APPENDIX A:

Universal Design Personas Combinations Spreadsheet

			Combined Widths with Persona #																				
Persona #	**PERSONA**	**Width**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**
1	Person walking	**675**	1350	1375	1425	1455	1475	1475	1525	1575	1575	1625	1675	1675	1775	1875	1950	2175	2175	2175	2475	2475	2515	2675	3675
2	Person with a mountain buggy	**700**	1375	1400	1450	1480	1500	1500	1550	1600	1600	1650	1700	1700	1800	1900	1975	2200	2200	2200	2500	2500	2540	2700	3700
3	Person with a cane	**750**	1425	1450	1500	1530	1550	1550	1600	1650	1650	1700	1750	1750	1850	1950	2025	2250	2250	2250	2550	2550	2590	2750	3750
4	Person with a twin stroller	**780**	1455	1480	1530	1560	1580	1580	1630	1680	1680	1730	1780	1780	1880	1980	2055	2280	2280	2280	2580	2580	2620	2780	3780
5	Person on a wheelchair	**800**	1475	1500	1550	1580	1600	1600	1650	1700	1700	1750	1800	1800	1900	2000	2075	2300	2300	2300	2600	2600	2640	2800	3800
6	Person on a electric mobility scooter	**800**	1475	1500	1550	1580	1600	1600	1650	1700	1700	1750	1800	1800	1900	2000	2075	2300	2300	2300	2600	2600	2640	2800	3800
7	Person with walking frame	**850**	1525	1550	1600	1630	1650	1650	1700	1750	1750	1800	1850	1850	1950	2050	2125	2350	2350	2350	2650	2650	2690	2850	3850
8	Person with a shopping trolley	**900**	1575	1600	1650	1680	1700	1700	1750	1800	1800	1850	1900	1900	2000	2100	2175	2400	2400	2400	2700	2700	2740	2900	3900
9	Person with grocery crate	**900**	1575	1600	1650	1680	1700	1700	1750	1800	1800	1850	1900	1900	2000	2100	2175	2400	2400	2400	2700	2700	2740	2900	3900
10	Person with crutches	**950**	1625	1650	1700	1730	1750	1750	1800	1850	1850	1900	1950	1950	2050	2150	2225	2450	2450	2450	2750	2750	2790	2950	3950
11	Person with groceries on both hands	**1000**	1675	1700	1750	1780	1800	1800	1850	1900	1900	1950	2000	2000	2100	2200	2275	2500	2500	2500	2800	2800	2840	3000	4000
12	People moving furniture - 3 seater sofa	**1000**	1675	1700	1750	1780	1800	1800	1850	1900	1900	1950	2000	2000	2100	2200	2275	2500	2500	2500	2800	2800	2840	3000	4000
13	Person with an assistance dog	**1100**	1775	1800	1850	1880	1900	1900	1950	2000	2000	2050	2100	2100	2200	2300	2375	2600	2600	2600	2900	2900	2940	3100	4100
14	Couple walking	**1200**	1875	1900	1950	1980	2000	2000	2050	2100	2100	2150	2200	2200	2300	2400	2475	2700	2700	2700	3000	3000	3040	3200	4200
15	Person with a bike	**1275**	1950	1975	2025	2055	2075	2075	2125	2175	2175	2225	2275	2275	2375	2475	2550	2775	2775	2775	3075	3075	3115	3275	4275
16	People communicating with each other (sign language)	**1500**	2175	2200	2250	2280	2300	2300	2350	2400	2400	2450	2500	2500	2600	2700	2775	3000	3000	3000	3300	3300	3340	3500	4500
17	A person next to a person on a wheelchair	**1500**	2175	2200	2250	2280	2300	2300	2350	2400	2400	2450	2500	2500	2600	2700	2775	3000	3000	3000	3300	3300	3340	3500	4500
18	Two Paramedics and Stretcher	**1500**	2175	2200	2250	2280	2300	2300	2350	2400	2400	2450	2500	2500	2600	2700	2775	3000	3000	3000	3300	3300	3340	3500	4500
19	Two Wheelchairs alongside each other	**1800**	2475	2500	2550	2580	2600	2600	2650	2700	2700	2750	2800	2800	2900	3000	3075	3300	3300	3300	3600	3600	3640	3800	4800
20	Turning circle of a wheelchair	**1800**	2475	2500	2550	2580	2600	2600	2650	2700	2700	2750	2800	2800	2900	3000	3075	3300	3300	3300	3600	3600	3640	3800	4800
21	Two Paramedics and Bariatric Stretcher	**1840**	2515	2540	2590	2620	2640	2640	2690	2740	2740	2790	2840	2840	2940	3040	3115	3340	3340	3340	3640	3640	3680	3840	4840
22	Person on a Cargo Bike	**2000**	2675	2700	2750	2780	2800	2800	2850	2900	2900	2950	3000	3000	3100	3200	3275	3500	3500	3500	3800	3800	3840	4000	5000
23	Fire fighters with a Fire Service Ladder	**3000**	3675	3700	3750	3780	3800	3800	3850	3900	3900	3950	4000	4000	4100	4200	4275	4500	4500	4500	4800	4800	4840	5000	6000

APPENDIX B:

Flow Transportation Specialists: Pedestrian and Cyclist Passing Bays Technical Note

31 May 2022

flow TRANSPORTATION SPECIALISTS

technical note

PROJECT	**AUCKLAND COUNCIL PRIVATE ACCESSWAYS**
SUBJECT	**PEDESTRIAN AND CYCLIST PASSING BAYS**
TO	**MEL MCKELVIE, TONY REIDY, MICHELE PERWICK**
FROM	MAT COLLINS
REVIEWED BY	BRONWYN COOMER-SMIT
DATE	31 MAY 2022

Auckland Council (Council) has requested that Flow provide advice on the design of passing bays for private footpath accesses to residential developments. Specifically, this advice relates to private footpaths that are not adjacent to a private vehicle accessway, which we understand Council has termed "Private Pedestrian Access" or PPA's.

We understand that Council has identified a range of anticipated users of the footpath, as shown in the attached Table 1. Further, we understand that Council specialists are recommending a footpath width of 1.8m, and that widened passing bays may be required at regular spacing. Our scope has been to consider the dimensions and spacing of these passing bays, which we discuss as follows.

1 PASSING BAY WIDTH

A shared use path is a path designed for use by pedestrians, cyclists, and other wheeled mobility users. We consider that private footpaths will essentially operate as a shared use path, as they will cater for a range of user groups, as shown in Table 1.

The minimum width for a shared use path is identified as at least 2.5m by a number of design guides and standards, including

- Auckland Transport Engineering Design Code – Cycling Infrastructure: Section 4.4[1]
- Auckland Transport Local Path Design Guide: Pathway Parameters[2]
- Austroads Guide to Road Design Part 6A (AGRD06A-17): Figure 5.4, reproduced in Figure 1 below.

A width of 2.5m provides sufficient passing space for a range of user types including

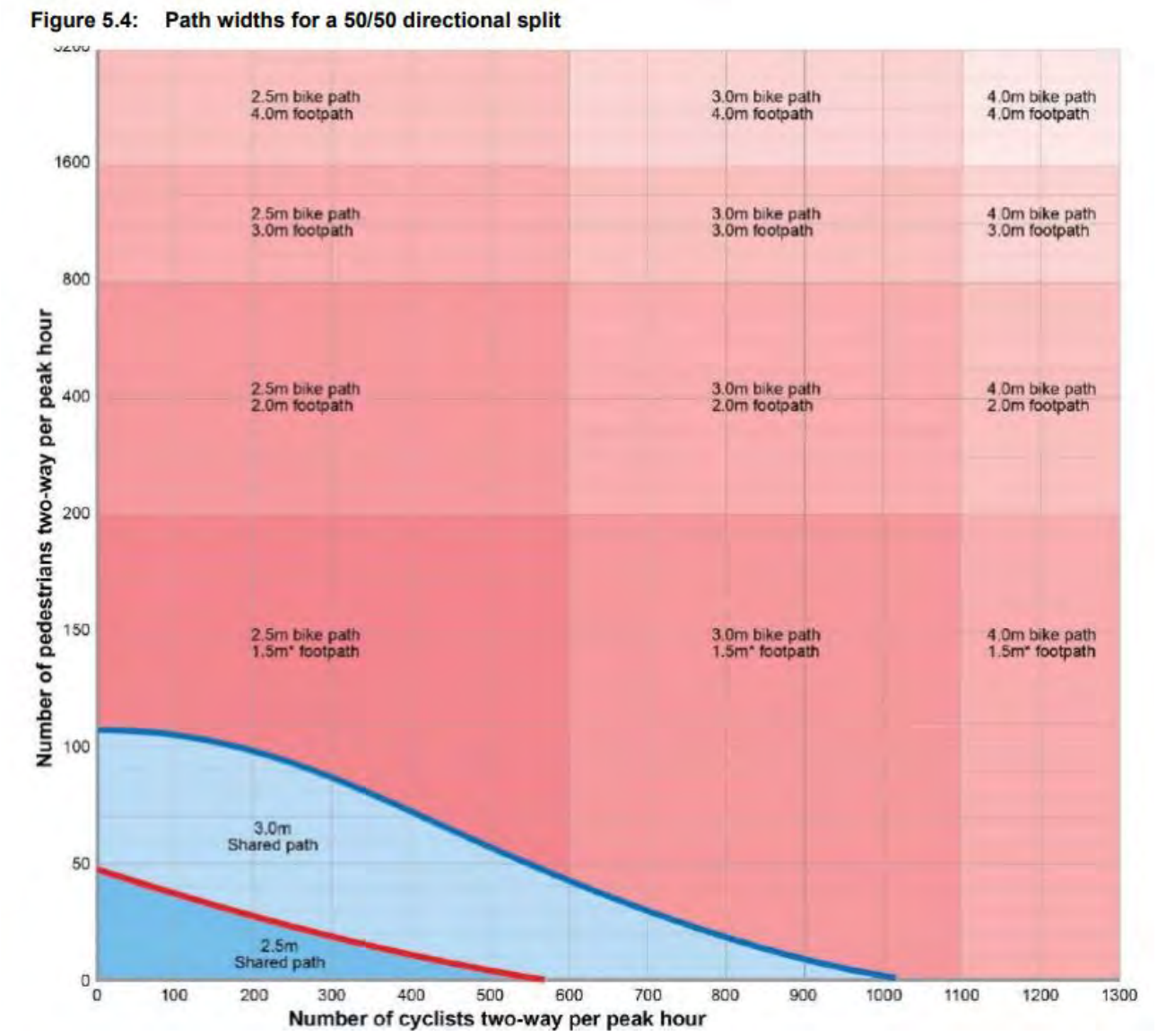
- a person in a wheelchair and a person pushing a bike
- a person with a dog and a person with a walking frame
- two people carrying grocery bays

We recommend that 2.5m be adopted as the minimum passing bay width.

