

Walking and bus stops

Public Transport Design Guidance

Walking Summit July 2023

Gerry Dance &
Patrícia Vasconcelos





Bus dimensions for design



Corridor clearance



Bus layover and driver facilities



Getting to and from public transport



Bus stop



Public transport priority and optimisation



Battery electric bus charging infrastructure



Public transport interchanges



Training & capability



Bookmark the PTDG:
nzta.govt.nz/ptdg



Draft guidance - have
your say

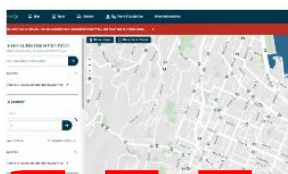
There are a lot of elements of public transport (e.g. ticketing, customer information, timetabling) but the PTDG focuses on **infrastructure**, and, primarily, for **buses**

Getting to and from public transport

Topics covered



Roles and responsibilities



Understanding people and their journey choices



Planning for getting to and from the stop



Walking



People on bikes and micromobility



Feeder public transport services



Car connections

FACTORS TO CONSIDER	✓	ADVICE / ASSESSMENT	NOTES
Are roads suitable and safe for walking?		Is the route suitable for walking? Are there any barriers or obstacles? Are there any safety concerns?	
Are there suitable and safe places for waiting?		Are there any suitable and safe places for waiting? Are there any barriers or obstacles? Are there any safety concerns?	
Are there suitable and safe places for boarding and alighting?		Are there any suitable and safe places for boarding and alighting? Are there any barriers or obstacles? Are there any safety concerns?	
Are there suitable and safe places for parking?		Are there any suitable and safe places for parking? Are there any barriers or obstacles? Are there any safety concerns?	

Quick checklist for getting to and from public transport

Planning for getting to / from the stop

Safety

Public transport is our **safest** mode of transport with least deaths and injuries per kilometre traveled

Most dangerous component of public transport journeys is **getting to and from the stop or station**, particularly for people walking or cycling

=> Planning for safety is essential - Must allow people

- to *be* safe
- to *perceive* the journey as being safe
 - Perceptions can shape which travel modes seem viable



Walking

Walking to public transportation is influenced by the following:

- The level of service of walking facilities
 - Safety and accessibility for walking
 - Directness and convenience for walking
 - Amenity for walking
- The level of service of public transport

Walking catchment	Level of service
≤400m or 5min walk	Low frequency public transport stops
≤800m or 10min walk	High frequency public transport stops (a service at least every 15min)
≤800m - 1200m or 15min walk	High frequency and rapid public transport stops or stations

