

APPENDIX C

Design Guidelines, Trail & Bikeway Signage + Bike Parking

A1. SHARED-USE PATH (OFF-STREET TRAIL) SIGNAGE



Figure A1 King Park Trail

Shared-use paths, or trails, are physically separated from motor vehicle traffic, except at road crossings. Trails accommodate a variety of users, including pedestrians, bicyclists, rollerbladers, people with baby strollers, skateboarders, and others, for both recreation and transportation purposes. Trails away from roads, on easements or their own rights-of-way, tend to be more pleasant and popular.

Shared-use paths include off-street trails, sidepaths, fitness trails, rails-to-trails, and rails-with-trails.

Following are the Urbana Park District design standards for shared-use paths, which incorporate the Champaign County Greenways & Trails shared-use path design standards:

SIGNAGE

Shared-use path signage, especially MUTCD Signs R1-1 and R1-2 in [Table A1](#), should be shielded from road user visibility to decrease confusion. Sign R5-3 should be installed at the entrance to a shared-use path. The trail should be signed at cross streets and vice versa so trail users know where they are and motorists recognize that they are crossing a trail. Stop signs should not be used where Yield signs would be acceptable.

MUTCD Sign W11-15 in [Table A2](#) should be used on roads where they cross shared-use paths. Sign W11-15P should be mounted below the W11-15 sign ahead of the crossing. Sign W16-9P can also be mounted below the two aforementioned signs ahead of the crossing. Sign W16-7P should be mounted below Sign W11-15 at the trail crossing.











Signage Dimensions: Shared-Use Paths			
Signs	Name and Dimensions	Signs	Name and Dimensions
	MUTCD Sign R1-1 Stop 18" x 18"		MUTCD Sign R15-1 Grade Crossing (Crossbuck) 24" x 4.5"
	MUTCD Sign R1-2 Yield 18" x 18" x 18"		MUTCD Sign W3-1 Stop Ahead 18" x 18"
	MUTCD Sign R4-3 Movement Restriction 12" x 18"		MUTCD Sign W3-2 Yield Ahead 18" x 18"
	MUTCD Sign R9-6 Bicycle Regulatory 12" x 18"		MUTCD Sign W3-3 Signal Ahead 18" x 18"
	MUTCD Sign R5-3 No Motor Vehicles 24" x 24"		MUTCD Sign W10-1 Grade Crossing Advance Warning 24" diameter

Table A1 Shared-Use Path sign dimensions (Source: MUTCD Figures 9B-2 and 9B-3)





Signage Dimensions: Shared-Use Path Crossing			
Signs	Name & Dimensions	Signs	Name & Dimensions
	MUTCD Sign W11-15 Combination Bike and Pedestrian Crossing 30" x 30"		MUTCD Sign W16-7P Diagonal Arrow (plaque) 24" x 12"
	MUTCD Sign W11-15P Trail Crossing (plaque) 24" x 18"		MUTCD Sign W16-9P Ahead (plaque) 24" x 12"

Table A2 Shared-Use Path Crossing sign dimensions
(Source: MUTCD Figure 9B-3)

Lateral sign clearance should be a minimum of 2' from the near edge of the sign to the near edge of the path. The mounting height for ground-mounted signs should be a minimum of 4', measured from the bottom edge of the sign to the near edge of the path surface. Overhead signs should have a clearance of 8' from the bottom edge of the sign to the path surface directly under the sign (or higher to accommodate maintenance vehicles). See [Figure A2](#).