[1] Auckland Transport Engineering Design Code – Cycling Infrastructure, available online at https://at.govt.nz/media/1985455/5794-tdm-engineering-design-code-cycling-infrastructure-version-1.pdf

[2] Auckland Transport Local Path Design Guide, available online at https://at.govt.nz/media/1980689/local-path-design-guide.pdf

Figure 1: AGRD06A-17: Figure 5.4



2 PASSING BAY LENGTH

The reference documents that we discuss in Section 1 treat 2.5m as a minimum width for a shared use path, and therefore do not make reference to a minimum length over which this width should be maintained. We have therefore used a "first principles" approach to determining the minimum length of a passing bay.

The required length of the passing bay is primarily determined by the length of the user.

- A person pushing a bike is around 1.8m long
- A person pushing a cargo bike or a bike with a trailer is 2.6m – 2.7m long
- Two people moving a 3 seater couch are around 2.5m long
- Two emergency personal carrying a patient on a scoop stretcher are around 2.06m long.

We therefore recommend a minimum passing bay length of at least 2.5m, preferably 3.0m.

3 PASSING BAY SPACING

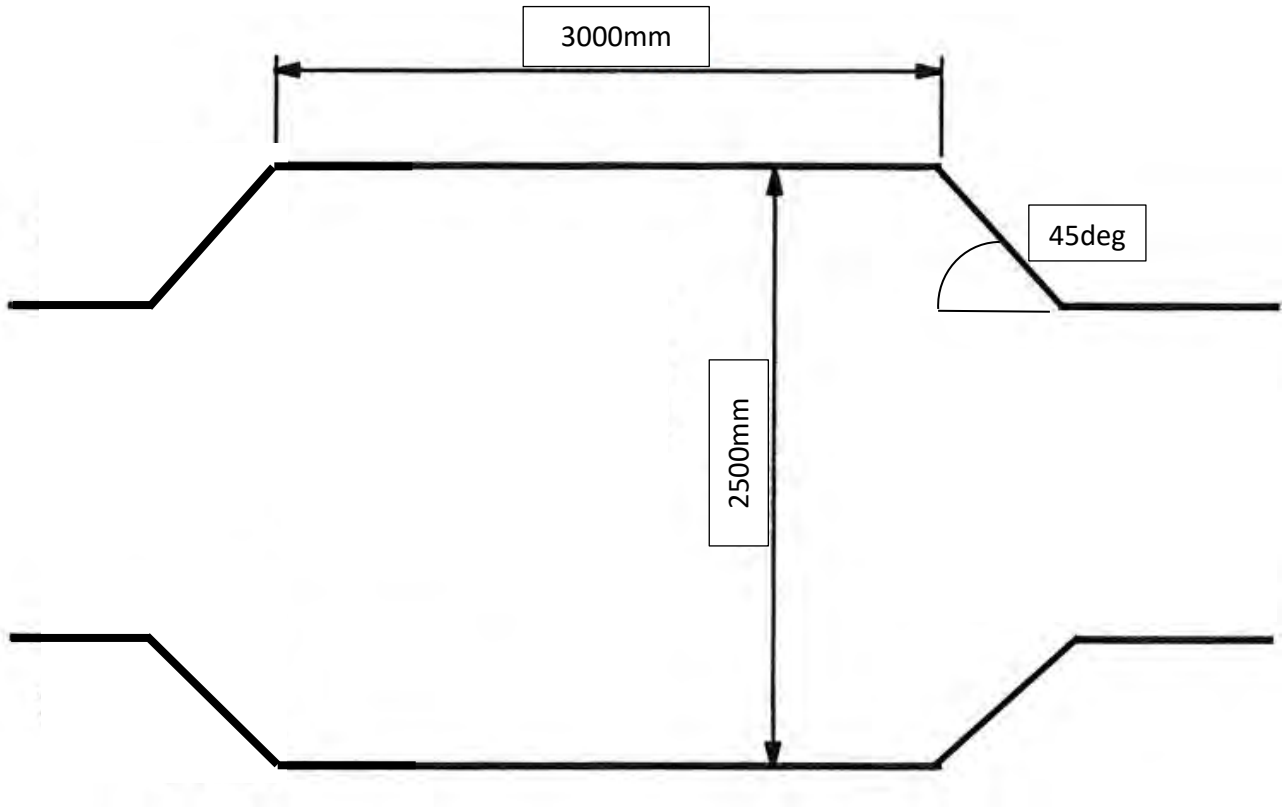
The maximum spacing for passing bays, when footpaths or shared use paths do not meet minimum width requirements, is identified as 50m in the following design guides and standards

- Auckland Transport Engineering Design Code – Footpaths and the public realm: Section 3.1[3]
- Waka Kotahi NZ Transport Agency Pedestrian network guidance[4] .

We recommend that 50m be adopted as the maximum spacing between passing bays.

4 SUMMARY

To cater for a range of users, we recommend that Council adopt the following passing bay dimensions for PPAs within residential developments, at a maximum spacing of 50m.

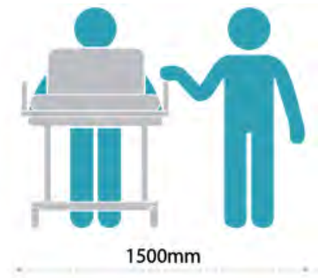
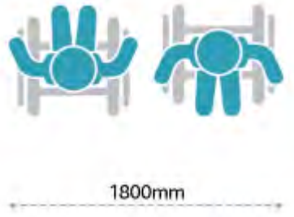


Reference: P:\ACXX\431 Auckland Council Shared Accessway Plan Change\4.0 Reporting\TN1B220531 Passing bay dimensions.docx - Mat Collins

[3] Auckland Transport Engineering Design Code – Footpaths and the public realm, available online at https://at.govt.nz/media/1985456/5794-tdm-engineering-design-code-footpath-pedestrian-facilities-and-public-realm-version-1.pdf

[4] Waka Kotahi NZ Transport Agency Pedestrian network guidance, available online at https://www.nzta.govt.nz/walking-cycling-and-public-transport/walking/walking-standards-and-guidelines/pedestrian-network-guidance/design/paths/footpath-design-geometry/footpath-width/

Table 1: accessible space width requirements for users

 Person walking	 Person on a wheelchair	 Person with a shopping trolley	 People moving furniture	 Couple walking	 Two Paramedics and Stretcher
 Person with a cane	 Person on am electric mobility scooter	 Person with grocery crate	 Person with groceries	 Person with a bike	 Turning circle of a wheelchair
 Person with a twin stroller	 Person with walking frame	 Person with crutches	 Person with a dog	 People communicating with each other (sign language)	 Two people in wheelchairs passing each other

APPENDIX C:

Summary of Auckland Council Consultation with Emergency Service Providers:

Access Restrictions & Private Pedestrian Access

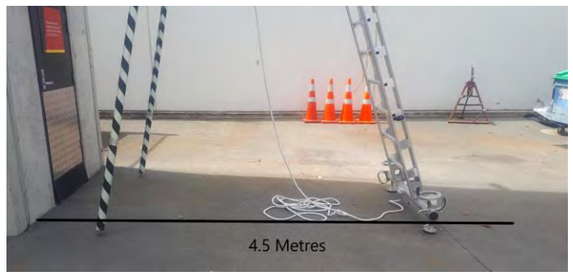
SUMMARY OF AUCKLAND COUNCIL CONSULTATION WITH EMERGENCY SERVICE PROVIDERS:

ACCESS RESTRICTIONS & PRIVATE PEDESTRIAN ACCESS

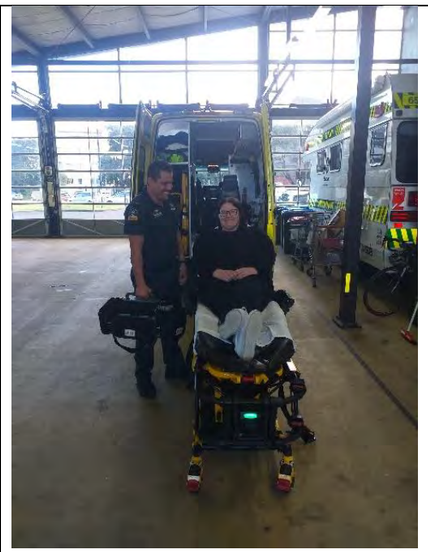
ORGANISATION	MINIMUM RECOMMENDED WIDTH	MAXIMUM RECOMMENDED DISTANCE	MAXIMUM RECOMMENDED GRADIENT	TIMELINESS	LIGHTING	OTHER REQUIREMENTS
NZ Fire Service / Fire and Emergency New Zealand	Greater than 4m workable space around buildings for firefighting and ground ladder operations. Need to ensure width is wide enough for manual ladder extension - there will be a greater reliance on manual ladder entry as vehicle appliance ladders will not be accessible <u>Angus 464 Alloy 3 section ladder</u> • 13.5m or 14.1m max height • 5.8m long x 1.45m wide at base • 100kg weight • 3m wide with two firefighters carrying it. • Used for 4 storey buildings • Turning/manoeuvring area of 6.2m required to turn corners • Minimum setback from base of building of 4.5m 	A hose-run distance from the hardstanding no greater than 75m to the furthermost point of the building, including vertical distance up stairways. Fire trucks have a 90m hose reel on each side – smaller fires are put out with those. If larger fire will use 100m long hose. Takes additional time to roll out & plug together, and not as easy to move. Weight of water – 75kg per 25m length of hose. Inbuilt hydrant systems (NZ4510) could be required to provide firefighting water down long walkways as it is not practicable to run a firefighting hose 180m from the fire appliance parked on the roadway. *If there is a remote place within the building which cannot be reached by hose within 75 m of the attendance point, a building hydrant system needs to be provided (C/AS2 Acceptable Solutions requirement 2.2.1).*[1]	Firefighters are at greater risk of injury where they are operating on uneven ground, kerbs, stairs and other obstructions. Preference for smooth surfaces and ramp access as opposed to stairs	A house fire can become fatal within three minutes[2] The speed of fire is increasing due to more flammable household products. If there is pedestrian only access, it is likely to increase the time for response - emergency responders need to find a location to park and access the property, this can take significant time if there is no parking. The alternative is that the street will be blocked by emergency vehicles, which is already occurring in narrower streets. To fight a fire effectively, save lives and limit damage, we need to respond quickly and start applying water while the fire is still small. While automatic detection systems and good information help us respond quickly, good access is also vital. This highlights the benefit of having	Adequate lighting and wayfinding and unit numbering is critical	Fire and Emergency in Tāmaki Makaurau acknowledges developments need to be treated on a case-by-case basis. However, as a “rule of thumb”, we will be seeking compliance/guidance as near as reasonably practicable with the following: • C/AS2-Part 6: Firefighting • Clause D1 Access Routes • NZS4121 Design for Access and Mobility – Buildings and Associated Facilities • SNZ PAS 4509 NZFS FF Water Supplies Code of Practice • NZS 4510 – Standard for Hydrant Risers in Buildings • FENZ Designers’ Guide Firefighting operations emergency vehicle access guide Lithium batteries – these developments will likely encourage

[1] Designers’ guide to firefighting operations. Emergency vehicle access F5-02 GD (28 April 2021)

[2] [2] www.fireanemergency.co.nz

	  • Note that Angus ladder was phased out of use in 2010 in Auckland as typically able to access taller buildings (apartments) with aerial ladders on appliances. Have introduced back into service again because cant get appliance into more intensively built sites. • Buildings of +5 storeys in height need an aerial fire appliance, cannot use manual ladders. • Refer to FENZ letter dated 08.02.2022	*(Assumption that fire appliance is parked on road immediately outside property – which isn't likely given the demand for onstreet parking).*		designated hard-stands with all the requirements needed for a fast fire attack proximate to as many parts of a building as possible, that are free from obstructions.		more Ebikes, Escooters, mobility scooter etc. that will require charging. As there is no garage this Li-ion battery charging is likely to occur on the ground level inside residential units which will increase risk of fire and also prevent occupants being able to escape from upper levels past the fire to a place of safety. External charging sheds (outside of units) cupboards etc. may be one solution? These devices being charged can create obstruction. Also the Li-ion batteries are at increased risk of fire when they age, or are dropped/damaged
St Johns Ambulance	• Minimum 1.5m width required for paramedic and stretcher • "Ferno PowerX stretcher" required for bariatric patients. Stretcher width of • Note that NZ Fire are also often first responders on site, and use stretchers that aren't on wheels and require a person either side.	For every minute that goes by without CPR or using an AED3, the chance of survival drops by 10-15 percent [4.]	Stretchers on stairs, carrying people, evacuation situation people with poor mobility. There is an increased risk to people's safety – both the people on the stretcher as well as the emergency attendants. Assuming St Johns would also prefer ramp access to	There is a time increase for getting patients from stretchers to ambulances where the distance is greater, creating greater risk for patients and staff	Poor or insufficient lighting can make it difficult for St John to find the correct property. Clear wayfinding signage is essential especially for multi block units up a pedestrian path. Unclear numbering will increase the time for emergency services to get to the patient and will increase risk. (Assuming this is the same issue for Fire and Police as well) There is a safety risk for emergency response staff if the area is poorly lit. There are increasing assaults on emergency services staff, https://www.nzherald.co.nz/nz/	

[3] Automated external defibrillator
[4] https://www.stjohn.org.nz/news--info/news-articles/whats-your-chance-of-surviving-a-cardiac-arrest/

	 ***PowerPro XT*** **Cot specifications**  **Model** **Power-PRO XT** **Model number** 6506 Overall length 206 cm **Length** Standard 206 cm Minimum 160 cm **Overall width** 58 cm **Maximum weight capacity** 318 kg[1] **Height range (to litter top)** High 105 cm[2] Low 36 cm **Weight** 57 kg[3] **Backrest articulation** 0° – 75° **Recommended loading height** Up to 91 cm[5] ***M1 stretcher*** **Cot specifications**  **Model** **M-1** **Model number** 6100 Overall length 197 cm **Length** Standard 197 cm Minimum N/A **Overall width** 56 cm **Maximum weight capacity** 227 kg **Height range (to litter top)** High 100 cm[2] Low 37 cm **Weight** 55 kg*[4] **Backrest articulation** 0° – 75° **Recommended loading height** Up to 79 cm		stairs as the stretcher can be wheeled on ramps versus carried on stairs? There is a greater risk of injuries to emergency response staff when access is limited, surfaces are uneven, slippery, narrow or poorly lit.		under-siege-the-attacks-on -emergency-staff/ PDYP467YD7QE5P75UHHFB2UVKE/	

	Power X Stretcher (Bariatric Patients) **DESCRIPTION** / **Standard** / **Multi-Purpose** **LENGTH:** Shortened / Extended: 1450 / 1930 mm Shortened with Stow-Net fitted: 1540 mm **HEIGHT:** Low / Raised: 480 / 880 mm **WIDTH:** Normal: 570 mm With both SX horizontally positioned: 920 mm **SWL:** Raised / Lowered: 350 kg / 400 kg **POWER:** 28 Volt DC Battery 5Ah **WEIGHT:** ≈88 kg / ≈92.5 kg **FASTENER:** (2-Part Lock) N/A / 13 kg **STRETCHER POSITIONING:** • Trendelenburg • Shock Position • Knee Contour / Gatch **LED SIDE LIGHTING OPTIONS:** Constant white / Flashing white / Flashing red / Alternate flashing red and white 					
NZ Police		The need to take a suspect into custody down long pedestrian-only routes results in increased risk to Police, the community and the suspect due to the distance that will need to be walked. This is depending on each incident, the shorter the distance the less likely there will be injuries to either			Police sometimes need to switch lights on and off, need control on lighting coming out of the building. Emergency lighting as well, if there is a power outage etc there is no streets for street lighting- particularly down the back of units. This could make evacuation difficult and unsafe. Lack of / inadequate lighting can make it difficult for Police to find the correct property. Clear wayfinding signage is essential especially for multi block	

		uncooperative persons and or Police officers. Police attending critical incidents could be trapped in short narrow access routes to high density properties. Makes evacuation difficult in critical incidents and exposes Police staff and residents to risk. Handsets also transmit off the vehicles so being far away from them will affect communications. No set distance as this varies according to the conditions, range will be impacted by concrete building / structures etc. Firearms are stored in vehicles and Police staff would need to be as close to their vehicles as possible.			units up a pedestrian path. Unclear numbering will increase the time for emergency services to get to the patient and will increase risk. There is a safety risk for emergency response staff if the area is poorly lit.	

APPENDIX D:

Fire Emergency New Zealand. Feedback to Auckland Council on Access to Pedestrian- Only Developments

Te Hiku (Auckland Office)
2 Poynton Terrace, Newton 1010
PO Box 68-444, Victoria Street West, Auckland 1142
Phone +64 9 354 5100

February 8, 2022

Ref: Feedback to Auckland Council on access to pedestrian only developments

Thank you for the opportunity to provide feedback on the implications of increased residential development being accessible only via private pedestrian footpaths.

1.0 Summary

1.1 The primary objective of Fire and Emergency New Zealand is to reduce the incidence of unwanted fire and the associated risk to life and property.

1.2 Through a Memorandum of Understanding with St John, Fire and Emergency also responds to medical emergencies.

1.3 Fire and Emergency attends an average of 24,034[1] incidents across Tāmaki Makaurau per year, this includes an average of:

- 4,971 fires
- 4,207 medical emergencies
- 1,421 rescues and publics assists[2]

1.4 Fire and Emergency NZ understands that as a result of the National Policy Statement on Urban Development the requirement for onsite parking in all residential developments is removed, increasing the number of developments that provide only pedestrian access.

1.5 Auckland Council has shared built examples of pedestrian only access developments with Fire and Emergency in Tāmaki Makaurau. We are concerned that current requirements for pedestrian only access developments are not adequate for responders to efficiently access properties in event of a fire or emergency or to use tools and equipment effectively if required. This has the potential to increase the risk to life and property.

1.6 Effective and efficient response is crucial in an emergency.

- A House fire can become fatal within three minutes[3]
- For every minute that goes by without CPR or using an AED[4], the chance of survival drops by 10-15 percent[5].