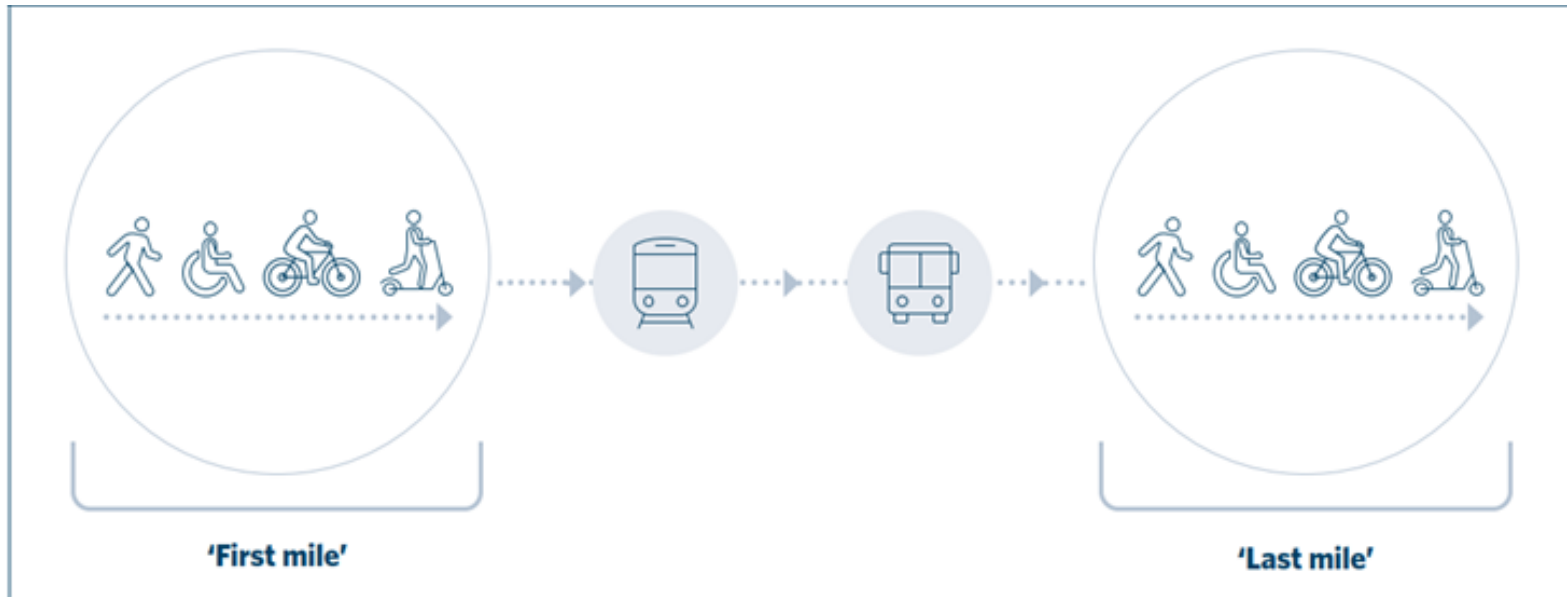


Planning for the whole passenger journey

Getting to / from public transport is integral to every passenger journey

Key issues for people accessing public transport include:

- **Distance** between origin/destination and the public transport stop
- **Comfort and universal access** along the connecting route
- **Availability and attractiveness** of access options
 - e.g. taxi/rideshare, feeder buses, pick-up and drop-off, or Park & Ride
- Perceived or actual **safety and security** of accessing public transport



Quick checklist for getting to and from public transport

FACTORS TO CONSIDER	✓✗	ADVICE / ASSESSMENT NOTES	NOTES
Are vehicle speeds and volumes low?		If speeds are >30km/h and/or traffic volumes are greater than 3,000 vehicles per day, consider traffic calming treatments and/or separated facilities for walking, cycling, and micromobility	
Are there safe and obvious step-free routes?		Are footpaths of high quality? Are ramps and alternative routes of a shallow gradient, well-advertised, well lit, and slip-resistant?	
Are paths attractive and direct?		Are there opportunities for off-road walking and cycling connections / cut-throughs? Are footpaths wide enough or are there opportunities to widen them?	
Are road crossings appropriate and on desire lines?		Do people need to make circuitous routes to use crossings? Are crossings where people actually cross? Are they safe? Is it the right type of crossing? Are there missing crossings or do they require further protection at signals or unacceptable levels of delay? Check crash history and/or Pedestrian Network Guidance for guidance on crossing types etc.	

