have confirmed that we have had a satisfactory year in this area (2018/2019), however it is important that we turn our attention to our Full Time Equivalent (FTE) targets for the 2019/2020 year now.

The Auckland region continues to experience exceptional population growth, which puts pressure on our services and means we need to invest more than ever before. In the last year alone, Auckland Council invested $2 billion throughout the region and is earmarked to invest a total of $26 billion through the 10-year Budget.

However, while Auckland grows, we know that our organisation is unable to grow at the same rate and there will always be tight constraints on how much we can increase our workforce. Therefore, our challenge is to make sure our efforts are always focused on frontline services and delivery functions, and that we continue to adapt and set the organisation up so that it is functioning as efficiently as possible both now and in the future.

We also need to take into account what our staff are telling us – that in some areas there are too many layers, we need to remove barriers and duplication of effort, and we need to empower them to solve problems for our customers.

In reality this means that over the next 10 months we will look to reduce roles in some areas of the organisation in order to meet our FTE and budget targets this financial year and make room for growth in our frontline and delivery services.

First and foremost, this will be achieved by removing vacancies and through natural attrition, but it will also mean the disestablishment of some roles and changes to reporting lines in some cases. Over the next few months, each member of the executive leadership team will be working with their divisions and directorates on what this means for individual teams and people.

While maintaining financial restraint and discipline around staff numbers is nothing new for us, I acknowledge that change can be difficult and we will do everything we can as an organisation and as leaders to support our staff if their roles or reporting lines are impacted over the next few months.

If you have any questions, please do not hesitate to get in touch with me.

Nga mihi,

Stephen