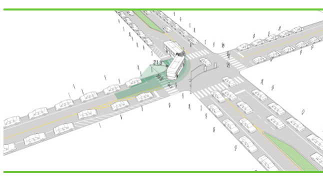
Transit Street Design Guide

GUIDE NAVIGATION

(https://nacto.org/publication/transit-street-design-guide/)

PURCHASE GUIDE (HTTP://ISLANDPRESS.ORG/BOOK/TRANSIT-STREET-DESIGN-GUIDE)

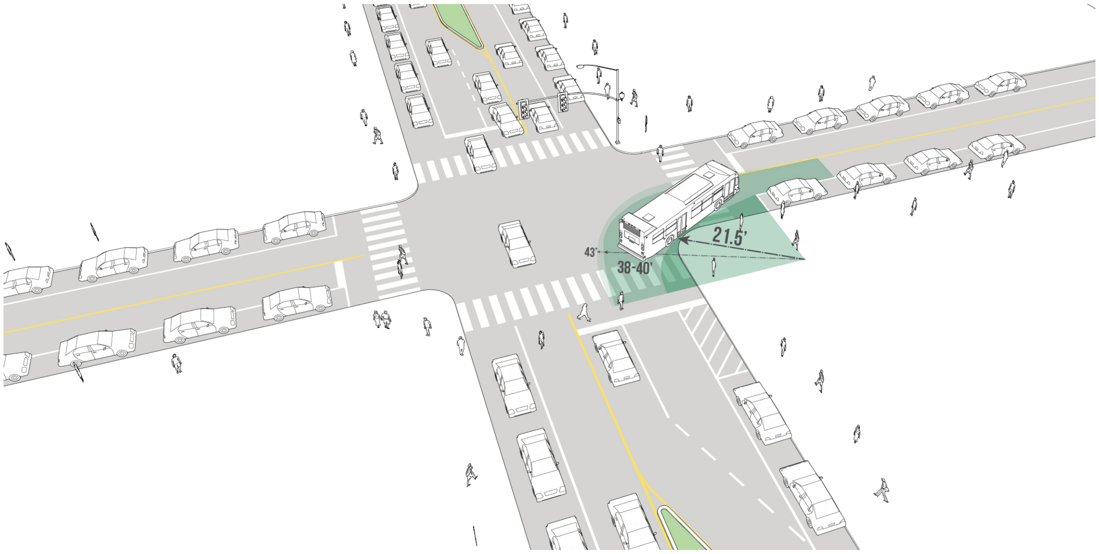


Turn Radii

Transit vehicles typically require an effective turning radius of approximatel 20–30 feet, depending on lane width an presence of curbside parking lanes or buffer distance. Bikeways or parking lanes create additional space for large desigr vehicles to turn smoothly and safely (see Intersection Design for Transi (https://nacto.org/publication/trar street-design-guide/intersectio /intersection-desig) for design alternatives).

At intersections, geometric decisions must balance efficient accommodation of transi turns with pedestrian safety. Curb radi should be designed as tightly as possibly to reduce pedestrian crossing distance without adversely affecting transi operations.

STANDARD 40' BUS



A typical inner turning radius of a standard 40-foot bus is 21.5 feet, which is required to clear the curb. At its tightest turning angle, the rear overhang of the back bumper extends out to 43.3 feet.

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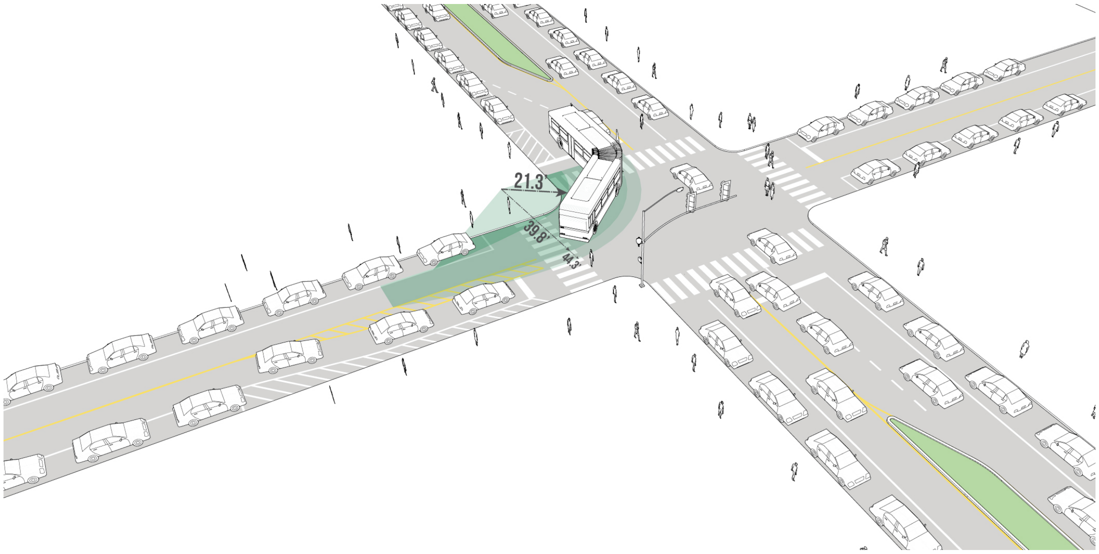
When considering curb extensions at intersections where a reduced pedestrian crossing distance is desired, the bus's effective turning radius may be accommodated by allowing the turning bus to use part of the on-coming travel lane (https://nacto.org/publication/transit-street-design-guide/intersections/transit-route-turns/recessed-stop-line/) to accommodate its wide sweep.