1.7 To support effective and efficient access and manoeuvring of crew and equipment for firefighting, medical, rescue and other emergency response to pedestrian only access developments across Tāmaki Makaurau, we recommend:

- accessways are clear, unstructured and well-lit
- wayfinding for different properties on a development are clear in day and night
- developments give effect to the guidance provided in the Firefighting Operations Emergency Vehicle Access Guide.
- access ways have a minimum width of:
  - 3m on a straight accessway.
  - 6.2m on a curved or cornered accessway
  - 4.5m space to position the ladder and perform operational tasks.

[1] Four year rolling average 2017/18-2020/21
[2] Four year rolling average 2017/18-2020/21
[3] www.fireanemergency.co.nz
[4] Automated external defibrillator
[5] https://www.stjohn.org.nz/news--info/news-articles/whats-your-chance-of-surviving-a-cardiac-arrest/

2.0 Access and wayfinding requirements

2.1 During an emergency, Fire and Emergency is most efficient and effective when fire appliances have fast and clear access. Delays accessing and dealing with a fire may risk the safety of people and their property.

2.2 Clear dwelling/unit numbering and lighting is critical to responders being able to quickly identify the affected property.

2.3 Firefighters and emergency responders are at greater risk of injury and need to move more cautiously when they are operating on uneven ground, kerbs, stairs and other obstructions. Clear, unobstructed and well-lit access ways help to ensure the safety of responders and those they are assisting.

2.4 Locating a fire appliance close to an incident supports efficient response. The Firefighting Operations Emergency Vehicle Access Guide provides guidance to ensure appliances can access sites, buildings and structures in an emergency[6]. This includes:

- minimum widths for carriageways
- minimum widths for curved carriageways or corners
- requirements for turning areas (i.e. dead ends)
- kerb dimensions on carriageways
- maximum gradiences for ramps/ inclines.

2.5 Fire and Emergency Tāmaki Makaurau recommends developments give effect to the guidance provided in the Firefighting Operations Emergency Vehicle Access Guide.

3.0 Requirements for manoeuvring equipment

Manoeuvring an Angus 464 Rescue Ladder

3.1 The Angus 464 ladder is primarily designed for rescues and access to multi-level structures up to four storeys in height. It is 46 feet 4 inches in length (14 metres), and comprises of three sections, a main and two extending; and weighs 100kg.

3.2 When the ladder is housed, it is 6 metres in length and requires a crew of four to remove the ladder from the fire appliance and to carry the ladder to its intended operating position. There is a minimum requirement of 10 metres of clear space behind the fire appliance to safely remove the ladder for deployment.

Figure 1: Length of Angus 464 Rescue Ladder

[6] F5-02 GD FFO Emergency vehicle access DRAFT 13 June 2018

Figure 2: Width of Angus 464 Rescue Ladder with crew

3.3 Crew require a minimum width of three metres to carry the ladder into position. Other ladder variants in service also require the same working space as the 464.

Figure 3: 10 metres of space required behind any fire appliance carrying a ladder

Manoeuvring Around Corners

3.4 For the ladder to be carried around corners there needs to be an arc of 6.2 metres minimum. The images below show the dimensions and the road cones illustrate the clear space required. This also applies to other ladder variants carried on Fire and Emergency NZ appliances:

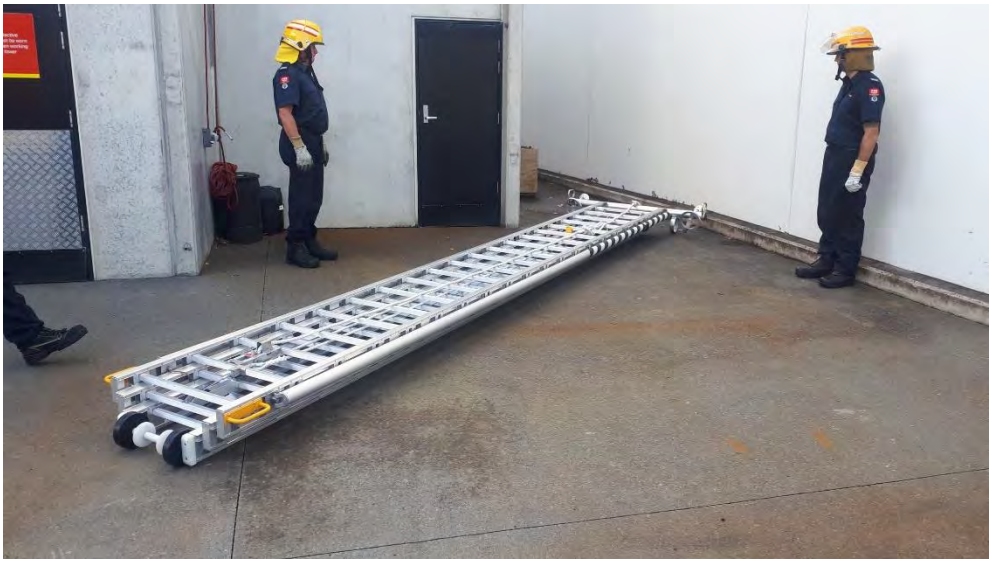


Figure 4: Turning arc of Angus 464 Ladder

Figure 5: Turning arc of Angus 464 Ladder

Operational Space

3.5 Once the ladder is pitched into the working position against a building it requires a clear space of 4.5 metres at the bottom to allow personnel to climb the ladder and perform operational tasks and rescues if required.

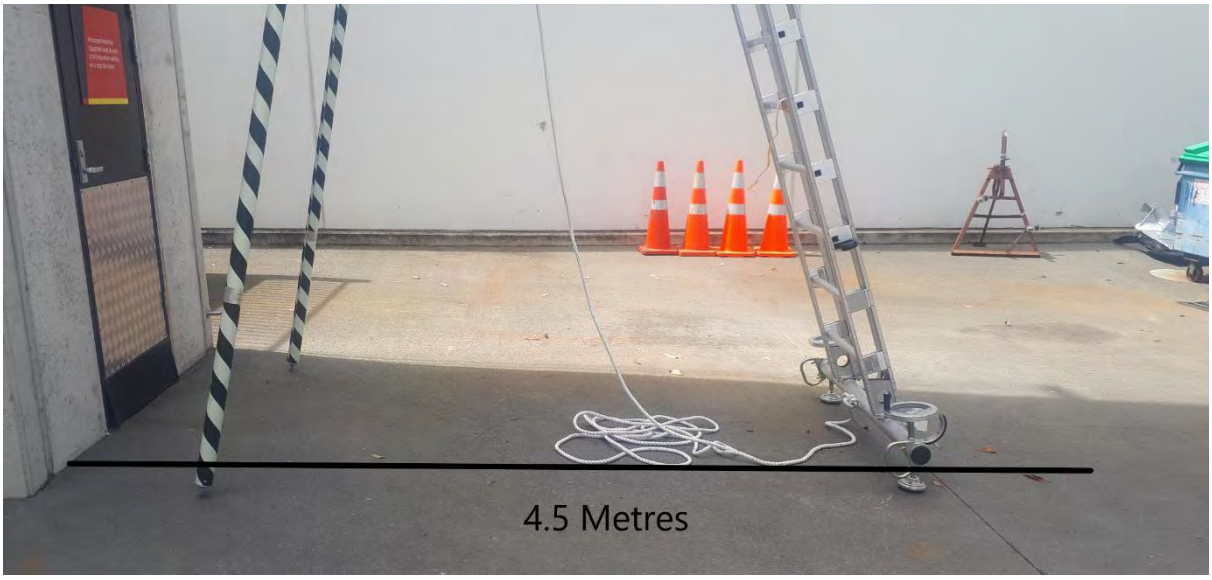


Figure 6: Set out distance from building

3.6 In summary, in order to allow enable safe and efficient access and manoeuvring of crew and equipment for firefighting, medical, rescue and other emergency response, where this tool or similar may be required, the following minimum widths are required:

- 3m on a straight accessway
- 6.2m on a curved or cornered accessway
- 4.5m space to position the ladder and perform operational tasks.

Ngā mihi,

Ron Devlin

Fire and Emergency New Zealand, Region Manager – Te Hiku

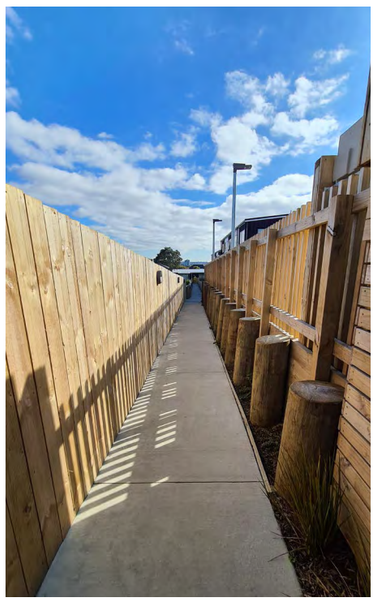
APPENDIX E:

Pedestrian Access Route Case Studies



PEDESTRIAN ACCESS CASE STUDIES



Auckland Council
Te Kaunihera o Tāmaki Makaurau

PEDESTRIAN ACCESS DESIGN CONSIDERATIONS

Pedestrian Access Routes (PAR): is a footpath providing pedestrian access to dwellings on residentially zoned sites where no vehicle access is provided or where any dwellings are only accessible from a footpath.