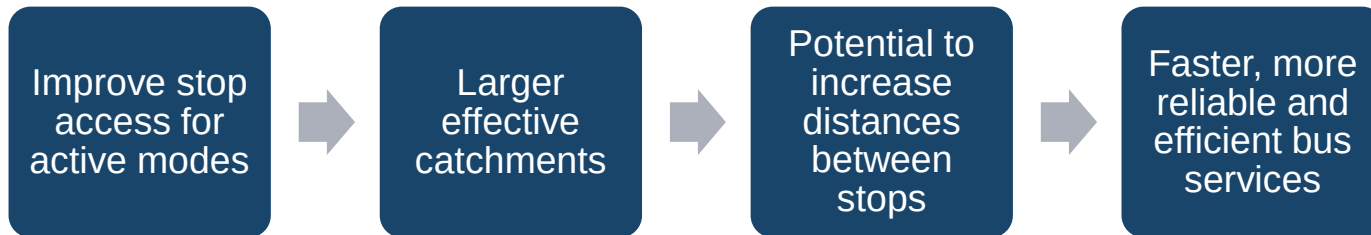
	FACTORS TO CONSIDER	✓✗	ADVICE / ASSESSMENT NOTES	NOTES
HIGHER IMPACT	Are vehicle speeds and volumes low?		If speeds are >30km/h and/or traffic volumes are greater than 3,000 vehicles per day, consider traffic calming treatments and/or separated facilities for walking, cycling, and micromobility	
	Are there safe and obvious step-free routes?		Are footpaths of high quality? Are ramps and alternative routes of a shallow gradient, well-advertised, well lit, and slip-resistant?	
	Are paths attractive and direct?		Are there opportunities for off-road walking and cycling connections / cut-throughs? Are footpaths wide enough or are there opportunities to widen them?	
	Are road crossings appropriate and on desire lines?		Do people need to make circuitous routes to use crossings? Are crossings where people actually cross? Are they safe? Is it the right type of crossing? Are there missing crossings or do they require further protection at signals or unacceptable levels of delay? Check crash history and/or Pedestrian Network Guidance for guidance on crossing types etc.	
	Are streets and paths well-lit, following CPTED principles?		Will people feel safe getting to and from the stop in the dark? Does the stop benefit from passive surveillance?	
	Are the feeder public transport services reliable?		Investigate the causes of unreliability and implement appropriate public transport priority measures.	
	Are the feeder and connecting public transport services located a short walk from each other (ideally 20m or less)?		Reallocate interchange space to bring feeder and connecting public transport services closer together whilst also prioritising access for people walking and people on bikes.	
	Are there access and parking facilities at the stop or station for people cycling or using micromobility?		Are cycle and micromobility paths and facilities prioritised above car park access? Are there secure parking or storage, charging points, lockers, and bathrooms? Note: provide cycle parking for a range of users.	
	Are the connection times to/from feeder public transport services optimal (not too short or too long)?		Adjust the feeder or connecting public transport service timetables to improve connection times	
	Is there obvious wayfinding to direct people to the stop or station?		Is there signage for people unfamiliar with the area?	
LOWER IMPACT	Are there accessible parking and drop-off options at the stop or station?		Is the stop or station accessible to someone who cannot walk far, or who needs to drive there or be dropped off? Are feeder bus stops close to the station?	
	Are there street trees and planting?		Are walking routes attractive, including in hot weather, and with shelter from wind/rain?	
	Is there seating along walking routes?		Are walking routes pleasant, encouraging a sense of place?	
	Are cycle facilities free of glass and debris?		Are cycling and micromobility routes reliably smooth?	
	Is shared cycling/ micromobility (e.g. bikeshare or scooter share) available?		Is there opportunity to provide or promote public or private cycle or micromobility options?	
	Would park and ride facilities increase public transport patronage?		Consideration at the end of high-frequency routes, particularly bus and train stations at the ends of lines and where people travel a long way to their destination.	

