Stations & Stops

Stop Location & Design
Stop Typologies
Stop Elements
Block Location

Near-Side
- No transit priority (except at Stop)
- Crossing in front

Far-Side
- Transit priority, esp at Signal control
- Rear storage
Lane Configuration

Pull-Out
- No transit priority (except at Queue Jump)
- Crossing in front

In-Lane
- Transit priority
- Rear storage at far-side
In-Lane vs Pull-Out Stops

- Transit delay from transition and remerge
- Pedestrian & rider comfort
- Curbside length consumption
- General traffic delay
- Decreased vehicle/road wear-and-tear
In-Lane vs Pull-Out Stops
Curbside Stop

- Curbside transit lanes
- Queue jumps and bypasses
- Existing/unimproved conditions
Curbside Stop

- Curbside transit lanes
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Curbside Stop

- Curbside transit lanes
- Queue jumps and bypasses
- Existing/unimproved conditions
Curbside Stop

**Required**
- 5’ wide x 8’ deep accessible boarding pad on sidewalk
- Shelters placed clear of accessible paths
- 25–30’ transition distance at entry and exit

**Recommended**
- Guide bikes left and transit right using markings
- Do not place pavement seams in bike lanes
- Transit movements should be coordinated with concurrent bike and ped movements; consider LPI/LBI

**Optional**
- Queue jumps—either an AVL/APC system or loop detector, and may be coincident with stops
Boarding Bulb

- Enables in-lane stops
- Reduces sidewalk congestion
- Increases accessible boarding area
Boarding Bulb

**Required**
- 5’ wide x 8’ deep accessible boarding pad
- Shelters placed clear of accessible paths
- Bulb length must allow 10’ clear distance from either front or back of transit vehicle to crosswalk

**Recommended**
- Bulb length should meet expected capacity, though extending at least to all transit vehicle doors
- Provide shelters and stop amenities on the bulb
- Extend bulb width to within 2’ of travel lane edge to minimize lateral movement

**Optional**
- Include green features like bioswales or plantings
- At far-side stops, extend bulb length for rear car storage while bus is dwelling
- Combine with periodic pull-out stops where applied with only one travel lane
Boarding Bulbs

Tiered Stop
• Enables concurrent stops and simple transfers between local and rapid service
• S-shaped bus pads elongate stop life
• Design transition radii with maintenance/sweeping in mind

Streetcar bulb
• Boarding bulb may extend further into the travel lane (closing lane width to as little as 9’)
• Tapered curb profile enables buses and streetcars to use the same platform
• Provide accessible ramp at the crosswalk end; steps are acceptable for other entrances.
Boarding Bulb

Portland, OR
Shared Cycle Track Stop

Toronto, ON
Side-Boarding Islands

- Enables in-lane stops
- Balances safe bike and transit movements
- Generally does not require drainage modifications
# Side-Boarding Islands

## Required
- 5' wide x 8' deep accessible boarding pad is needed at any accessible door
- Accessible ramp and path to sidewalk must be provided
- All shelters, railings, and design elements must be clear of accessible paths
- Where bikes are required to yield, yield teeth must be marked prior to the crosswalk

## Recommended
- Near-level boarding can be achieved with 9–12” height; level boarding is typically 14”
- Accessible ramp should be configured to access the nearest intersection
- Provide shelters, seating, and passenger amenities to improve comfort
- Install all elements to promote visibility between bikes and pedestrians

## Optional
- Leaning rails may channelize pedestrians entering and exiting
- Boarding islands may include curbside amenities, like bike parking, seating, or plantings
Side-Boarding Islands

Near-side, sidewalk-level channel

- Boarding platform must at minimum span front door to back door
- Bike lane may be narrowed slightly to slow bikes, with a 5’ minimum
- Mark pedestrian crossings with yield warnings to bikes
Side-Boarding Islands

**Far-side, at-grade channel**

- Include rear storage length where turn volumes are higher

- Pair accessible ramps with crosswalks

- Consider channelizing pedestrian movements off the island with railings or design elements