WIDTH

Pedestrian access route is of sufficient width to allow two users to pass each other (minimum 1.35m for two people walking; 1.8m for full range of users including prams, mobility devices, deliveries and bicycles)

Structures and services are avoided that reduce accessible footpath width (e.g. retaining walls, lighting, waste bins, water tanks, bike parking)

SAFETY

Pedestrian access route considers Crime Prevention Through Environmental Design ('CPTED') principles including straight alignment; clear line of sight and avoids entrapment spots and dead ends

Ground floor windows of sufficient size provide passive surveillance or "eyes" over the pedestrian access

Adequate lighting is provided to pedestrian access during hours of darkness, in accordance with AS/NZS 1158.3.1

ACCESSIBILITY

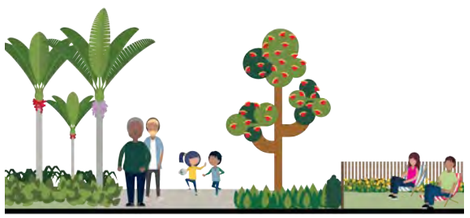
Pedestrian access is of a gentle gradient (1 in 20) and where possible stairs are avoided

Where steps are provided, an alternative accessible ramp (1:12.5) with level rest areas is provided

Footpath is an even, continuous, and non-slip surface

Footpath is connected to public street footpath with no obstructions in road reserve

LANDSCAPE TREATMENT, PRIVACY AND AMENITY



Landscape buffer of sufficient width (1m) is provided between the dwelling & pedestrian access and/or property boundary and contributes positively to privacy and amenity

Permanent waste bin storage is avoided adjacent to the pedestrian access

Fencing and retaining wall heights are minimised (maximum combined height of 1.8m) to avoid dominance; sense of enclosure and safety risks

WAYFINDING

Pedestrian access route is clear, direct and logical

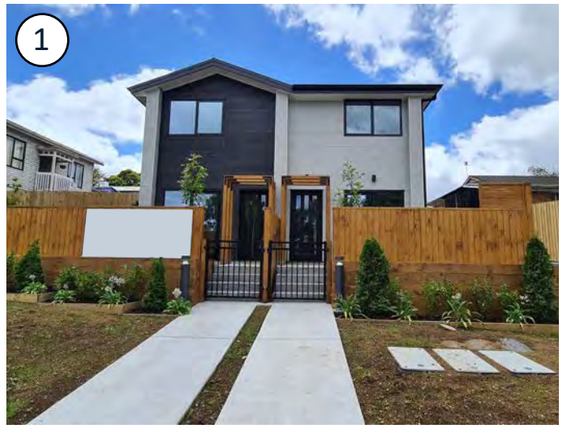
Dwelling entrances are clearly identifiable

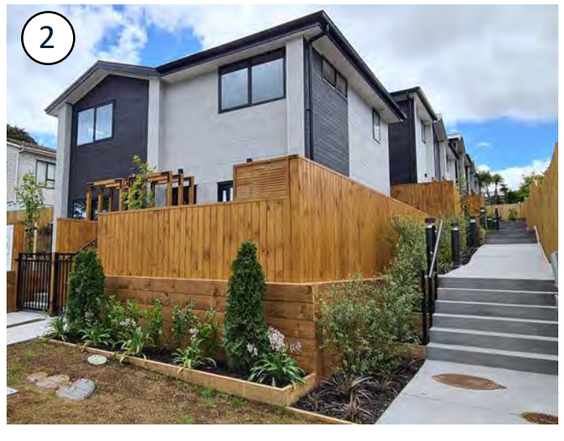
Wayfinding signage is provided for larger scale developments

LEGAL MECHANISM FOR MAINTENANCE

Pedestrian access is subject to management and maintenance structure (e.g. resident's society or similar)

9 UNIT TERRACED HOUSING DEVELOPMENT





CONTEXT

LOCATION Henderson

ZONING Mixed Housing Urban Zone

SITE LENGTH & WIDTH
48m long x 17m wide

NUMBER OF CAR PARKS
None

PEDESTRIAN ACCESS

LENGTH & WIDTH
46m long & x 1.5m wide

SHARED ACCESS OR PEDESTRIAN ONLY?
Pedestrian only

ALIGNMENT
Straight

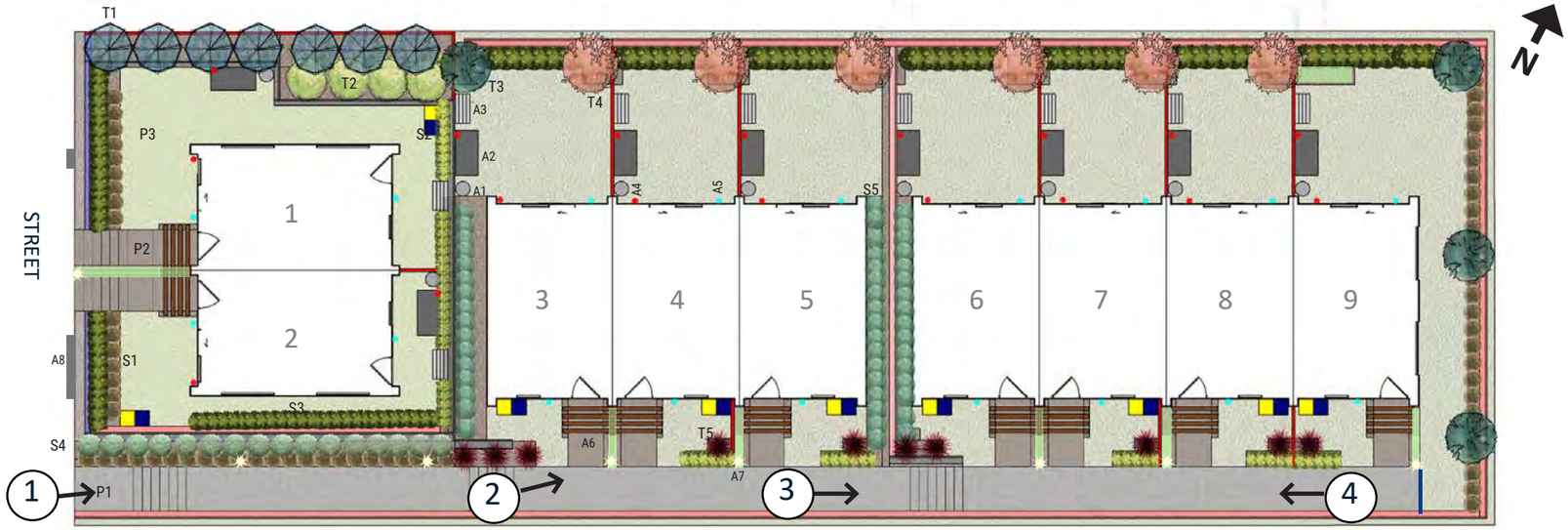
GRADIENT
3 steps of stairs & no ramp

FOOTPATH SURFACE
Concrete

LIGHTING
Bollard Lighting

MAINTENANCE MECHANISM
Right of way easement, no formal management

9 UNIT TERRACED DEVELOPMENT ASSESSMENT



	UNANTICIPATED OUTCOME	AVERAGE	GOOD
WIDTH		●	
LANDSCAPE TREATMENT, PRIVACY & AMENITY		●	
SAFETY		●	
WAYFINDING			●
ACCESSIBILITY	●		
LEGAL MECHANISM FOR MAINTENANCE	●		

WIDTH

Pedestrian access width of 1.5m allows for two-way pedestrian movement for most users.

Bollard lights are located along the edge and do not obstruct pedestrian access.

The retaining wall poles reduce the usable width of the path in places

WAYFINDING

Pedestrian access is clearly visible from the street.

Pedestrian access leads to the clearly numbered front door of each unit.

LANDSCAPE TREATMENT, PRIVACY & AMENITY

Landscape buffer of 0.3m - 0.8m provided between pedestrian access and waste bin enclosure / retaining wall.

No spacing between the pedestrian access and boundary fence to accommodate the landscaping to soften the retaining wall.

The retaining wall and fencing has a combined height over 2m in height, which results in visual dominance effects, particularly with the natural timber finish.

SAFETY

Bollard lighting will light pedestrian access but not faces, particularly at a distance.

Glazed front door panels and kitchen windows towards the pedestrian access enable opportunities for passive surveillance.

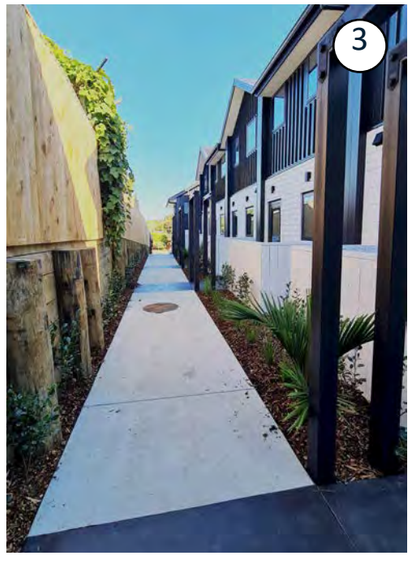
Straight and clear alignment.

ACCESSIBILITY

Three sets of stairs along the pedestrian access route limit access for people with accessible needs, e.g. wheelchair users and people with prams.

As bins are stored in front of the units, occupants are required to take the bins down/up the stairs on collection day.

