Bus stop infrastructure – siting and design

Cambridge Area Bus Users

Working for bus passengers in and around Cambridge

LIVING STREETS GROUP Cambridge

Joint position paper from Cambridge Area Bus Users and Living Streets Cambridge

With thanks for advice from member groups of Cambridgeshire Sustainable Travel Alliance, including Camcycle

Too much bus stop infrastructure is poorly designed for queueing, boarding and alighting, especially disadvantaging passengers using wheelchairs, walking-aids, and parents with buggies. Our groups believe that the following principles should apply.

Criteria for all bus stops

- There should be hard-standing of sufficient area to accommodate queuing passengers and a minimum width (kerb-to highway boundary) of 2.50 m to accommodate a 'reference wheelchair' (DfT guidance) of 1.20 m length and the associated 1.20 m manually-extended bus-mounted wheelchair ramp to be deployed.
- Where the hard-standing is not part of, or adjacent to a footway, it should be connected to a footway by a hard-surfaced path.
- Shelters with integral seating should be provided wherever possible.
- Kerb-adjacent shelters should be sited downstream from bus stop carriageway-markings, enabling queueing passengers to face the oncoming bus.
- A bus stop flag should be fixed to the upstream end of the shelter to clarify where the boarding doors will be positioned.
- For shelters set back at the edge of the highway boundary (eg close to a private wall) the foregoing two points are less essential.
- There should be a lockable case for printed route/timetable information.
- There should be no obstructions (eg litter bins, legacy bus-stop poles) for passengers boarding/alighting.
- RTPI, of e-paper type, should ideally be installed in the shelter at the upstream end. Overhead displays should be integrally-mounted at the upstream end of the shelter, or pole-mounted around 2.50 m upstream from the shelter, for ease of visibility and to avoid boarding/alighting obstruction.
- No other street furniture (eg lighting columns, litter bins) should be sited near the kerb-edge closer than 2.50 m from the boarding/alighting point.
- Consideration should be given to the length of the bus stop carriageway markings, especially upstream of the boarding/alighting point to reduce the likelihood of obstruction by other vehicles and to facilitate simultaneous stopping of two buses on frequent services.
- Bus operators should be consulted, at the earliest opportunity, on the proposed location of stops, their design and siting.

Bus stop islands can enhance safety for one mode of sustainable travel – cycling – but poor design can negatively impact on pedestrians and bus passengers, and create collision hazards for cyclists.

In addition to the above principles concerning infrastructure siting and design, our groups believe that the following principles should apply.

Bus stop islands – additional considerations

- Design and siting characteristics should give consideration for those with a visual impairment, for all those with mobility impairments and for passengers with prams/ pushchairs/buggies or those carrying heavy luggage.
- Consultations should take place at the earliest possible stage between the Greater Cambridge Partnership, the Highway authority, bus operators and groups representing those with visual, mobility, hearing or cognitive impairment who may be most at risk when crossing a cycle path to access the bus stop.
- Footway amenity should not be adversely affected by the installation of a bus stop bypass; 2.00 m unobstructed width of footway should be retained.
- The passenger crossing-point should be clearly identified with blister tactile paving.
- The crossing should have a contrasting surface delineated with either ‘Zebra’ stripes or ‘Pelican’-style dashed lines, be on a raised table, providing a level surface for bus passengers/pedestrians and those in wheelchairs to access the island, on the main identified pedestrian desire-line.
- The cycle-track should rise to footway level on the approach to the crossing-point, through a smooth vertical change.
- Other measures to encourage cyclists to reduce speed and to encourage courtesy from cyclists on the approach to the crossing-point should be incorporated, including on-cycleway markings and, possibly, a narrowing of the cycle track. However this should not compromise provision for non-standard cycles (eg ‘cargo’ bikes/trikes).
- Sufficient space for a 1.20 m manually-extended wheelchair ramp to be deployed and for users of a ‘reference wheelchair’ (DfT guidance) of 1.20 m length to safely manoeuvre requires a minimum 2.50 m width for the island.
- Good inter-visibility between cyclists and bus passengers must be achieved.
- The wall of the shelter should back onto the cycle track, not the carriageway, to facilitate boarding and to inhibit spillover of waiting passengers onto the cycleway.
- Any bus stop shelter advertising and information panels should be parallel to the carriageway and cycle track.
- All other features of the shelter design should avoid blocking of sight lines.

[*Note: Many of these points are drawn from Accessible bus stop design guidance, Public Transport Team, Surface Strategy & Planning, Transport for London*.]

