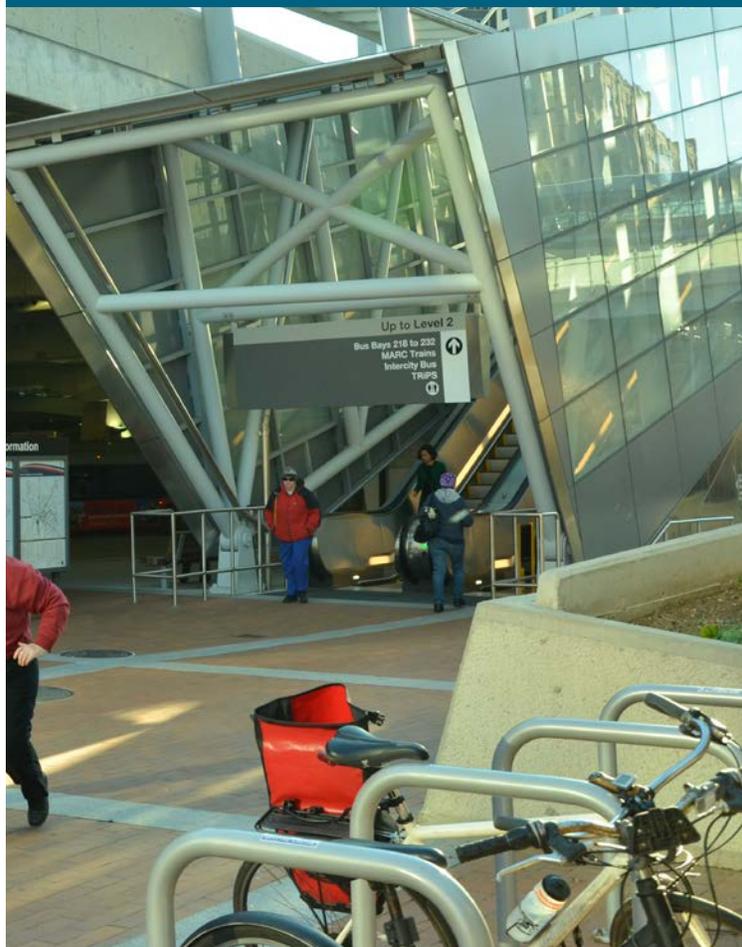


# MULTIMODAL ACCESS TO NEW TRANSIT STATIONS

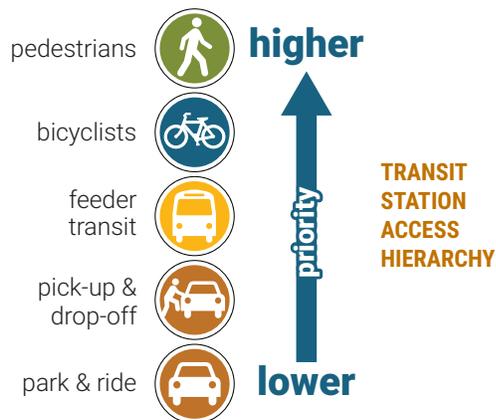
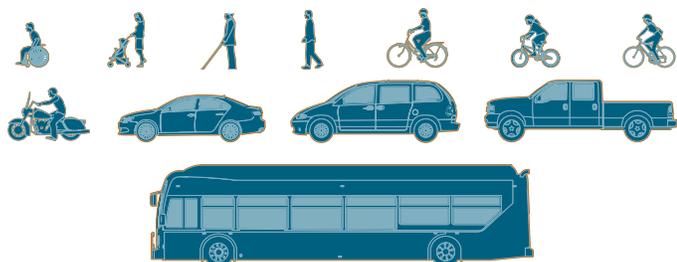


An effective public transit network enables people to access rail and bus stations by bicycling, walking, and feeder transit services. Accommodating a wide variety of access modes at transit stations, including pick-up and drop-off areas and motor vehicle parking at suburban stations, increases ridership and fare revenue. However, it also increases the potential for conflicts between modes.