11 UNIT TERRACED HOUSING DEVELOPMENT



CONTEXT

LOCATION Te Atatu Peninsula

ZONING Mixed Housing Urban Zone

SITE LENGTH & WIDTH
48.28m long & x 16.77m wide

NUMBER OF CAR PARKS
None

PEDESTRIAN ACCESS

LENGTH & WIDTH
53m long & x 1.2m wide

SHARED ACCESS OR PEDESTRIAN ONLY?
Pedestrian only

ALIGNMENT
L-shaped

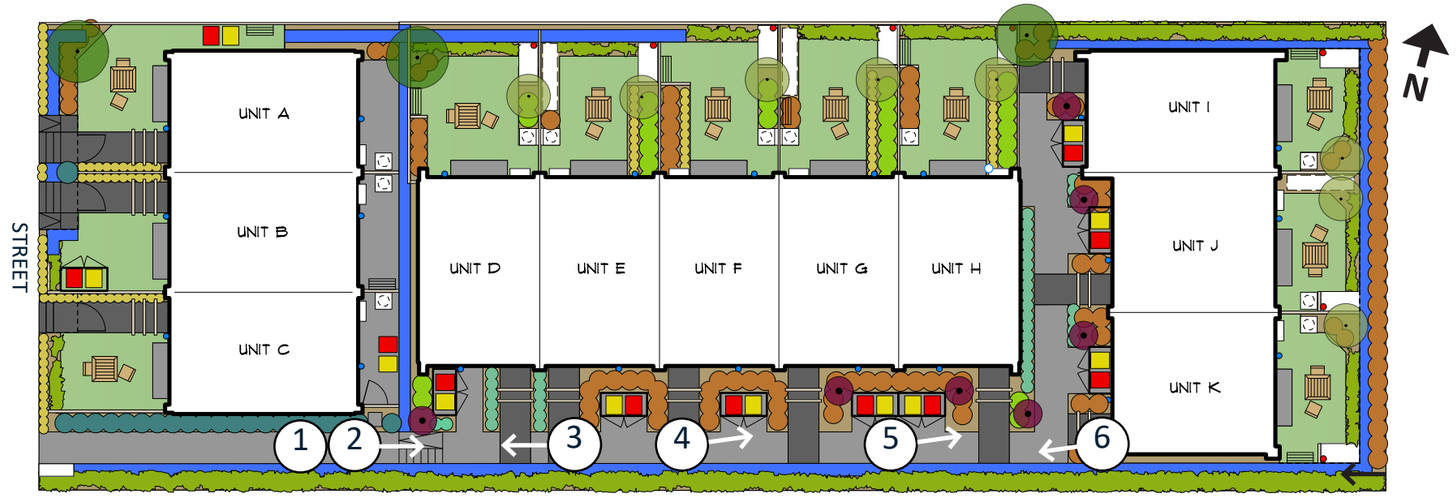
GRADIENT
1 set of stairs with ramp (1:1.15)

FOOTPATH SURFACE
Brushed concrete

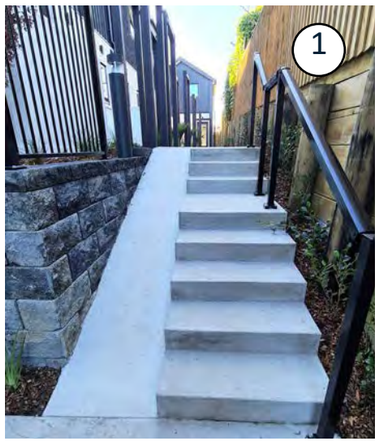
LIGHTING
Bollard lighting

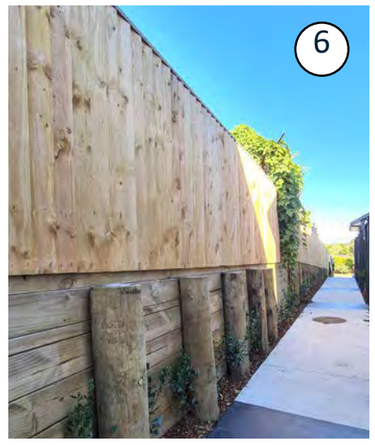
MAINTENANCE MECHANISM
"Right of way" easement, no formal management or maintenance mechanism in place.

11 UNIT TERRACED DEVELOPMENT ASSESSMENT



	UNANTICIPATED OUTCOME	AVERAGE	GOOD
WIDTH		●	
LANDSCAPE TREATMENT, PRIVACY & AMENITY		●	
SAFETY		●	
WAYFINDING			●
ACCESSIBILITY	●		
LEGAL MECHANISM FOR MAINTENANCE	●		





WIDTH

- Pedestrian access of 1.5m allows for two-way pedestrian movement to first six units, reducing to 1.2m for last two units.
- Width reduces to 0.9m for stairs and 0.6m wide ramp, which restricts movement.
- Pedestrian access is not obstructed structures.

WAYFINDING

- Pedestrian access is clearly visible from the street with entry wall and letterboxes.
- Dark oxide strips in footpath to each front door, with each door numbered.

ACCESSIBILITY

- Pedestrian access is of a continuous concrete finish that is connected to the public street footpath.
- Ramp is too steep to be safely used for prams or to allow waste bins to be wheeled to the street. The 0.6m width is too narrow to fit a standard Council recycling bin (0.68m) or a single width pram (0.7m).
- The reduced stair width of 0.9m would restrict access for deliveries, furniture removal and emergency services access.

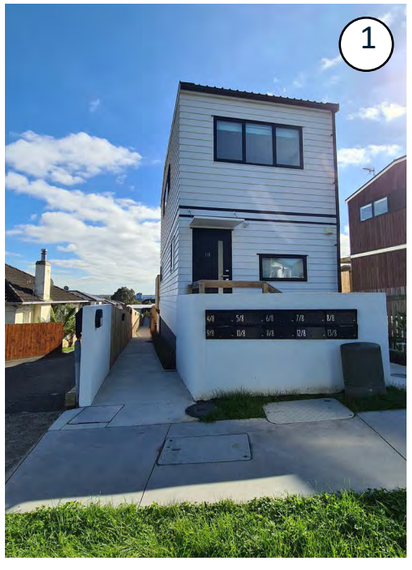
LANDSCAPE TREATMENT, PRIVACY & AMENITY

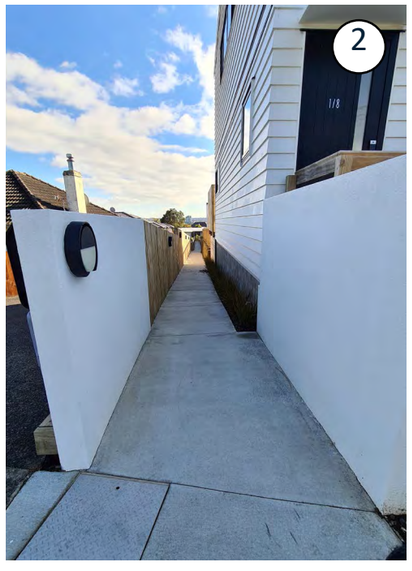
- Landscape buffer of 0.7m provided between pedestrian access and waste bin enclosure.
- Landscape strip 0.6m wide between pedestrian access and boundary fence.
- Waste bins are permanently stored next to pedestrian access, partially screened with 1.2m high painted solid fence screen.
- Boundary fencing and retaining walls up to 3.5m in height create sense of enclosure. Climber planting at base of wall may provide softening in time.

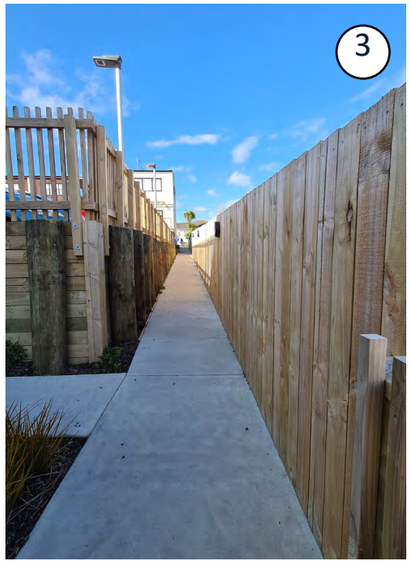
SAFETY

- L-shaped path alignment, with 90 degree bend at the end to serve 2 units, and dead end.
- Ground floor windows of kitchens and glazed front door provide overlooking of the pedestrian access.
- Bollard lighting provided to light path but limited lighting at eye level

13 UNIT TERRACED HOUSING DEVELOPMENT







CONTEXT

LOCATION Glendene

ZONING Mixed Housing Urban Zone

SITE LENGTH & WIDTH
85m long & 21m wide

NUMBER OF CAR PARKS
13

PEDESTRIAN ACCESS

LENGTH & WIDTH
78m long & 1.2 wide

SHARED ACCESS OR PEDESTRIAN ONLY?
Pedestrian only

ALIGNMENT
Straight

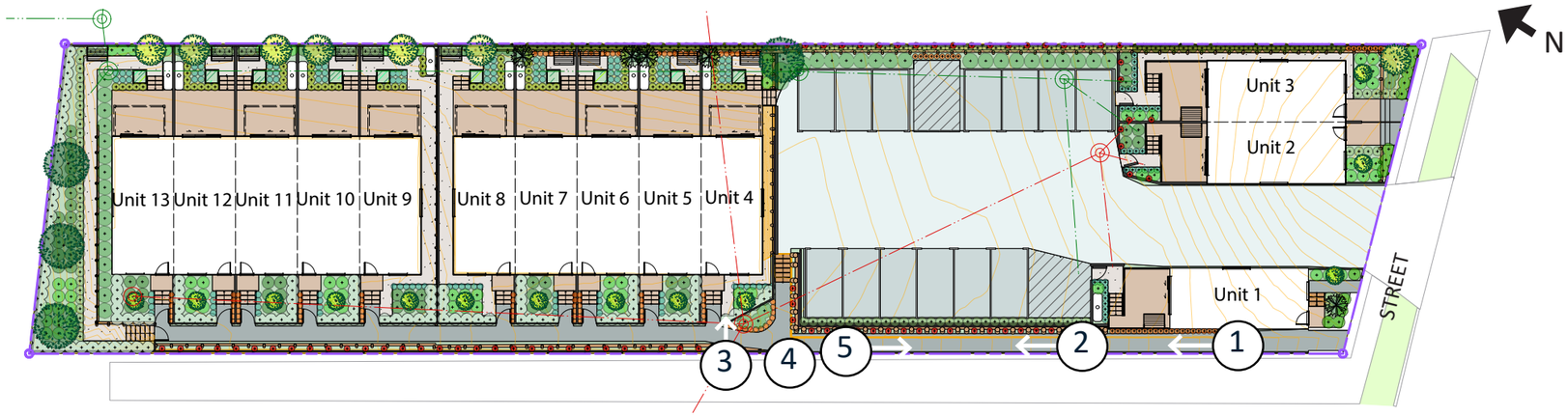
GRADIENT
Gentle gradient

FOOTPATH SURFACE
Concrete

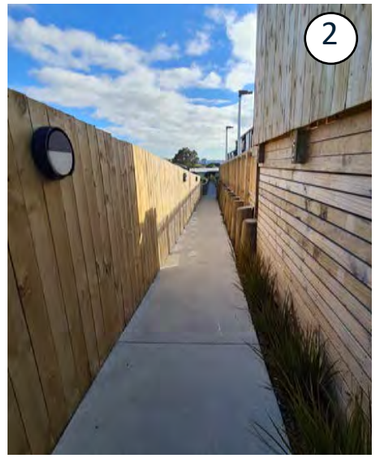
LIGHTING
Fence mounted

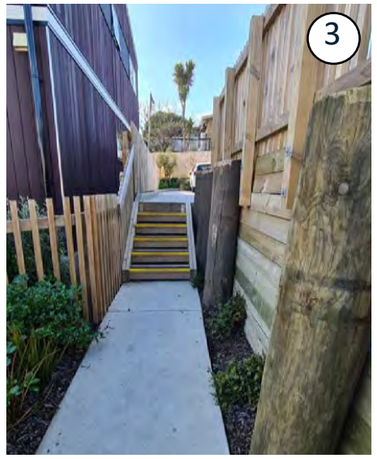
MAINTENANCE MECHANISM
Incorporated Society to manage common assets including pedestrian access route, with consent notice on certificates of title.

