



MEMORANDUM

Project: LTD Bus Stop Standards (2214.02)
Date: June 7, 2022
To: Randi Staudinger, LTD
From: Kari Turner, AIA; Alejandro Bechtle, AIA Assoc.
Subject: Design Standards for LTD Fixed Route Bus Stops

Purpose

The purpose of this memo is to summarize codes and recommendations for newly constructed bus stops to support the construction of safe, accessible LTD fixed route bus stops. A summary of applicable codes and guidelines for implementation of these recommendations is included below. Drawings illustrating standard layouts and methods of adjustment for site variation are included as a separate, but referenced document.

LTD aims to support all passengers by meeting or exceeding ADA standards for transportation stops. All newly constructed LTD stops shall comply with these standards to the greatest extent possible. The Department of Transportation standards indicate that compliance is required to the extent construction specifications are within LTD's control. Where LTD cannot fully follow these guidelines due to conditions outside their control, then reasonable accommodations shall be made. "Reasonable accommodations" refers to adapting these guidelines to fit within LTD's area available at any given site while accommodating passengers to the greatest extent possible; see ADA [810.2.2](#) for more information.

Codes and Guidelines

- **Public Rights-of-Way Accessibility Guidelines (PROWAG).** These guidelines have been developed by the United States Access Board and have not been formally approved but many jurisdictions have adopted PROWAG as a standard. PROWAG contains some "advisory" information that do not establish mandatory requirements but may offer guidance to designers.
- **American Association of State Highway and Transportation Officials (AASHTO).** These standards apply to roadway design and apply to the edges of the bus stops adjacent to the street. AASHTO standards dictate that all vertical elements must be at least 18 inches clear from the face of curb. The clear requirement applies to bus stop poles, benches, trash receptacles, and other fixed vertical objects located adjacent to the curb.

- **Oregon Structural Specialty Code (OSSC)**, 2019 version. This Code applies to all commercial buildings and is based on the **International Building Code (IBC)** 2018 version, with Oregon Amendments. The OSSC does not apply to work within the Right-of-Way such as bus stops. However, the OSSC has been utilized as a design guideline for the architectural elements at the bus stops.
- **ICC A117.1 Accessible and Usable Buildings and Facilities (ICC A117.1)**, 2009 version. This standard has been adopted by the OSSC as the accessibility standard. A 2017 version of this Code is available but has not yet been adopted.
 - Transportation facilities are addressed in Section 805.
- **U.S. Access Board ADA Accessibility Standards.** The Department of Justice (DOJ) and the Department of Transportation (DOT) issue the ADA Standards. DOJ's ADA Standards apply to all facilities except public transportation facilities, which are subject to DOT's ADA Standards. This version of the ADA Standards combines both documents and notes unique provisions in the DOJ Standards and the DOT Standards. The Access Board is responsible for providing technical assistance and training on these Standards
 - Transportation facilities are addressed in Section 810 and are substantially the same as those covered in ICC A117.1.
- **APPLICATION: ICC A117.1**, 2017 version. This version has been used as the standard for this summary and accompanying drawings.
 - The 2017 version is anticipated to be approved with the next Building Code update and therefore is more future-looking. The 2017 standard is slightly more conservative than the 2009 relative to minimum space requirements.
 - This standard is readily available and familiar for developers and designers working on adjacent building facilities. If LTD chooses to require developers to install or improve adjacent bus stops, this standard would be a good resource.
- **ADDITIONAL RESOURCES**
 - Where applicable, suggestions from the ADA Accessibility Guidelines for Transportation Vehicles ([AGTV](#)) are referenced.

Accessible Boarding and Alighting

- **SURFACE**

ICC A117.1 [805.2.1](#) requires a “firm, stable surface” for boarding and alighting. Specific materials or requirements for a paved surface are not identified.