Standard bus stop: good design & infrastructure

Stanley Road (outbound) 0500CCITY165 (outside Aldi, Newmarket Road)

Good points

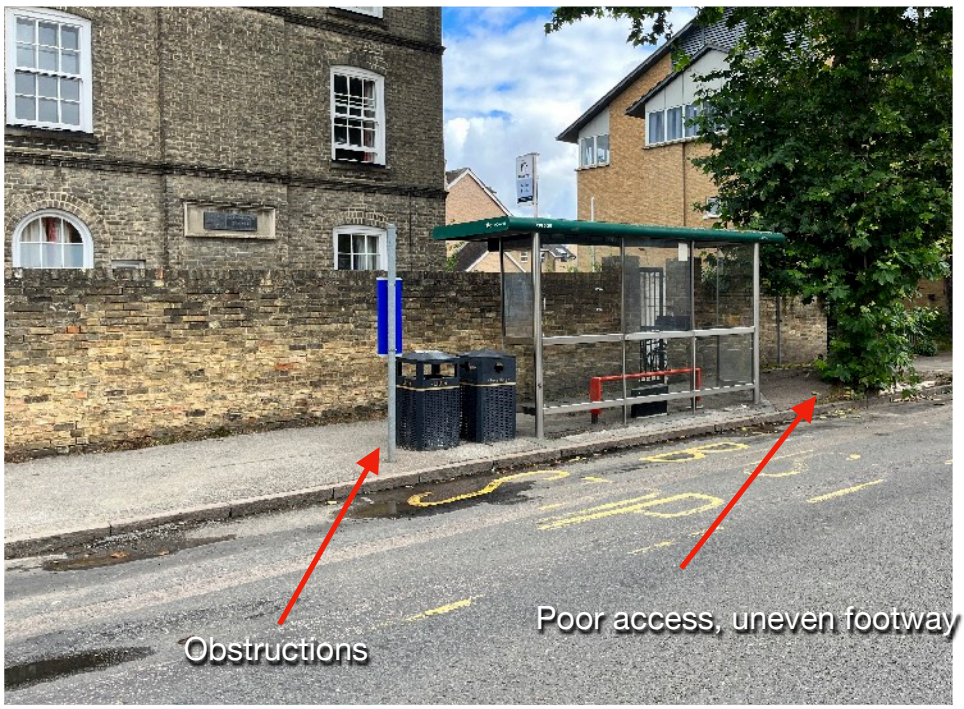
- The shelter, with integral seating, is set back at the edge of the highway boundary.
- A bus stop flag has been mounted on an adjacent street-lighting column.
- RTPI, of e-paper type, is installed close to the shelter at the upstream end.
- There are no obstructions for passengers boarding/alighting.
- Well-sited litter bins do not obstruct pedestrians.
- Overall installation gives good access to accommodate a ‘reference wheelchair’ (DfT guidance) of 1.20 m length and deploying the associated 1.20 m manually-extended bus-mounted wheelchair ramp.

Point for improvement

- There should be a lockable case for printed route/timetable information.

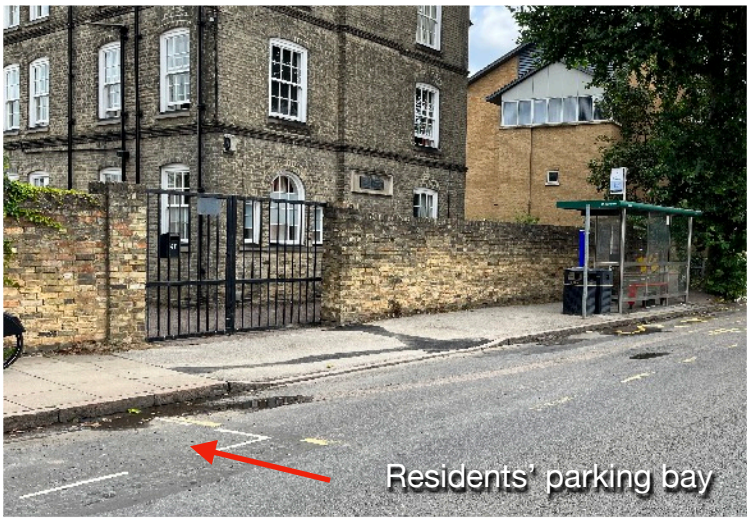
Standard bus stop: poor design & infrastructure

Napier Street (outbound) 0500CCITY102



Deficient points

- The shelter is adjacent to the bus stop carriageway-markings. However boarding from the downstream end would be difficult because of a nearby tree, which 'bushes' near its base in the growing season.
- At the upstream end of the shelter boarding/ alighting is obstructed by a litter bin, a recycling bin and a redundant bus stop pole with no flag.
- A nearby residents' parking bay, upstream, prevents buses pulling in close to and parallel to the kerb, creating difficulties for boarding, especially for users of walking aids and wheelchairs.