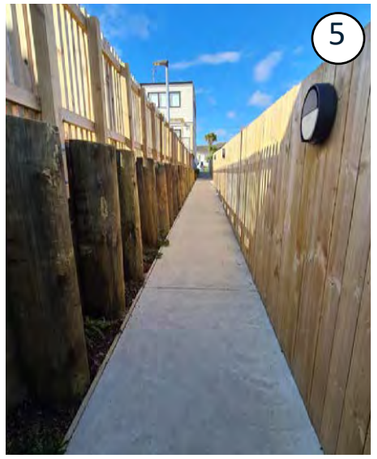
13 UNIT TERRACED DEVELOPMENT ASSESSMENT



	UNANTICIPATED OUTCOME	AVERAGE	GOOD
WIDTH	●		
LANDSCAPE TREATMENT, PRIVACY & AMENITY	●		
SAFETY	●		
WAYFINDING			●
ACCESSIBILITY		●	
LEGAL MECHANISM FOR MAINTENANCE			●







WIDTH

Pedestrian access width of 1.2m allows for one-way pedestrian movement but would not accommodate two people (1.35m) or other combinations of users. No additional buffer space to allow for passing due to retaining wall posts.

WAYFINDING

Pedestrian access clearly visible from the street with entry wall and letterboxes.

Individual unit front doors labelled.

LANDSCAPE TREATMENT, PRIVACY & AMENITY

Landscape buffer of ~30cm provided between pedestrian access and Unit 1 side elevation; ~30cm between retaining wall and footpath and up to 3m between Units 4- 13 and footpath.

Communal waste enclosure is provided in the carparking area.

Retaining wall and fence heights up to 3m either side of first half of pedestrian access, enclosing and dominating space.

SAFETY

Straight pedestrian access alignment and clear line of sight; dead end

No surveillance provided over the first ~40m length of the pedestrian access past Unit 1 and the communal carpark, which leads to ten units at the rear. Some surveillance provided over remaining pedestrian access from small kitchen windows

Lighting provided via fence mounted lights. Lighting poles provided within carpark.

ACCESSIBILITY

Pedestrian access is flat and of a continuous concrete finish that is connected to the public street footpath.

Stairs are provided from the communal carparking court down to the pedestrian access.

32 UNIT TERRACED HOUSING DEVELOPMENT

CONTEXT

LOCATION Mount Wellington

ZONING Mixed Housing Suburban Zone

SITE LENGTH & WIDTH
126m long & 23m wide at the front and 41m wide at the rear

NUMBER OF CAR PARKS
32

PEDESTRIAN ACCESS

LENGTH & WIDTH
145m long & 1.5-1.8m wide

SHARED ACCESS OR PEDESTRIAN ONLY?
Shared driveway with separate footpath and pedestrian only footpaths

ALIGNMENT
T-shaped & double-sided

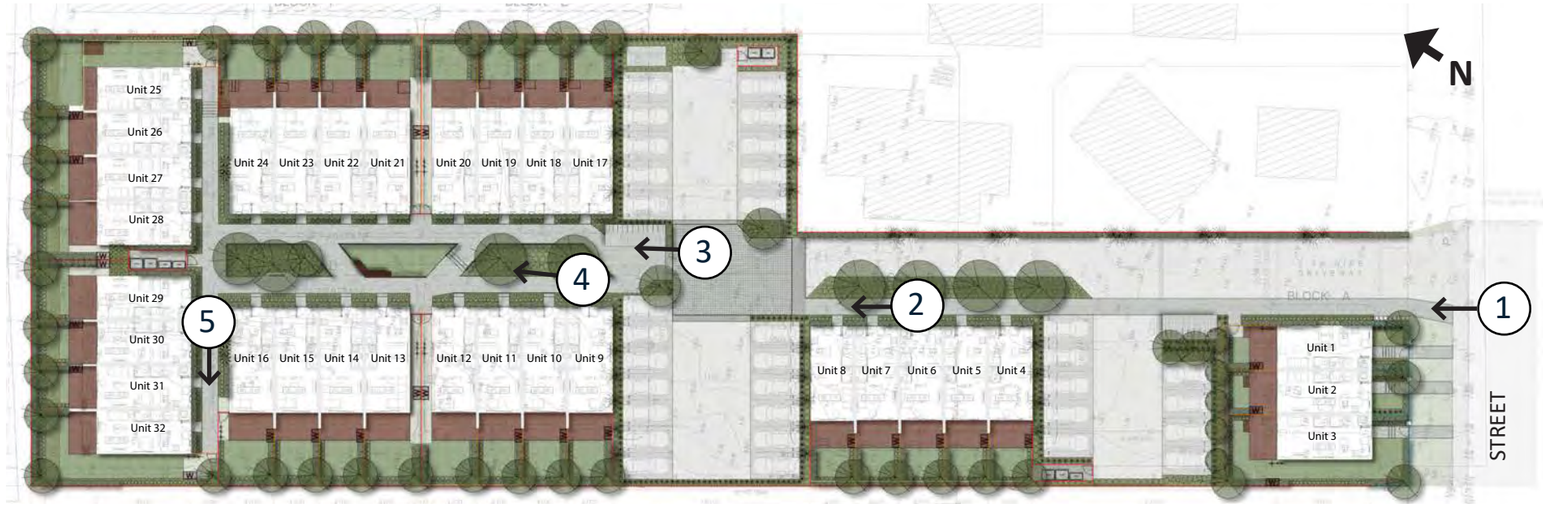
GRADIENT
Gentle gradient, one set of stairs with ramp alternative

FOOTPATH SURFACE
Black oxide concrete

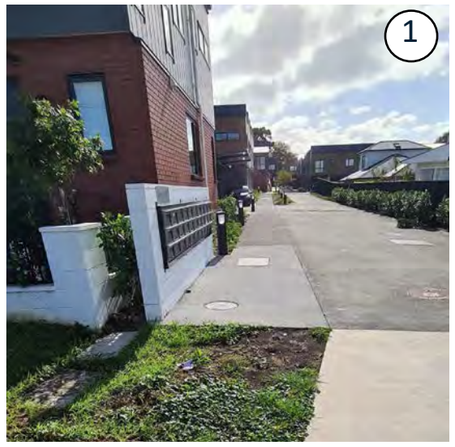
LIGHTING
Bollard lighting

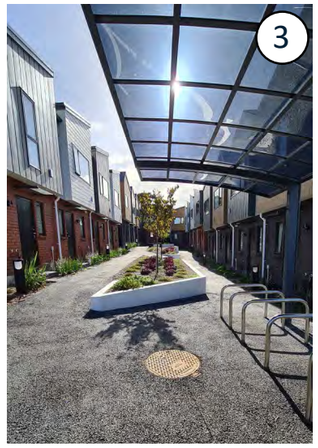
MAINTENANCE MECHANISM
Residents society is responsible for the upkeep and maintenance of the communal areas including footpaths.

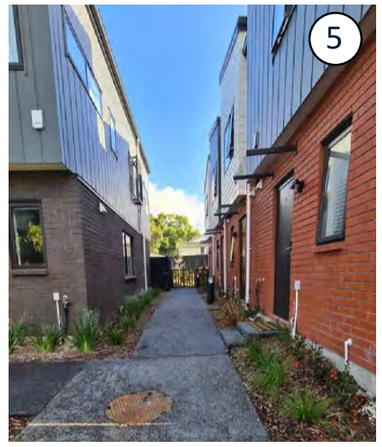
32 UNIT TERRACED HOUSING DEVELOPMENT ASSESSMENT



	UNANTICIPATED OUTCOME	AVERAGE	GOOD
WIDTH			●
LANDSCAPE TREATMENT, PRIVACY & AMENITY			●
SAFETY			●
WAYFINDING			●
ACCESSIBILITY			●
LEGAL MECHANISM FOR MAINTENANCE			●







WIDTH

- Pedestrian width of 1.5-1.8m allows for two-way pedestrian movement to all units.
- Pedestrian access is not obstructed with structures.

WAYFINDING

- Pedestrian access is clearly visible from the street with entry wall and letterboxes.
- Individual unit front doors labelled and clearly visible from the pedestrian access

LANDSCAPE TREATMENT, PRIVACY & AMENITY

- 1m wide landscape strips provided between pedestrian access and units.
- Communal courtyard and landscape strips are adequately landscaped with seating and a variety of plants and trees.
- Waste bins are stored between units, sheltered and fully screened.
- All boundary fencing and bin enclosures are stained in a dark, recessive colour, which complements the architectural and landscape design and minimises their visual dominance effect.