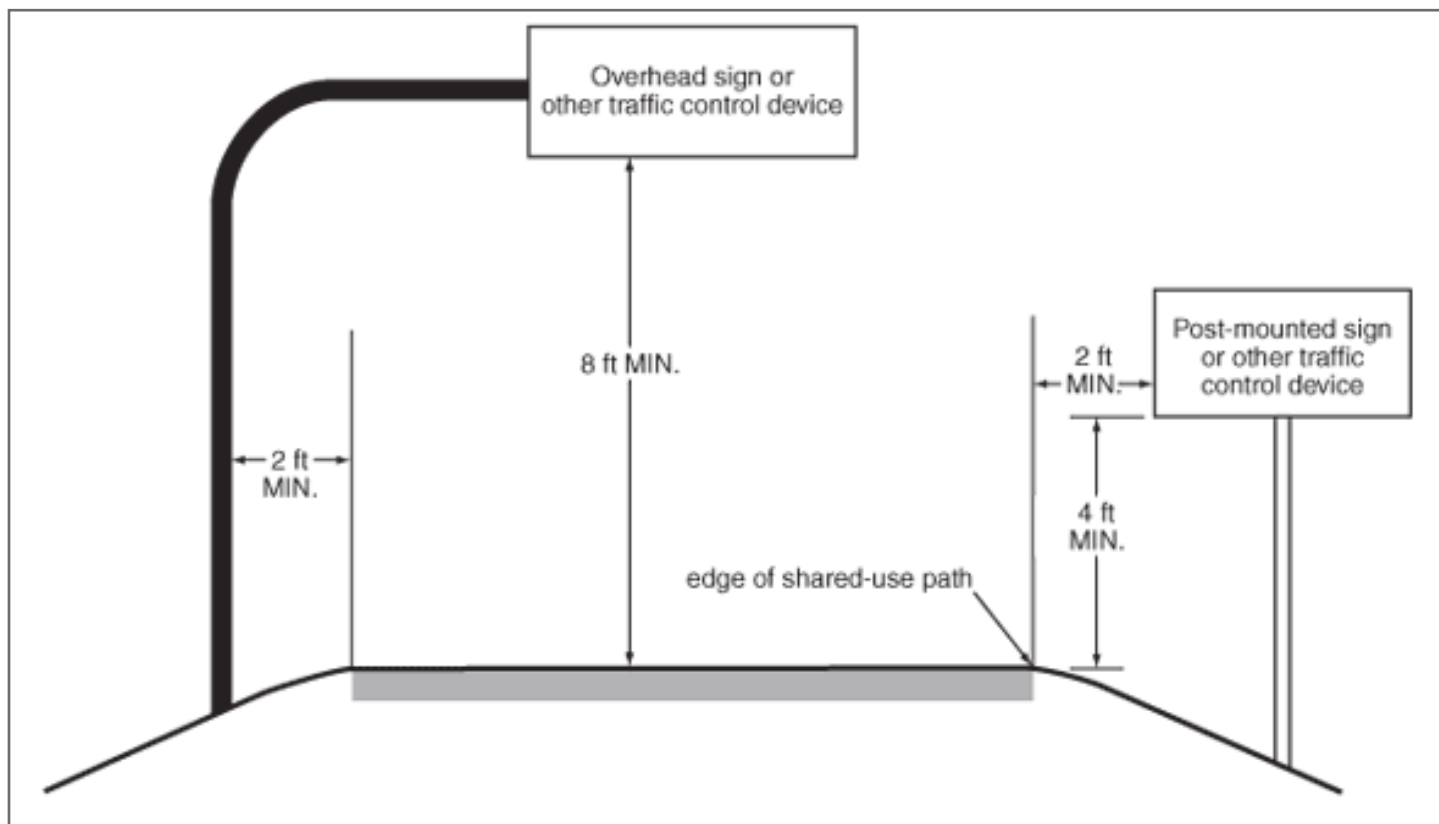


Figure A2 Sign Placement Diagram on Shared-Use Paths (Source: MUTCD Figure 9B-1)

Although the MUTCD allows for Bike Route (D11-1) signs to be installed on any type of bikeway (on-street and off-street), it is not recommended to install these signs on shared-use paths. Bike Route signs along sidepaths also face vehicular traffic, and signs can confuse motorists, especially if the sign is on the opposite side of the road. These signs can also confuse bicyclists, who may not be sure if the sidepath or road is the designated bicycle facility.