- Raised crosswalks over the bike lane may provide a flush path to sidewalk
Side-Boarding Islands
In-Street Boarding Island
## In-Street Boarding Island

### Required
- 24” wide detectable warning strips along boarding platform
- Ramps feed to controlled crossings
- Refuge areas must be adequately wide for pedestrian volumes
- Reflective signs or raised elements at leading corner of the island

### Recommended
- Railings along the right edge guide passengers to crosswalk
- Provide near-level boarding height for bus or dual-mode platforms (9–12”), level boarding height for rail specific platforms

### Optional
- Install green infrastructure
In-Street Boarding Island

Washington, DC
Median Stop, Right-Side Boarding
Median Stop, Right-Side Boarding
Median Stop, Right-Side Boarding
Median Stop,
Left-Side Boarding
Median Stop, Left-Side Boarding
Median Stop, Left-Side Boarding
On-Street Terminal
On-Street Terminal

<table>
<thead>
<tr>
<th>Required</th>
<th>Recommended</th>
<th>Optional</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Signs clearly communicate which routes are served at which locations</td>
<td>• Consistent stopping patterns aid rider recognition</td>
<td>• Managed passenger queues at high-volume stops speed boarding</td>
</tr>
<tr>
<td>• Must operate in curbside lane</td>
<td>• Strip maps, system maps, and wayfinding elements</td>
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<tr>
<td>• Must provide transition tapers</td>
<td>• Real-time arrival boards</td>
<td></td>
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</tbody>
</table>
Stop Elements

Shelters
Seating
Information & Wayfinding
Passenger Queue Management
Transit Curbs
Bus Pads
Green Infrastructure
Bike Parking
Curbs
Clearances
Coordination!
Curb / Platform Height

Curb Level

4 – 6”
Curb Level Boarding

San Francisco
Curb / Platform Height

Level Board

12 – 14”
Level Boarding

San Francisco
Curb / Platform Height

Near-Level Board

8 – 12”
Near-Level Boarding

Eugene, OR
Transit Curbs

- Enable buses to “dock” within 2” of platforms
- Concave or bumpered for buses
Transit Curbs
Accessibility & Universal Design
Accessibility & Universal Design

5' x 8'

FURNISHING ZONE
Accessibility & Universal Design
Accessibility & Universal Design

- Boarding area: 5’ x 8’
- 4’ paths around all elements
- “Three-sense principle”
- **Don’t design to minimums!**
  - Provide adequate capacity
- Color & tactile cues delineate modal edges
- Consistent application
Shelters

• Place with appropriate clear paths
• Typically 4’ deep (2’ in constrained conditions)
• May face or back up against the road bed
• Enhances comfort and place
Small Transit Shelter
Small Transit Shelter

San Francisco, CA
Small Transit Shelter
Large Transit Shelter
Large Transit Shelter

Cleveland, OH
Large Transit Shelter
Seating
Seating

New York, NY
Information & Wayfinding

- Clarity & simplicity
- Progressive intervals
- Multiple senses
Real-Time Arrivals

Belmont & Sheffield (Red/Brown/Purple Line)

#77  Westbound to Harlem  Due
4 min

#77  Eastbound to Diversey/Lake Shore 4 min

#77  Eastbound to Diversey/Lake Shore 11 min

#77  Westbound to Cumberland 11 min

#77  Westbound to Harlem 16 min

#77  Eastbound to Diversey/Lake Shore 19 min

#77  Westbound to Cumberland 25 min
Audible Information
Progressive Wayfinding
Queue Management

• At high volume stops, queue management speeds all-door boarding
Bus Pads

- Concrete bus pads increase lifecycle of the stop
Green Infrastructure

- Plantings, trees, and bioswales improve ecological performance and rider satisfaction
Green Infrastructure
Green Infrastructure
Green Infrastructure

Portland, OR
Green Infrastructure
Bike Parking

• Expand “transit shed”
• Organize bike locking behaviors at stops
• Short- and long-term parking
Bike Parking, Short-Term
Organize Dockless Mobility
Organize Dockless Mobility
Organize Dockless Mobility
Bike Parking, On Transit