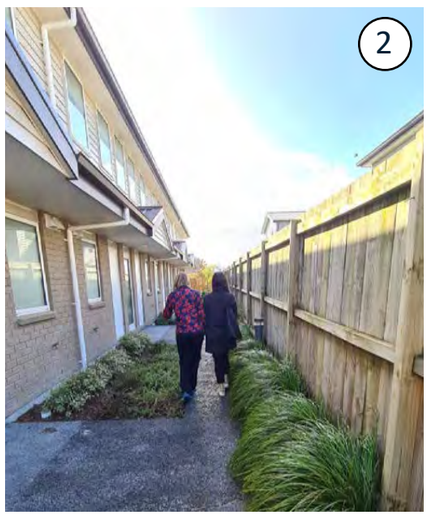
ACCESSIBILITY

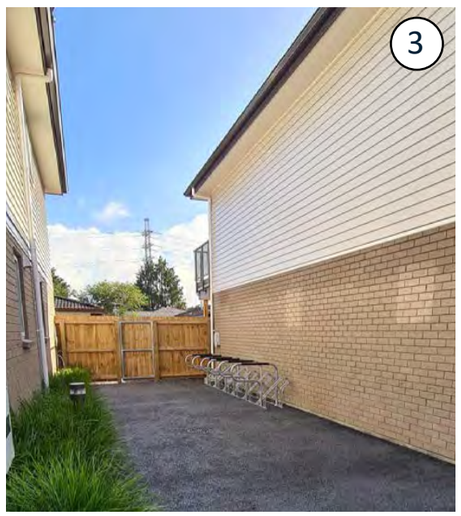
- Pedestrian access is of a continuous concrete finish and gentle gradient.
- Pedestrian access does not connect to the public footpath.
- Two footpaths (1.5m and 1.8m wide) and ramp are provided within the communal courtyard that serve the units on either side, which provide options for accessible routes.

SAFETY

- Bollard lighting to pedestrian access and sensor lights at each front door provides lighting to footpath but limited lighting at eye level.
- Ground floor windows of kitchens provide overlooking of the pedestrian access.
- 2m wide landscape buffer between the pedestrian access in front of Units 4-8 and the driveway improves pedestrian safety and amenity.
- Clear line of sight from street to end of pedestrian access, T-shaped access at rear

20 UNIT WALK UP APARTMENT DEVELOPMENT





CONTEXT

LOCATION Takaanini

ZONING Mixed Housing Urban Zone

SITE LENGTH & WIDTH
52m long x 20m wide

NUMBER OF CAR PARKS
2 car parks

PEDESTRIAN ACCESS

LENGTH & WIDTH
48m long & x 1m wide built (1.2m wide in approved plans)

SHARED ACCESS OR PEDESTRIAN ONLY?
Pedestrian only, two shared spaces (car parks),

6 cycle stands

ALIGNMENT
Straight and one sided

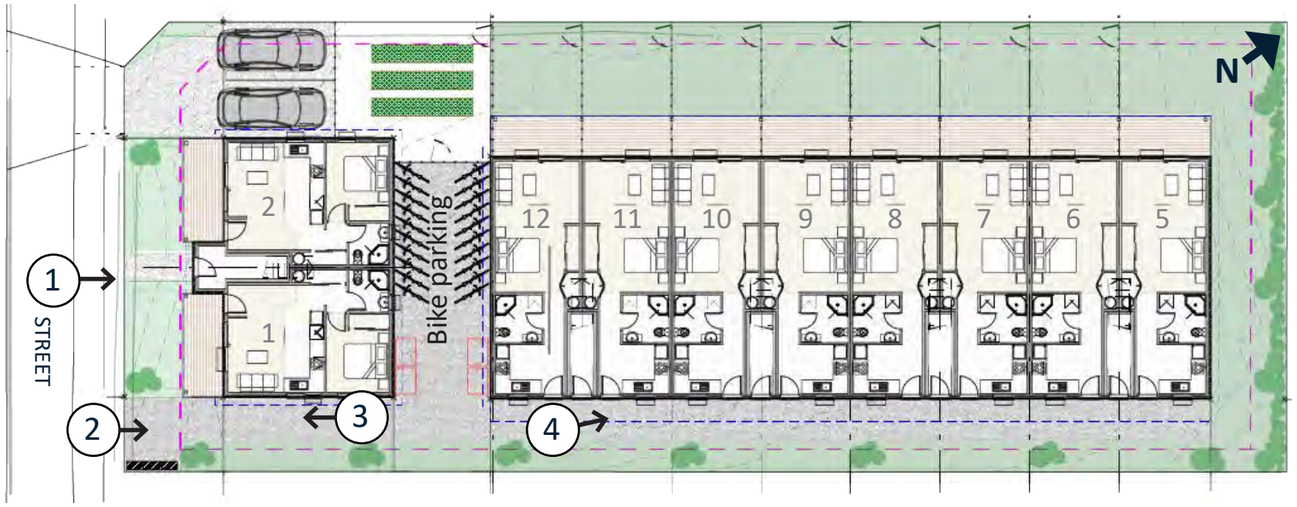
GRADIENT
Flat

PAVEMENT TREATMENT
Permeable Concrete

LIGHTING
Bollard Lighting

MAINTENANCE MECHANISM
Body Corporate (Unit Title subdivision)

20 UNIT WALK UP APARTMENT DEVELOPMENT ASSESSMENT



	UNANTICIPATED OUTCOME	AVERAGE	GOOD
Width	●		
Landscape Treatment, Privacy & Amenity		●	
Safety		●	
Wayfinding		●	
Accessibility		●	
Legal Mechanism for Maintenance			●

WIDTH

Pedestrian access width of 1m allows for one way pedestrian movement but would not accommodate two people (1.35m) or other combinations of users.

WAYFINDING

Pedestrian access is clearly visible from the street with letterboxes.

Clearer numbers on the doors is required; especially to communicate the location of the walk up apartments. The building looks like terrace rather than apartments.

LANDSCAPE TREATMENT, PRIVACY & AMENITY

Communal courtyard and generous landscape strips are provided. However the planting is low, encroaches on the pathway and is providing minimal mitigation to the extensive hard surfaces onsite, with only one specimen tree at rear

Waste bins are stored between two blocks of units, however screening is minimal

All boundary fencing is left untreated which detracts from amenity of communal spaces

A communal vegetable garden is provided.

SAFETY

Solar bollard lighting provided within landscape strips will provide lighting of the footpath path but not at eye level

Ground floor windows of kitchens provide passive surveillance over the pedestrian access, but landscape buffer could incorporate more planting of scale to improve privacy.

Gap between blocks is large with clear sightlines.

Clear line of sight down pedestrian access from street.

ACCESSIBILITY

Footpath is of a continuous concrete finish and flat; however access is restricted by unmaintained planting.

Gate is heavy and the latch is difficult and not functional for a wide variety of users.

25 UNIT TERRACE DEVELOPMENT

CONTEXT

LOCATION Mt Wellington

ZONING Terrace Housing & Apartment Building Zone

SITE LENGTH & WIDTH
63m x 40m wide

NUMBER OF CAR PARKS
25 car parks

PEDESTRIAN ACCESS

LENGTH & WIDTH
Units 7-10 & 15-25 pathway 45m long & 1.5m wide

Secondary pedestrian access to carpark 1m wide x

SHARED ACCESS OR PEDESTRIAN ONLY?
Pedestrian only with separate car parking court

ALIGNMENT
Straight, single and double sided

GRADIENT
Gentle / moderate

PAVEMENT TREATMENT
Concrete Pavers

LIGHTING
LED Bollard Lighting

MAINTENANCE MECHANISM
Pedestrian access held as part of JOAL with Residents Society for maintenance

25 UNIT TERRACE DEVELOPMENT ASSESSMENT

1

3

2

4

	UNANTICIPATED OUTCOME	AVERAGE	GOOD
WIDTH		●	
LANDSCAPE TREATMENT, PRIVACY & AMENITY	●		
SAFETY		●	
WAYFINDING		●	
ACCESSIBILITY		●	
LEGAL MECHANISM FOR MAINTENANCE			●

WIDTH

- Pedestrian access width of 1 - 1.5m accommodates two people in some parts of the site; however access is restricted particularly in house entries and side pathways.

WAYFINDING

- Pedestrian access is visible from the street but entrance wall in approved plans not constructed.
- Individual unit front doors labelled and clearly visible from footpath.
- Wayfinding sign adjacent to carpark could be more discrete & better integrated with smaller signs at each block of terraces

LANDSCAPE TREATMENT, PRIVACY & AMENITY

- Landscape strips are provided between pedestrian access and units; however the low planting provides minimal privacy or amenity to the pedestrian access.
- Waste bins are stored in the carpark and screened.
- All fencing is left untreated/painted which detracts from amenity of pedestrian access and communal areas. Additional screening has been added to some outdoor living spaces which front the pedestrian access.
- The landscape treatment between the retaining wall and pedestrian access is too narrow to mitigate its effect on the common pathways.

ACCESSIBILITY

- Main pedestrian access is paved but has services (manhole lids etc) which have different surface treatment and levels.
- The connection between some dwellings and the pedestrian access has a change in level with steps and ramps.
- 8.1% sloping ramp for the change of level onsite is maximum slope.
- Pedestrian access to the carpark has change in surface treatment to open permeable pavers which would be difficult to navigate for mobility impaired

SAFETY

- 1.6m close boarded fencing along pedestrian access to provide privacy to outdoor living space restricts passive surveillance, & some residents have erected additional screens.
- Small kitchen windows provided on one side of pedestrian access provides some passive surveillance
- Bollard lighting is provided and located within the landscape strips along some pathways, but is infringing on other pathways.
- Clear line of sight along pedestrian access