

Floating Island Bus Stops

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What happens at a Bus Stop?

Phase transitions...

Change from Pedestrian to Passenger

But there is an interim phase between these

‘Pedenger’ – when a person is changing from being a pedestrian – walking, navigating etc. – to becoming a passenger – finding tickets/money, rearranging bags etc. ...

... and the reverse when they change from being a passenger (in a confined space) to being a pedestrian (rearranging bags etc. navigating)

Phase transition	Stage
Pedestrian to Pedenger	<ol style="list-style-type: none"> 1. Confirm correct bus stop 2. Access the bus stop platform 3. Wait 4. Rearrange bags 5. Find money or validation ticket 6. Identify the correct bus
Pedenger to Passenger	<ol style="list-style-type: none"> 7. Locate the correct door 8. Step onto the bus 9. Initiate payment/validation 10. Move inside the vehicle
Passenger to Pedenger	<ol style="list-style-type: none"> 11. Locate the correct bus stop 12. Gather bags/belongings etc. 13. Move to the correct door 14. Safe to leave the vehicle? 15. Step off the bus
Pedenger to Pedestrian	<ol style="list-style-type: none"> 16. Rearrange bags 17. Orient themselves to the new environment 18. Move away from the bus stop

Pedestrian	Passenger	Pedenger	Bus stop
Interacts with the pedestrian environment: walks along it, lingers etc.			Must not impede the pedestrian environment, needs easy and fluid access
	Interacts with the bus environment: (boarding) looks for bus services etc; (alighting) checks location, return services etc.	Interacts with cyclists in entering/leaving bus stop (floating island bus stops) or the bus (Boarder Bypass bus stops)	Provision of information about bus services, where buses will arrive etc., and local area
		Interacts with the bus: (boarding) arranges bags and payment/validation etc; (alighting) arranges bags, balance etc.	Sufficient space to rearrange bags etc. Sufficient space to allow alighting passengers to re-orient themselves

What are Floating Island Bus Stops?

Floating Island Bus Stop



Floating Island Bus stops float between a cycle lane and the roadway
It is necessary to cross the cycle lane to reach or leave the bus stop
The bus may stop close to the bus stop platform

What are “Boarder” Bus Stops?

“Boarder” Bus Stop



DfT (2020) *Cycle Infrastructure Design*, LT 1/20

- At a “Boarder” Bus Stop the cycle lane is located between the bus stop platform and the roadway
- It is necessary to cross the cycle lane to reach or leave the bus
- The bus may stop close to the cycle lane, not the platform

These bus stop designs were introduced as part of the desire to increase active travel and make cycling easier and safer

These designs are highly contentious:

Two perspectives

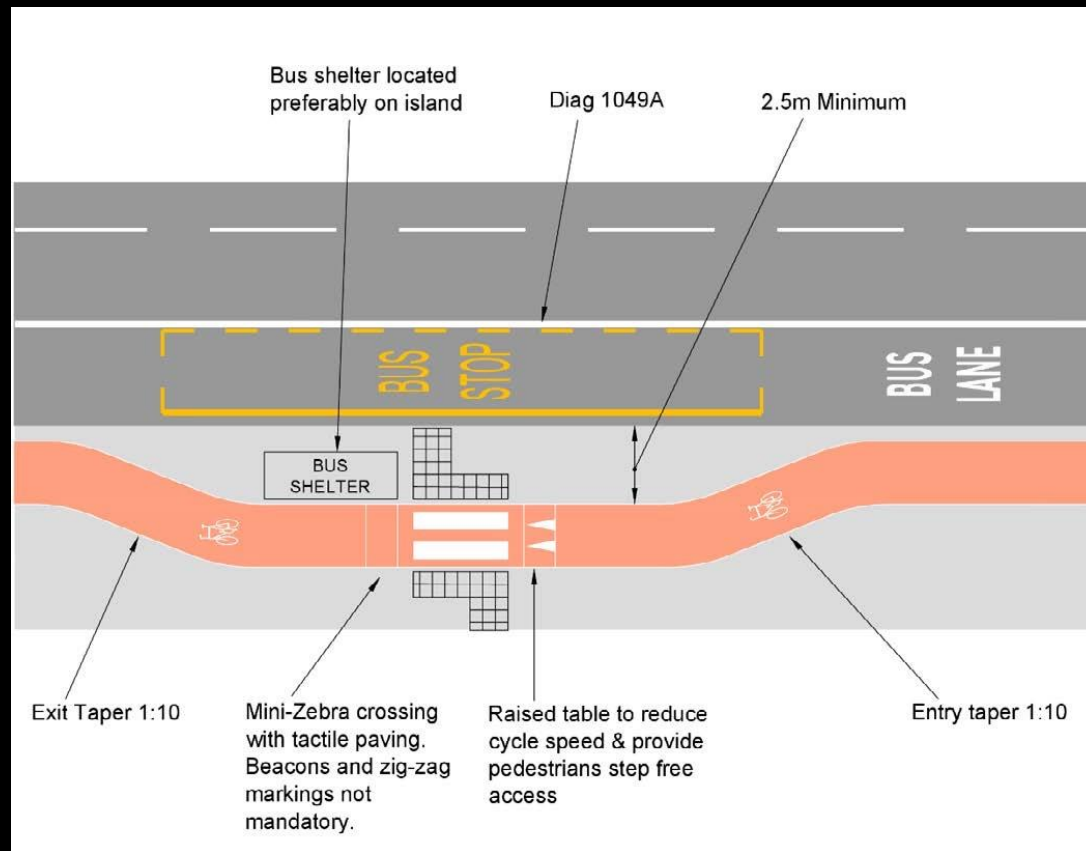
Cyclists...

- Like the continuity of the cycle lane
- Would like to minimise deviations
- Concerned about pedestrians and passengers invading the cycle lane

People with different capabilities ...

- Concerned about the uncertainties
 - Does it exist?
 - Where are the cyclists?
 - How do I board/alight the bus?
 - Where do I wait for the bus?
 - How do I enter/leave the footway to/from the bus stop
- Concerned about cyclist speed