Planning for getting to and from the stop

Public transport network considerations

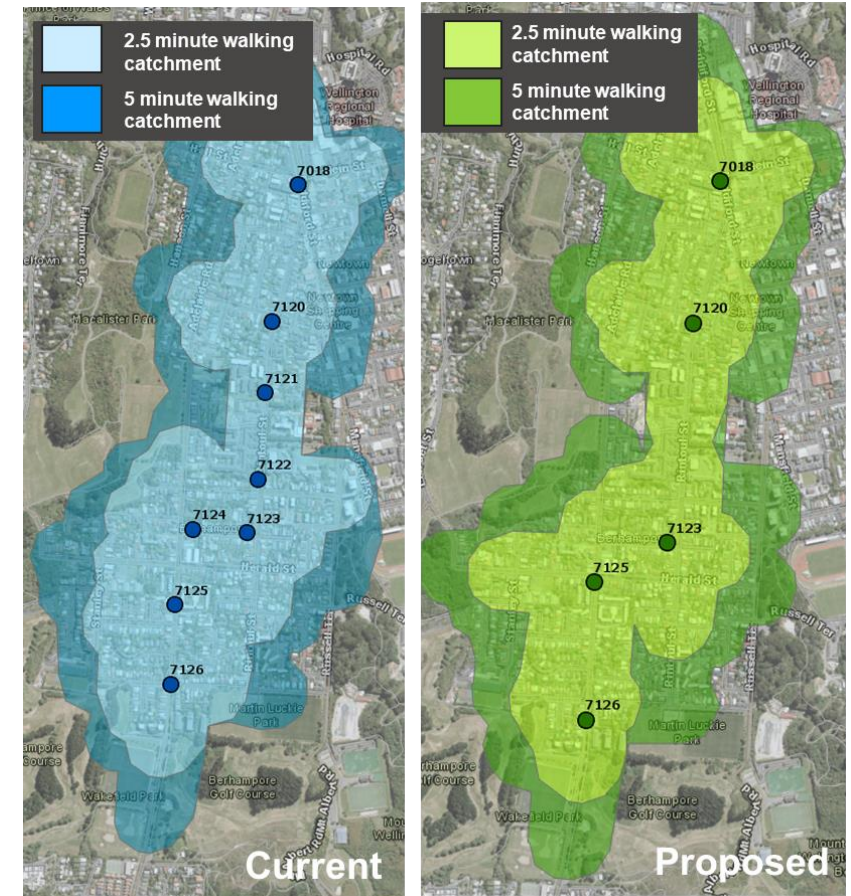
Stop access planning needs to take place alongside planning sites for stops, interchanges and land use.

Stop and interchange sites need to provide both efficient journeys for the passenger and networks that are efficient to operate and fund.



Bus stop spacing:

Fine balance between accessibility and service efficiency



Berhampore case study

Bus stops



Bus stop location planning

Walking access



Longhurst/Knights Stream - Pedestrian Connection Links

Locate stops where they:

- are easy, safe and direct to access and near at-grade crossings
- reduce access and egress distances
- maximise number of people (the catchment) near bus stop
- coordinate with neighbourhood walking connections and building entrances.
- If there are no existing paths, investigate creating new pedestrian short-cuts to bus stops.

- ✓ *Consider speed in crossing designs*
- ✓ *It is preferable for crossings to be located so that **pedestrians will cross behind the bus stop in both directions.***