For newly constructed transit stations, it is important to have station access in place for all travel modes at the opening of the station; retrofitting once opened can be difficult. It is recommended to establish a modal hierarchy and design transit stations for vulnerable road users first. This hierarchy should be applied to minimize conflicts between vulnerable road users and other station users such as buses and other transit vehicles, private vehicles accessing pick-up and drop-off areas, and private vehicles parking at the station. The new station configuration should communicate this hierarchy.

Refer to the design topic on **Multimodal Access to Existing Transit Stations** for strategies to retrofit existing transit stations and reduce conflicts. This design topic focuses on pedestrian and bicycle access to new rail transit stations. Additional considerations may be necessary for bus rapid transit stations.

## COMMON USERS IN CONFLICT AND ACCESS HIERARCHY



## GUIDING PRINCIPLES TO REDUCE CONFLICTS

### SAFETY

Through site design at transit stations, the likelihood of crashes between transit vehicles, private vehicles, pedestrians, and bicyclists should be reduced.

### ACCOMMODATION AND COMFORT

Station access should be comfortable and accommodate all travel modes.

### COHERENCE

The station should have a clear path of travel to station entrances and exits.

### PREDICTABILITY

Circulation facilities on the station site should have clear right-of-way assignments that create predictable behaviors for all users.

### CONTEXT SENSITIVITY

The station should be consistent with and support adjacent land uses.

### EXPERIMENTATION

Transit agencies should consider station access for all modes during the planning stages of new station.

## DESIGN STRATEGIES

Transit stations should be designed using a clear modal hierarchy, making it most convenient to walk or bike to the station. To understand desire lines for a new transit station, planners and designers can conduct a walk and bike shed analysis and/or pedestrian and bicycle assessment. For more information, refer to the design topic on **Network Connectivity** and the **U.S. Department of Transportation Pedestrian and Bicyclist Road Safety Assessments Summary Report**. Based on the shed analysis, the station layout can be developed to prioritize pedestrian and bicycle access routes, ensure accessibility requirements, and reduce conflicts with other modes.

Transit stations are typically owned and maintained by transit agencies while the adjacent streets may be owned and maintained by local or State highway agencies. During the planning of transit stations, inter-jurisdictional coordination is necessary to ensure that access for all modes is functional and safe when the station opens. Jurisdictions should consider pedestrian and bicycle access to station entrances and exits from nearby destinations and future developments.

### REDUCE CONFLICTS WITH PRIVATE VEHICLES

In the planning and design process, conflicts among private vehicles, pedestrians, and bicyclists should be avoided where possible and mitigated where it is unavoidable.

#### CONSIDERATIONS

- Configure private vehicle parking lots and garages so that they do not block direct pedestrian and bicycle desire lines to the station entrance. **1**
- Design surface parking lots to include walkways and bikeways across the lot for safe passage. Where needed, design parking garages for safe pedestrian and bicycle through movements. **2**
- Provide bicycle and pedestrian crossings of access roads and driveways leading to private vehicle parking lots and garages. **3**
- Configure passenger pick-up and drop-off areas near station entrances without impeding direct access for pedestrians and bicyclists. **4**

### REDUCE CONFLICTS WITH BUSES

Site planning for new transit stations should minimize conflicts between buses, pedestrians, and bicyclists. Buses are wider, have larger turning radii, and larger blind spots than private vehicles.

#### CONSIDERATIONS

- If the station includes a bus terminal, provide pedestrian access between bus bays. **5**
- If avoiding a conflict is not feasible, provide traffic calming measures that encourage drivers to maintain safe speeds on station sites. **6**

## ADDRESS POTENTIAL BARRIERS

Pedestrians and bicyclists usually choose the most direct path to a station, even if it means crossing roadways away from designated crosswalks or cutting through private property. When developing a transit station site plan, consider how to incorporate these desire lines and encourage compliance.