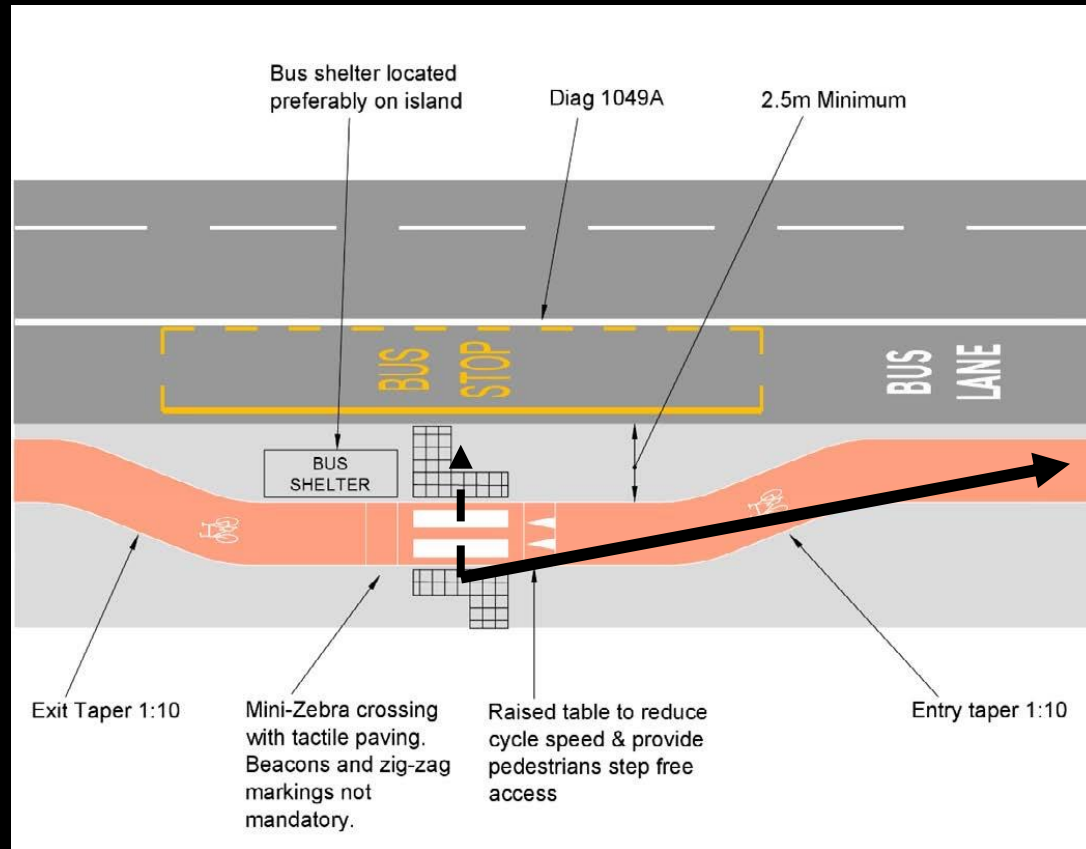
Floating Island design



DfT (2020) *Cycle Infrastructure Design*, LT 1/20

- Design Guidance shows basic principles:
 - Deviation of cycle lane behind bus stop(1:10)
 - Raised part of cycle lane at pedestrian crossing
 - Tactile paving at crossing
 - Minimum platform width (2.5m)