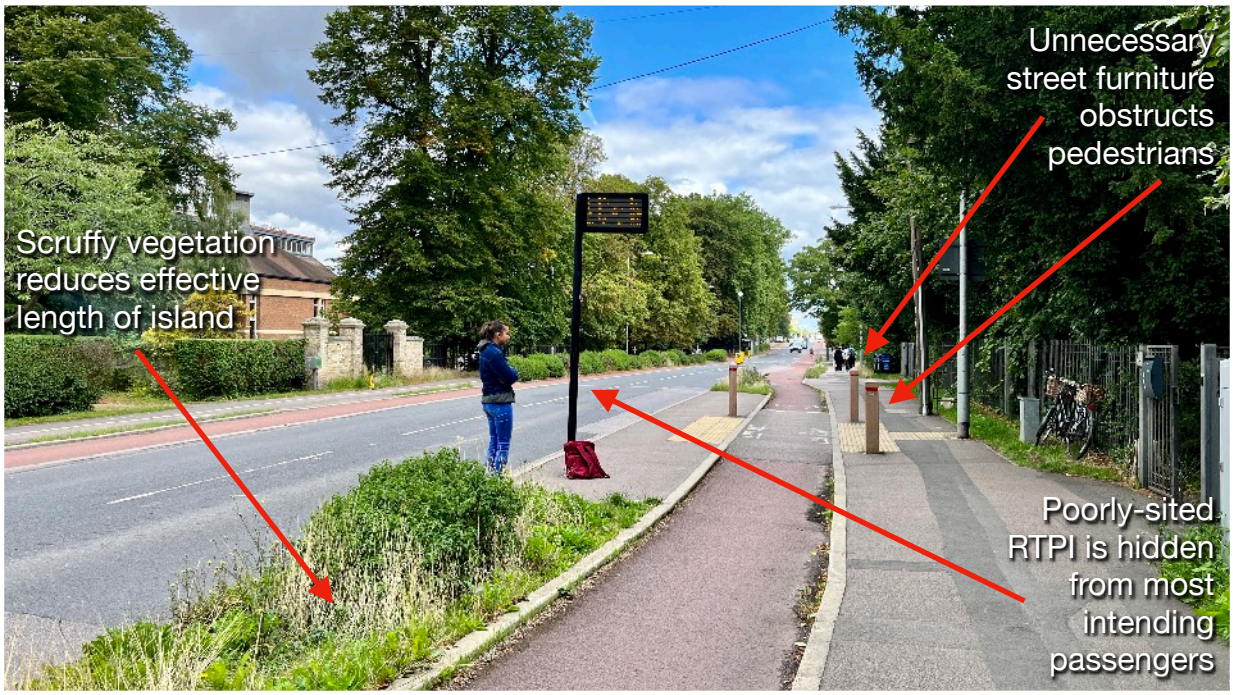


Good points

- A shelter with integral seating is provided.
- Siting of the RTPI display is integral at the upstream end of the shelter.
- There is a bus stop flag affixed to the upstream end of the shelter.
- A lockable case for printed route/timetable information is provided.