To make turns at its tightest radius, the bus must slow significantly, which can cause run-time delays, especially if turns are frequent along a route.

Where parking lanes are adjacent to the curb, the effective radius available for turns increases, allowing a narrower lane width. Likewise, if the receiving street has multiple travel lanes, the bus can be accommodated using both lanes.

60' ARTICULATED BUS



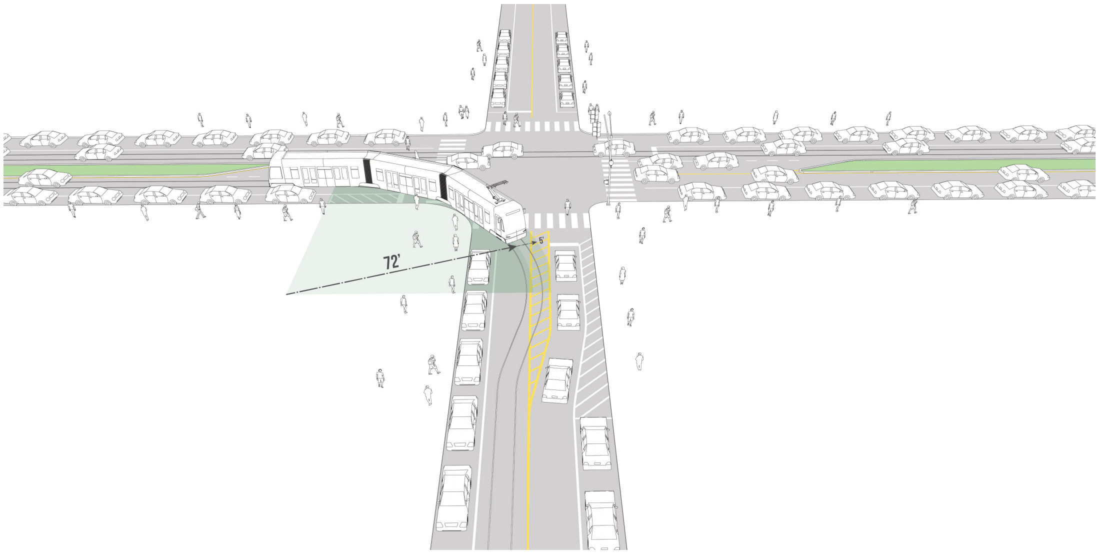
Articulated buses, or extended coaches pivoting around a center bridge plate, are most commonly 60 feet long. They are generally the assumed operating vehicle in BRT or "open BRT" systems.

The turning geometry of a 60-foot articulated bus is quite similar to a 40-foot bus, the primary difference being the vehicle's ability to pivot around the center bridge plate.

Due to their extended length and capacity, articulated buses are not characteristically employed on smaller streets where fewer riders are likely to accumulate, so tight curb radii are a less significant consideration.

However, where articulated vehicles must turn around tight corners, special care must be taken for overhanging portions of the vehicle that pass over the corner of the curb, where pedestrians may be standing or walking.

MODERN STREETCAR/LIGHT RAIL VEHICLE



Vehicle turning radius varies greatly, depending on streetcar/LRV age and design.

A standard three-section LRV centerline turn radius is 82 feet, though streetcars may have a smaller centerline radius between 45 and 60 feet.

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Light rail vehicles forced to turn necessarily use multiple travel lanes, and tracks must be designed to accommodate inherent turning constraints.

Extended vehicle length also requires additional time to complete turns, impacting traffic flow and potentially delaying street users.

Turn radii must be designed for the dynamic vehicle envelope, including mirrors and swaying, which, if blocked by parked or standing vehicles, can delay or result in damage to LRVs.

Light rail vehicles require additional acceleration and deceleration length approaching and exiting intersections.

A significant variable affecting rider comfort is superelevation, or the tilting of the vehicle as it turns, which may unbalance standing riders. Cross slopes must account for turning radii and speeds.

(https://nacto.org/publication/transit-street-design-guide/intersections/transit-route-turns/)
(https://nacto.org/publication/transit-street-design-guide/intersections/transit-route-

Transit Route Turns

Recessed Stop Line

turns/recessed-stop-line/)

References

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- Turn Radii
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Keyword

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