Advisory [302.1](#) from the Access Board provides additional definition of a “firm and stable surface”. A stable surface is one that remains unchanged by contaminants or applied force, so that when the contaminant or force is removed, the surface returns to its original condition. A firm surface resists deformation by either indentations or particles moving on its surface. A slip-resistant surface provides sufficient frictional counterforce to the forces exerted in walking to permit safe ambulation.

- **CLEAR SPACE**

ICC A117.1 [805.2.2](#), newly constructed bus stops should have an accessible boarding and alighting area – an unobstructed space at least 100” in length measured perpendicular from the face of curb and 60” in clear width. Existing facilities will be permitted to have a space at least 96” in length and 60” in clear width. Designated clear space for waiting is not required in addition to the boarding and alighting area when bus shelters are not provided.

- **SLOPE**

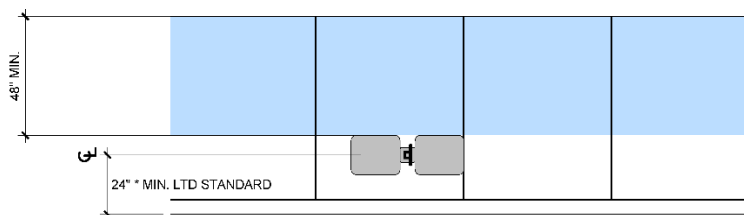
ICC A117.1 [805.2.3](#). The slope of the bus boarding and alighting area parallel to the vehicle (running slope) shall be the same as the roadway, to the greatest extent practicable. This is to facilitate a usable interface between the vehicle and patrons using the vehicle ramp at the bus stop. The slope perpendicular (cross-slope) to the roadway shall be 1:48 (2%) maximum.

- Meeting the cross-slope requirement may be challenging at some existing bus stops. This is a criterion that may require alternative solutions to meet the intent of the accessibility requirements and serve patrons to the greatest extent possible. For example, LTD currently uses driveways for boarding and alighting at bus stops that do not have adequate length for the clear space. Although not technically compliant with the cross-slope requirement, this solution may yield a more usable solution in certain situations. See information about curb-height below for additional information.

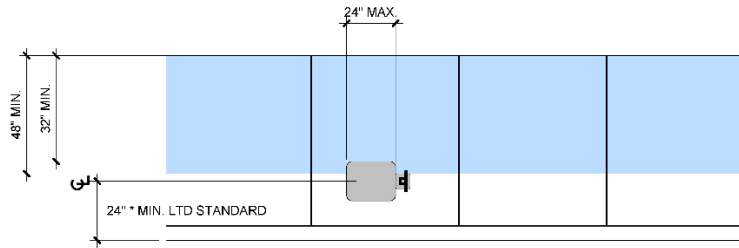
- **ACCESSIBLE ROUTE**

Bus stop boarding and alighting areas should be connected to streets, sidewalks, or pedestrian paths by an accessible route (ICC A117.01, [805.2.4](#)). Accessible routes are defined by ICC A117.01 [402](#).

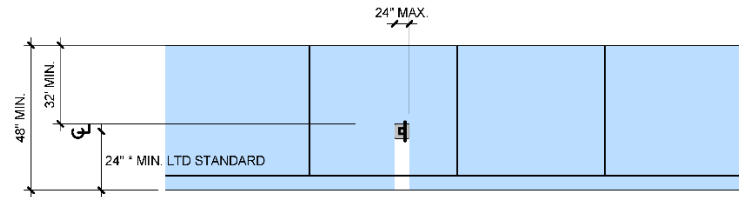
- Running Slope: Not steeper than 1:20 (5%)
- Cross-Slope: Not steeper than 1:48 (2%)
- Clear width for new and existing exterior accessible routes shall be 48”.
- The clear width may be reduced to 32” clear for a maximum length of 24”. This would allow narrowing the 48” accessible route around a sign pole.
- Since obstructions can be no longer than 24”, a two-seat Simme seat is too wide to be an obstacle. So, Simme seats must be accompanied by a minimum 48” wide accessible route. Either a single Simme seat or a bus flag pole can be considered an obstruction, but the remaining circulation path should be at least 32”. Where a single Simme seat is present, the bus flag pole should be accompanied by a 48” accessible route because the length of the pole and a single Simme seat exceeds 24”. See diagrams below for a visual explanation.