Island bus stop: inadequate design & infrastructure

Blinco Grove (outbound) 0500CCITY036



Deficient points

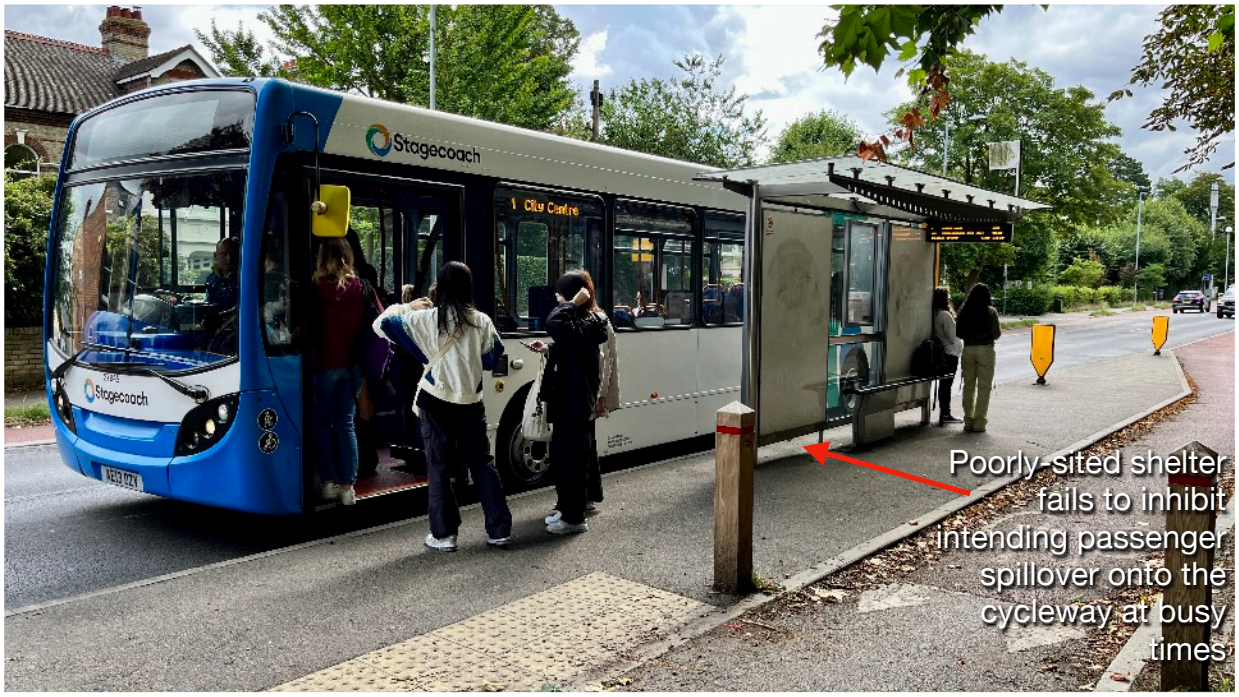
- The width of the island is inadequate at 1.90 m. A user of a 'reference wheelchair' (DfT guidance) of 1.20 m length, mounting a 1.20 m manually-extended wheelchair ramp would need to reverse by approximately 0.50 m into the cycleway creating a collision hazard with cyclists.
- The length of the island – further reduced by rather untidy 'decorative' planting – is inadequate for a stop served by around 15 buses per hour.
- The island's area is inadequate for accommodating peak-time waiting passengers.
- The RTPI display, at the downstream end of the island, facing downstream, close to the 'decorative' planting, makes consulting the RTPI display difficult.
- No shelter or seating is provided.
- Navigating the crossing point for pedestrians from the footway is compromised by street lighting column L91SAN, a nearby wooden telecoms post and two on-footway (plus one on-island) short wooden posts bearing miniature warning triangles. These create a potential collision hazard for cyclists with little utility.
- The siting of this stop adjacent to street lighting column L91SAN and the installation of the two short on-footway wooden posts create a chicane-effect obstruction for wheelchair users.
- The footway width (2.00 m minimum upstream and downstream of the stop) is reduced by these hazards to 1.60 m (by upstream post) 1.75m (by street lighting column L91SAN) and 1.50 m (by downstream post).

Good points

- None.