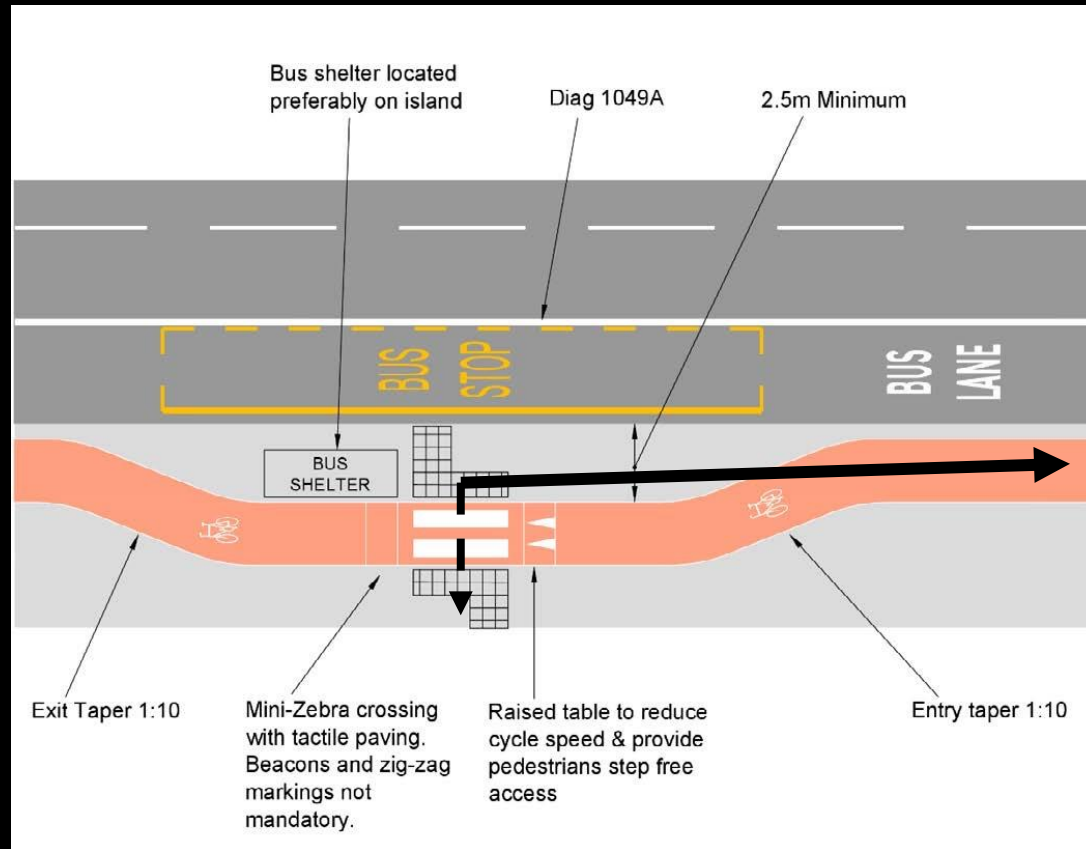
Floating Island design



DfT (2020) *Cycle Infrastructure Design*, LT 1/20

- Critical issues:
 - Where is the bus stop?
 - Sightlines
 - When crossing from the footway to the island, requires a turn of about 60 degrees to place cyclist in Useful Field of View

Floating Island design

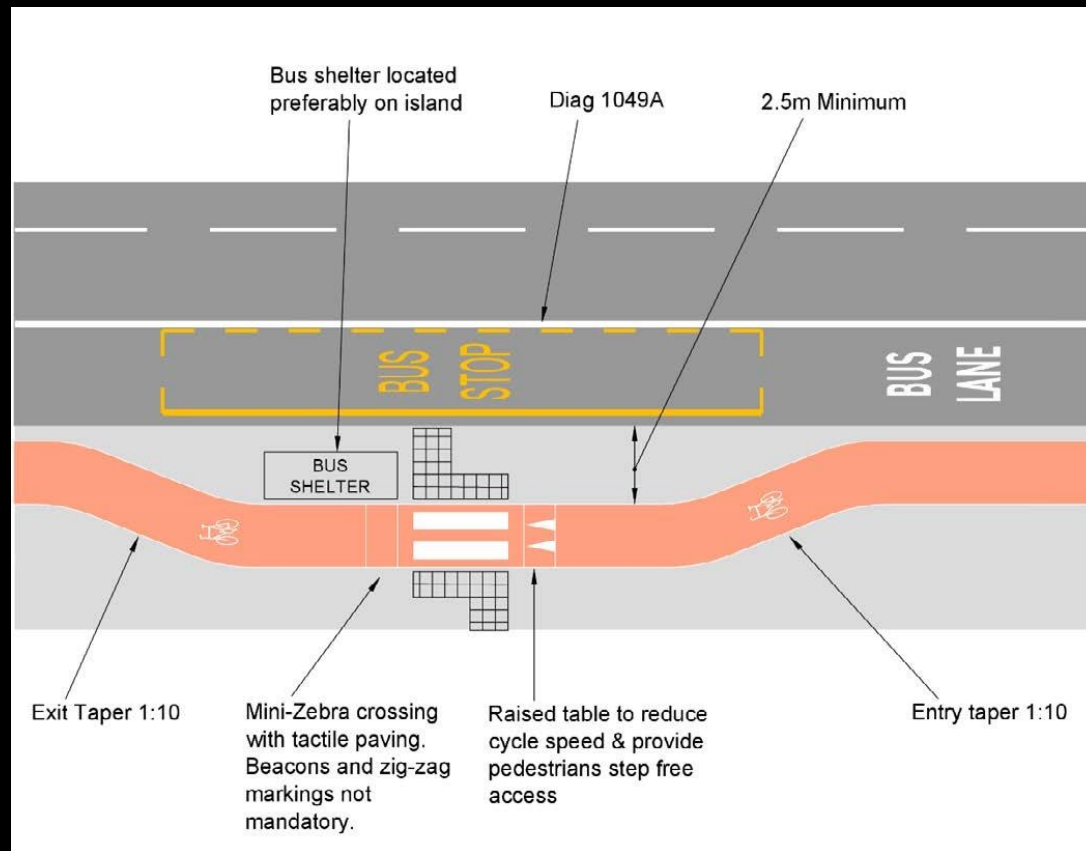


DfT (2020) *Cycle Infrastructure Design*, LT 1/20

- Critical issues:

- Where is the bus stop?
- Sightlines
 - When crossing from the footway to the island, requires a turn of about 60 degrees to place cyclist in Useful Field of View
 - When crossing from the island to the footway, requires a turn of more than 90 degrees to place cyclist in Useful Field of View

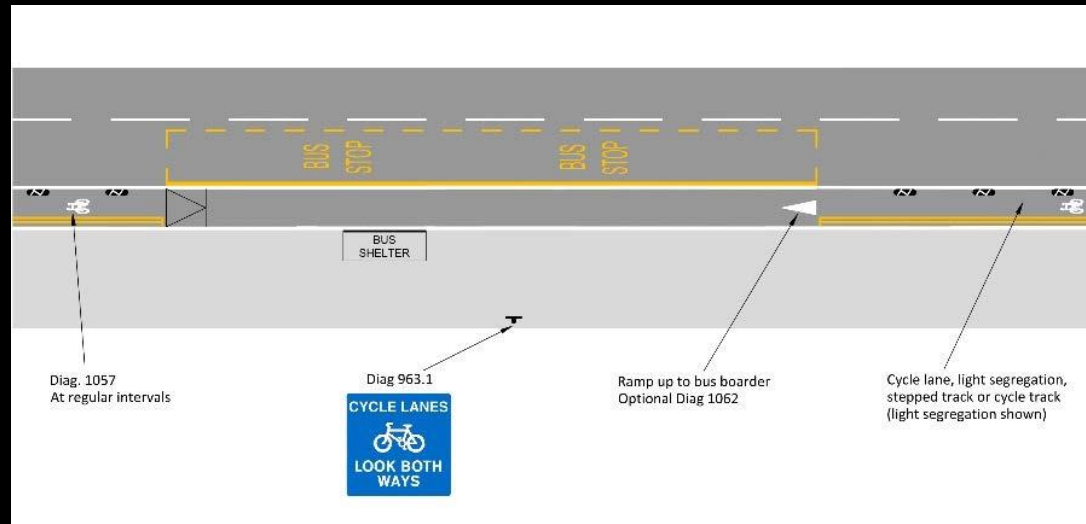
Floating Island design



DfT (2020) *Cycle Infrastructure Design*, LT 1/20

- Critical issues:
 - Where is the bus stop?
 - Sightlines
 - When crossing from the footway to the island, requires a turn of about 60 degrees to place cyclist in Useful Field of View
 - When crossing from the island to the footway, requires a turn of more than 90 degrees to place cyclist in Useful Field of View
 - Speed
 - 10 mph (16.7 km/h) is 4.6 m/sec
 - 20 mph (33.4 km/h) is 9.2 m/sec
 - Affects distance at which a cyclist needs to be seen