ACCESSIBLE ROUTE WITH SIMME SEAT



ACCESSIBLE ROUTE WITH SINGLE SIMME SEAT



ACCESSIBLE ROUTE WITH BUS FLAG POLE

- **CURB HEIGHT**

Bus stops are typically installed at standard sidewalk height – 6” above the street. However, road configurations vary, and the curb height may be higher or lower. Buses can typically accommodate a curb height of up to 10” without conflict with tires or body, depending on the crown or slope of the street.

When buses receive and drop off passengers with mobility assistance devices, the driver will deploy a ramp at the front door of the bus onto the bus stop curb. The recommended maximum slope for the deployed bus ramp is a 1:6 ratio, see AGTV [T402.8.1](#) “Deployment to Roadways or to Curb Height Boarding and Alighting Areas.”

To alleviate cross-slope concerns at some bus stop locations, the bus stop boarding area could be raised if the authority having jurisdiction approves. At locations without raised sidewalks for bus stops, the bus can kneel, and the ramp may be deployed to the street level. LTD should verify the slope of the bus ramp in this situation.

Amenities

- **SIGNAGE POSITIONING**

Bus stop poles and flag signs are installed at all bus stops. The poles should be positioned near the front of the bus stop location, indicating the primary boarding and alighting position at the bus front door. The pole should be located to avoid conflicts with the accessible route and clear space requirements.

Signage should be installed in compliance with ICC A117.1 [703](#). Bus stop signs are not technically required to comply with the standards of ICC A117.1, but these requirements are used as guidance for best practices. LTD has separately conducted an evaluation of the information presented on the flag sign – those requirements are not reiterated here.

The exception from ICC A117.1 [805.4](#) excludes bus schedules, timetables, and maps that are posted at bus stops from meeting the requirements of ICC A117.1 [703](#). The information below is provided to aide LTD in locating information in positions that will be useful to most passengers.

LTD policy is to install a timetable (info panel) at bus stops upon request or at higher ridership stations. LTD preference is to have these signs face either the oncoming bus or the street. In some cases that means the info panel is installed above a Simme seat which may prevent someone from getting close to the sign for readability. Where possible, the info panels should be installed on the side of the pole away from a seat.

Info panels should be installed between 40" and 70" above the ground. Given the small text included on the info-sign, they should be mounted as low as possible. Tactile raised characters or Braille (when provided) should be installed between 48" and 60" above the ground.

- **SEATING**

Seating is not required at bus stops under ICC A117.1. Since seating is not required, the minimum size of the seat and requirements for back support do not apply. Where provided, the seats should be installed between 17" and 19" above the ground, shall not accumulate water on the seat, and be able to support 250 pounds. When Simme seats are installed on the bus stop pole, LTD should consider installing the pole further from the curb than the 24" typical dimension to provide more space between patrons using the seat and the curb.

- **TRASH**

Trash receptacles are not required at bus stops under ICC A117.1. Where provided, receptacles should not impede the accessible route or clear area for boarding and alighting. Best-practice is to install trash receptacles near the front door boarding area when provided to maximize usage. Clearance between the receptacle and the curb should be 24" minimum – like LTD's minimum clearance to the bus stop pole.

- **LANDSCAPING**

Landscaping may be present at bus stops. Care should be taken with the layout of landscaping to ensure that plants and trees do not conflict with bus door locations. A stable surface must be provided at the front door boarding and alighting location. Ideally, landscape is interrupted with more durable surfaces at the back-door alighting locations.