Trail signage for shared-use paths were developed as part of the *Champaign County Greenways & Trails Plan*, and should be installed along all off-street bikeways in Urbana. Installing these signs will also create consistency along trails between the Urbana Park District, City of Urbana, Champaign Park District, University of Illinois, Champaign County Forest Preserve District, and other participating jurisdictions.

The most appropriate sign to install along shared-use paths is the Trail Mile Marker Sign (see [Figure A3](#)):

- The sign should be 18" in height and 9" wide.
- Unnamed linear and loop shared-use paths should be named after one of the following places that are adjacent to the trail or where the trail leads:
 - Adjacent street name (especially for sidepaths, e.g. Main Street Trail)
 - Streets that the trail connects (e.g. Lanore-Adams-Fairlawn Trail)
 - Where a street ends and continues as a trail
 - Neighborhoods (e.g. Lierman Neighborhood Trail)
 - Areas of Urbana (e.g. East Urbana Parks Loop Trail)
 - Parks
 - Railroads
 - Water body (e.g. Saline Branch Trail)
 - Other destinations
- Urbana Green Loop segments should be signed as the "Urbana Green Loop Trail" every mile, with the origin being King Park (the most northwest park in Urbana). The Urbana Park District should work with the City of Urbana when assembling these signs.
- Supplemental distance, destination, and directional signage that match these trail signs should also be installed (see [Figure A4](#)).

Other Champaign County Greenways & Trails sign types that can be installed along Urbana shared-use paths are:

- | | | |
|---|------------------------|-----------------------------|
| • Oval sign | • Accessible bathrooms | • Landscaping |
| • Point of Interest sign | • Benches | • Lighting |
| • Arrow sign | • Bollards | • Motorized vehicle parking |
| • Map sign (includes removable map concept to display updated maps) | • Drinking fountains | • Trash receptacles |
| | • Information kiosks | • Trail art |



Figure A3 Trail Mile Marker Sign, 18" x 9"
(Source: Champaign County
Greenways & Trails Design Guidelines)



Figure A4 Trail Destination, Distance, and Direction Sign

TRAILHEAD & REST AREA FACILITIES

Please refer to the *Champaign County Greenways & Trails Design Guidelines* ([Appendix F](#)) for more information on the following features that could be installed along trails:

A2. BIKE ROUTE SIGNAGE



Figure A5 Pennsylvania Avenue east of Race Street

Bike routes are specially designated shared roadways that are preferred for bicycle travel for certain recreation or transportation purposes. These “signed shared roadways” may be appropriate where there is not enough room or less of a need for dedicated bike lanes.

The 2012 AASHTO *Guide for the Development of Bicycle Facilities* lists the following uses for bicycle route and guide signs:

- Designate a system of routes in a city, county, region, or state that is likely to generate bicycle trips, because it connects important origins and destinations.
- Designate a continuous route that may be composed of a variety of facility types and settings, or located wholly on local neighborhood streets.
- Provide wayfinding guidance and connectivity between two or more major bicycle facilities, such as a street with bike lanes and a shared use path.
- Provide guidance and continuity in a gap between existing sections of a bikeway, such as a bike lane or shared use path.
- Provide location-specific guidance for bicyclists such as:
 - How to access and cross a bridge.
 - How to navigate through an area with a complex street layout.
 - Where the route diverges from a way motorists use.
 - How bicyclists can navigate through a neighborhood to an internal destination, or to a through route that would otherwise be difficult to find.

The 1999 AASHTO *Guide for the Development of Bicycle Facilities* lists the following reasons for designating signed bike routes:

- The road is a common route for bicyclists through a high-demand corridor.
- The route extends along local neighborhood streets and collectors that lead to internal neighborhood destinations, such as a park, school, or commercial district.

A road does not require a specific geometry to be signed as a Bike Route. Generally, a road’s Bicycle Level of Service (BLOS) grade should be High C or better in order to be designated a Bike Route.