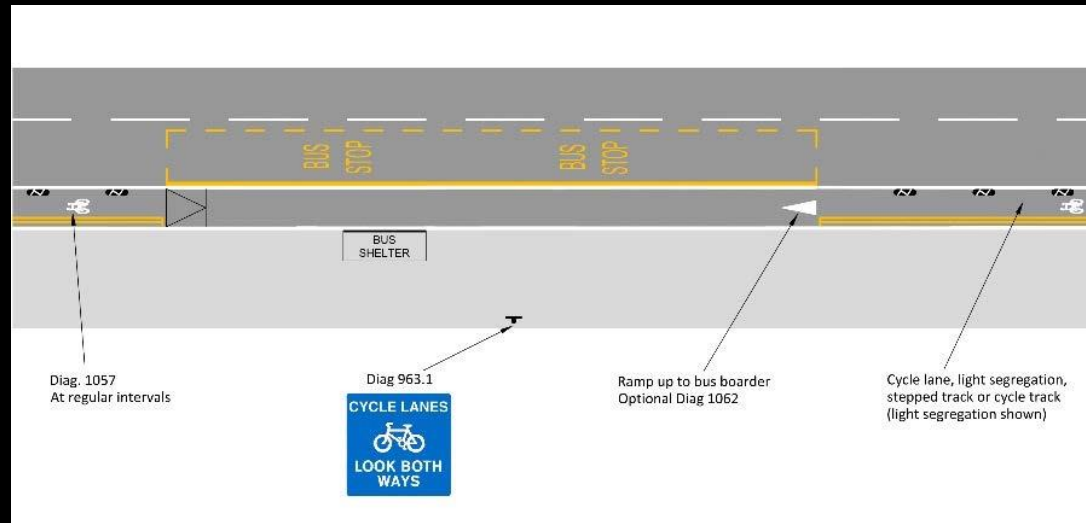
Boarder Bus Stop design



DfT (2020) *Cycle Infrastructure Design*, LT 1/20

- Cycle lane raised to the level of the bus stop platform
- Bus stops next to the cycle lane
- Where is the bus stop?
- Where do I wait?
- How do I know that a cyclist is not coming when I need to enter the cycle lane?

Boarder Bus Stop design



DfT (2020) *Cycle Infrastructure Design*, LT 1/20

- When leaving the bus:
 - Is there a warning on the vehicle to advise me that I will be alighting into a cycle lane?
 - How do I know where the cyclists are?
 - Sightline from inside the bus (especially for wheelchair users)
 - Soundline from the door of the bus (especially for people with poor or no vision capability)
 - How do I adjust from being a passenger to being a pedestrian?

Phase transition	Stage	Cycle lane
Pedestrian to Pedenger	<ol style="list-style-type: none"> 1. Confirm correct bus stop 2. Access the bus stop platform 3. Wait 4. Rearrange bags 5. Find money or validation ticket 6. Identify the correct bus 	Pedestrians need to move to the bus stop, which could mean crossing the cycle lane; the transition takes time and space and demands attention
Pedenger to Passenger	<ol style="list-style-type: none"> 7. Locate the correct door 8. Step onto the bus 9. Initiate payment/validation 10. Move inside the vehicle 	When boarding, Pedengers' attention will be on the bus.
Passenger to Pedenger	<ol style="list-style-type: none"> 11. Locate the correct bus stop 12. Gather bags/belongings etc. 13. Move to the correct door 14. Safe to leave the vehicle? 15. Step off the bus 	When alighting, pedengers need to check that exit is safe before leaving the bus. Sightlines towards cycle lane could be difficult
Pedenger to Pedestrian	<ol style="list-style-type: none"> 16. Rearrange bags 17. Orient themselves to the new environment 18. Move away from the bus stop 	This takes space on the platform and exit to footway needs to be safe

Pedestrian	Passenger	Pedenger	Bus stop	Cycle lane issues
Interacts with the pedestrian environment: walks along it, lingers etc.			Must not impede the pedestrian environment, needs easy and fluid access	Must be safe; Pedestrians and cyclists need good vision of each other
	Interacts with the bus environment: (boarding) looks for bus services etc; (alighting) checks location, return services etc.	Interacts with cyclists in entering/leaving bus stop (floating island bus stops) or the bus (Boarder Bypass bus stops)	Provision of information about bus services, where buses will arrive etc., and local area	These transitions could conflict with cycle lane; Must be safe
		Interacts with the bus: (boarding) arranges bags and payment/validation etc; (alighting) arranges bags, balance etc.	Sufficient space to rearrange bags etc. Sufficient space to allow alighting passengers to re-orient themselves	Strong interactions; Manoeuvrability and attention needed for pedestrian- pedenger- passenger-pedenger- pedestrian transitions

Solutions?



Image: Nick Tyler

- Experiments underway to test the guidance
- Initial thoughts – absolutely waiting for results to be processed:
 - Floating island bus stops may need to be wider to accommodate movements and provide for appropriate sightlines
 - Better indication of the location and type of bus stop

Solutions?



Image: Nick Tyler

- Experiments underway to test the guidance
- Initial thoughts – absolutely waiting for results to be processed:
 - At this stage, it is difficult to see how a Boarder Bus Stop can be made safe
 - Better signage and speed reduction measures needed
 - Design as for loading bays (i.e. cycle lane deviates around the bus stop cage)
 - Really a behavioural issue?