Island bus stop: almost-adequate design & infrastructure

Blinco Grove (inbound) 0500CCITY064



Good points

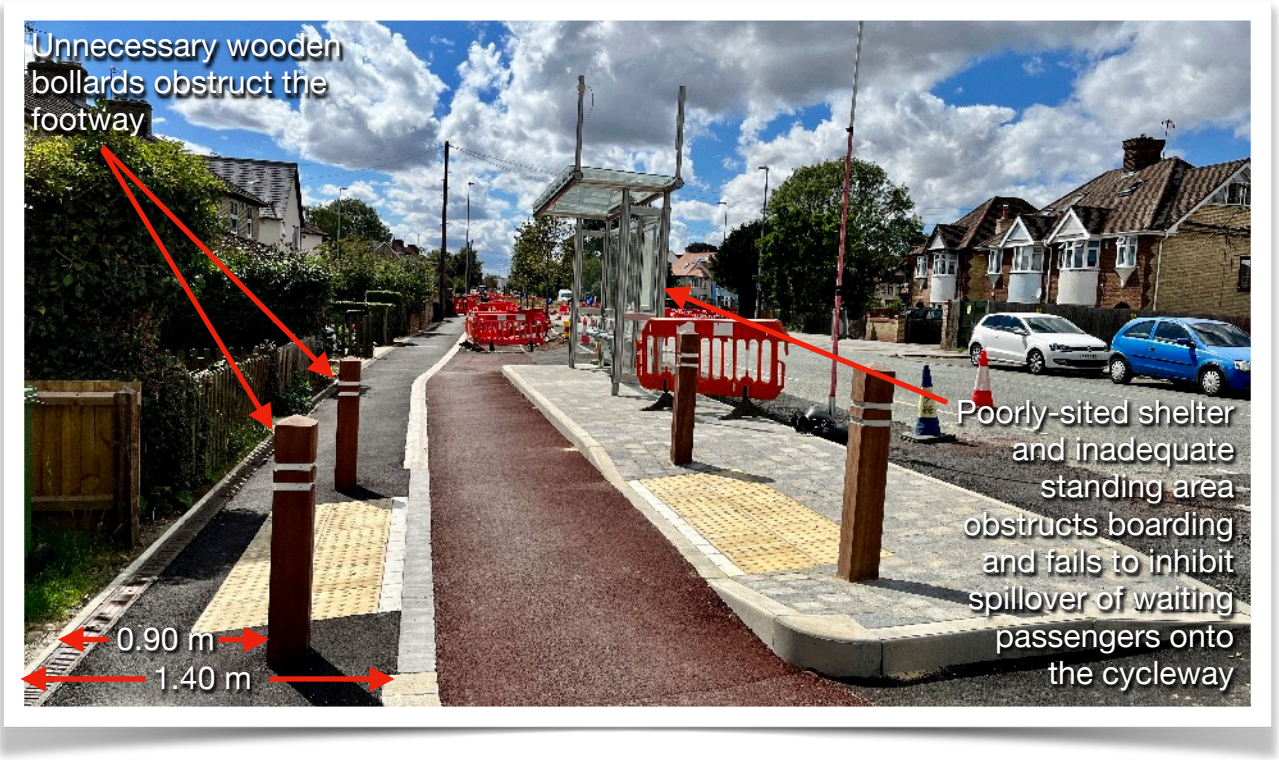
- The length of the island is suitable for a stop served by around 15 buses per hour.
- The island's width can accommodate peak-time waiting passengers.
- A shelter, with integral seating, is provided.
- The shelter has an integrally-mounted RTPI display at the upstream end.
- Boarding is possible upstream and downstream of the shelter to accommodate two simultaneous arrivals.
- The shelter has an integral pole and bus stop flag at the upstream end.

Deficient points

- Siting of the shelter, with its wall close to the carriageway, set-back approximately 0.50 m, unnecessarily restricts access to buses.
- The wall of the shelter should back onto the cycle track, not the carriageway, to facilitate boarding and to inhibit spillover of waiting passengers onto the cycleway at busy times.
- The shelter's integral pole and bus stop flag is unused.
- An unnecessary pole and flag has been installed on the downstream end of the island.
- Two on-footway (plus one on-island) short wooden posts bearing miniature warning triangles have been installed. These create a potential collision hazard for cyclists and have little utility.

Seriously deficient, newly installed, island bus stop

Union Lane (inbound) 0500CCITY083



Good points

- A shelter, with integral seating, is provided, at the downstream end of the island.
- The shelter has an integral pole and bus stop flag at the upstream end.
- A lockable case for printed route/timetable information is provided.
- Hopefully RTPI will be installed.

Deficient points

- The width of the island is inadequate at 2.05 m. A user of a ‘reference wheelchair’ (DfT guidance) of 1.20 m length, mounting a 1.20 m manually-extended wheelchair ramp would need to reverse by approximately 0.50 m into the cycleway creating a collision hazard with cyclists.
- Siting of the shelter, with its wall close to the carriageway, set-back approximately 0.50 m, unnecessarily restricts access to buses.
- The distance, from the wall of shelter to the cycle lane, at 0.95 m, is inadequate and could lead to pedestrian spillover onto the cycleway at busy times.
- The wall of the shelter should back onto the cycle track, not the carriageway, to facilitate boarding and to inhibit spillover of waiting passengers onto the cycleway at busy times.
- The recommended 2.00 m unobstructed width of footway is not met, being only 1.40 m (where not obstructed by street furniture).
- Unnecessary wooden bollards obstruct the footway and bus stop island, further reducing footway width from 1.40 m to 0.90 m.