#### CONSIDERATIONS

- Use pedestrian and bicycle bridges and tunnels, and well-designed at-grade crossings to ensure that immovable barriers such as major highways, interchange ramps, arterial roads, railroad lines, streams, and secure institutions do not become barriers to direct access. **7**
- Avoid the creation of unsafe pedestrian conditions and the degradation of permeable landscapes by locating and designing stormwater facilities, tree plantings, and landscaped areas to enhance, not block, direct pedestrian and bicycle access to the station.
- Ensure that transit-oriented development on, and immediately adjacent to, the station site is configured for convenient public pedestrian and bicycle access. **8**

## ACCESS FOR BICYCLISTS

#### CONSIDERATIONS

- Provide separated bike lanes or shared use paths to station entrances. **9**
- Ensure that nearby paths and trails are linked to the station and that wayfinding signs are provided. **10**
- Provide appropriate bicycle facilities on station access roads that serve mixed traffic. Separate bicycle and bus access routes to maintain safety and comfort. **11**
- Install covered U-style bicycle racks near station entrances. **12**
- Consider installing high-quality access-controlled bicycle parking facilities within the station. **13**
- In locations where additional development in the station service area is expected, plan sufficient space on-site where bicycle parking can be expanded to accommodate growing demand.
- Consider space for location of bicycle sharing systems. **14**
- On station sites that have multiple level station designs, provide bike channels on stairways to enable bicyclists to use direct routes. Handrail designs must meet current accessibility standards. For more information, refer to the design topic on **Bridge Design**. To minimize conflicts with pedestrians and persons with disabilities, plan elevator car sizes to accommodate standard bicycles.



## WAYFINDING

Wayfinding signs for pedestrians and bicyclists increase psychological comfort, guide them to the safest routes, and enable them to focus on safe travel behavior rather than route navigation. In general, signs should be provided on bicycle routes to stations along non-arterial routes of 0.5 miles or longer. Provide pedestrian wayfinding at spot locations within 0.25 miles of the station. Signs should be compliant with the **MUTCD** and **PROWAG**.

## SAFETY AND SECURITY

New transit stations should apply Crime Prevention Through Environmental Design concepts to increase pedestrian safety and comfort such as lighting, appropriate landscape design, and use of fencing. Pedestrian and bicycle access routes should be well-lit through parking garages to accommodate direct pedestrian and bicycle movements to the station entrance. Additionally, adjacent land uses should have direct and convenient bicycle and pedestrian access to the station site and station entrance.

## CASE STUDIES

### WIEHLE-RESTON EAST METRORAIL STATION RESTON, VA

The Washington Metropolitan Area Transit Authority completed a system expansion opening five new stations on the Silver Line in July 2014. The current end-of-line station, Wiehle-Reston East, sits in the middle of the Dulles Access Road. Station access is from either side of the roadway using elevated walkways. The Washington & Old Dominion Trail runs just north of the station, offering both pedestrians and bicyclists easy access to the station. The new station has bicycle racks, lockers, and a state-of-the-art high security, indoor bicycle parking station. The station also contains a bus-only entrance for local and regional buses with separate vehicular access to the pick-up and drop-off area and daily parking garage.

The Federal Transit Administration convened an on-the-ground pedestrian and bicycle network safety assessment in May 2015. The assessment included Federal, State, regional, and local agency officials, along with local stakeholders and advocates. Working in teams, traveling by foot, by wheelchair, and by bike, the assessment identified improvements to the pedestrian network, bicycle network, and intersections.

Through jurisdictional coordination, the wide major arterials that sit between the station and surrounding areas continue to be improved to provide safe, accessible, and comfortable pathways to the station for pedestrians and bicyclists.



### CENTRAL STATION UTRECHT, THE NETHERLANDS

Central Station in Utrecht, the Netherlands has constructed an indoor bicycle parking facility with 4,200 bicycle parking spaces. This facility was constructed as part of a rehabilitation of the transit station where a three-story bicycle parking facility is located. With over 900 trains leaving the station daily, approximately 40 percent of train passengers travel to the station by bicycle, creating a demand for high-quality bicycle parking facilities. Bicycle access to the parking facility is conducted with separated bike lanes that lead to the station without conflicting with pedestrian station access.



Source: Linda Dell'Omo, Alice in the Netherlands

## FOR MORE INFORMATION

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Federal Highway Administration. *Pedestrian Safety Guide for Transit Agencies*. 2008.

Transportation Research Board. *Report 153: Guidelines for Providing Access to Public Transportation Stations*. 2012.

United States Access Board. *Proposed Guidelines for Pedestrian Facilities in the Public Right-of-Way*. 2011.

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