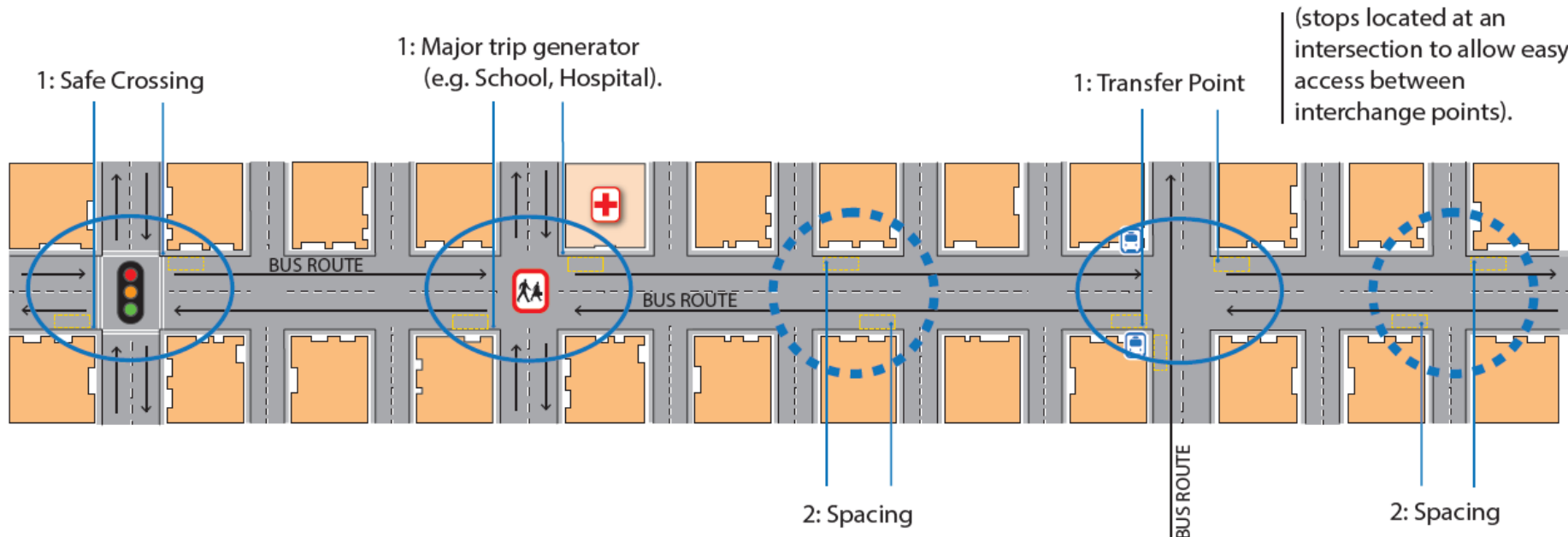
Bus stop

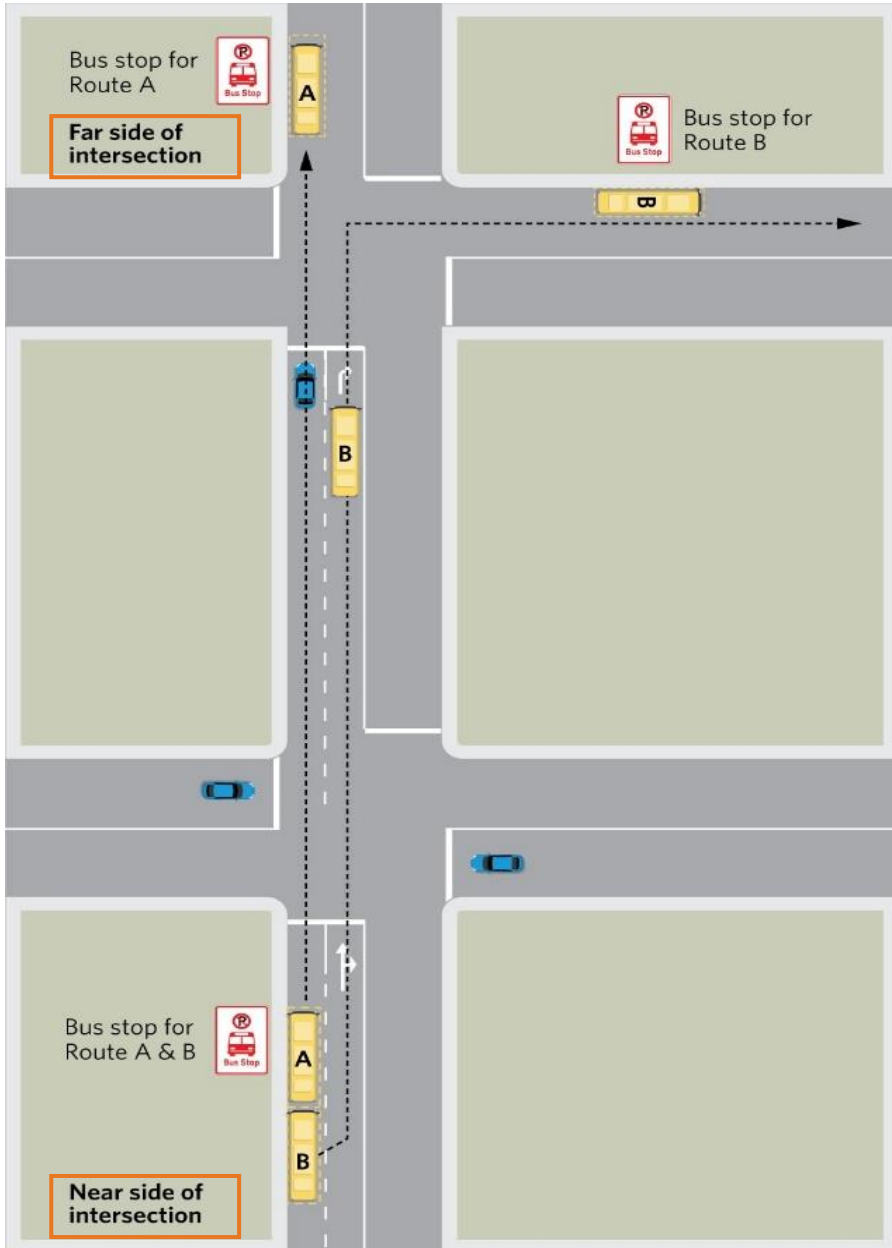
Location planning - spacing

- Aim is to balance bus efficiency and coverage
- Basic rule of thumb is **400 m** for most urban services but can be greater for higher level of service / frequency



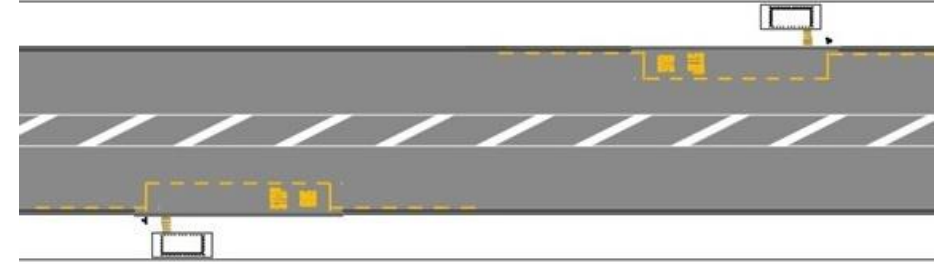
A bus stop located in a more level location of a hilly area. (Source: Mark Edwards)





Bus stop

Location principles



- **Paired:** provide in pairs, ideally staggered 'tail to tail'
- **Crossings:** Should ideally always be a crossing close
- **Walking accessibility:** easy, safe, direct, maximise catchment
- **Safety and security:** Visibility, lighting, wayfinding
- **Visibility:** Between driver and waiting passengers, other road users
- **Intersections:** near-side, far-side or mid-block
- **Consider:** Transfers, topography, traffic calming devices, conflicting activities, timing points stops, and more!

Bus stop: layouts

Kerbside bus stop



In-lane stops w/bus boarders



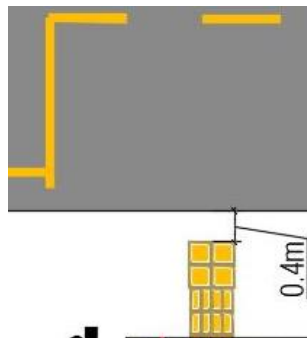
Indented



Bus stop components

Six main components related to:

- Accessibility (e.g. tactile ground surface indicators, kerbs' height)
- Safety and security (e.g. lighting, help points)
- Street furniture (e.g. seating, shelter)
- Enhancements (e.g. landscaping, vending machine)
- Stop-specific information (e.g. stop name and number, real-time information signs)
- Signs and road markings (e.g. bus stop sign and bus stop box markings)



Bus stops impacted by temporary traffic management

When there is temporary traffic management (TTM) in the vicinity of a bus stop this can be accommodated by:

1. The bus stop remains open in its current location but with some temporary traffic management measures on or near it
2. The bus stop is temporarily moved with a temporary bus stop established nearby, or
3. The bus stop is closed

Planning and design guidance provided for each of these contexts, with preference for keeping bus stops open.



Bus Stops Impacted by Temporary Traffic Management

Public Transport Design Guidance

Waka Kotahi

7 March 2023

V6

Pātai / Questions

Subscribe for updates

Email 'subscribe' to: ptdg@nzta.govt.nz