Figure A6 Bike Route sign with wayfinding signage that consists of destination, distance, and direction

SIGNAGE

When the Urbana Park District installs Bike Route signs, supplemental destination, distance, and direction sign plates should also be placed beneath them.

The signs in [Table A3](#) should **only** be used on streets designated as Bike Routes.

D11-1 signs should **only** be placed on streets that are designated Bike Routes.

D1-1 signs should only be used for turns in the Urbana Green Loop (see [Section 8.1.2](#)).

D1-1a, D1-2a, and D1-3a signs should be used to list all destinations on Bike Routes, and their corresponding distance and direction from the sign location.

Directional arrows will typically be horizontal or vertical; however, a sloping arrow may be used if it conveys a clearer indication of the direction bicyclists should travel.¹

SIGN BENEFITS

Following are several benefits of installing Bike Route wayfinding signage based on the *NACTO Urban Bikeway Design Guide*, especially to Interested but Concerned bicyclists:

- Identifies lower traffic routes to destinations
- Overcomes a “barrier to entry” for infrequent bicyclists
- Signage that includes mileage and travel time to destinations may help minimize the tendency to overestimate the amount of time it takes to travel by bicycle
- Visually indicates to motorists that they are driving along a Bike Route and should use caution
- Passively markets the bicycle network by providing unique and consistent imagery throughout Urbana






Signage Dimensions: Bike Route Wayfinding	
Signs	Name & Dimensions
	MUTCD Sign D11-1 Bike Route 24" x 18"
	MUTCD Sign D1-1 Destination (1 line) Varies x 18"
	MUTCD Sign D1-1a Destination (1 line) Varies x 18"
	MUTCD Sign D1-2a Destination (2 lines) Varies x 30"
	MUTCD Sign D1-3a Destination (3 lines) Varies x 42"

Table A3 Bike Route wayfinding sign dimensions
(Source: MUTCD Figure 9B-4)

1. AASHTO. *Guide for the Development of Bicycle Facilities*. American Association of State Highway and Transportation Officials, Washington, DC, 2012.

SIGN PLACEMENT & CATEGORIES

Bicycle guide signs should be visible to bicyclists and oriented so bicyclists have sufficient time to comprehend the sign and change their course, when needed.⁶ Consideration should be made to prevent signage from being blocked by vegetation and parked cars.

MUTCD standards shall be followed for sign installation, notably Section 9B.01 Application and Placement of Signs, and Section 9B.20 Bicycle Guide Signs. Section 9B.01 provides guidance on mounting height and lateral placement from the edge of the roadway. Information from Section 9B.20 has been incorporated into [Table A3](#).

Based on guidance from the **AASHTO Bike Guide**, Bike Route signs should be placed at the following locations:

- Where a Bike Route turns at an intersection
- Where a Bike Route crosses another Bike Route or bikeway
- Where a Bike Route crosses major roadways, especially at signalized intersections
 - It may be appropriate to place signs at both the near and far side, or at multiple locations
- At least every 1/4 mile

Adherence to a spacing standard helps create a legible network and a degree of predictability for bicyclists.

The **NACTO Urban Bikeway Design Guide** lists three types of Bike Route signs: Confirmation, Decision, and Turn.

Confirmation signs in Urbana should at minimum consist of the MUTCD D11-1 Bike Route sign, and can also include destination and distance/time information. NACTO recommends installing Confirmation signs along Bike Routes at the following locations:

- Every 2 to 3 blocks
- On the far side of major street intersections
- Within 150 feet of a Decision or Turn sign
- After turns, to confirm destinations

Decision signs (see [Figure A7](#)) in Urbana should include the MUTCD D11-1 Bike Route sign and MUTCD D1-1, D1-1a, D1-2a, or D1-3a supplemental signs, and be installed at decision points along the Bike Route.

Decision signs should be placed on the near side of intersections in advance of a junction with another bikeway, and along a route to indicate a nearby destination. Decision signs should include destinations, directional arrows, and distance and/or time, and should therefore be the most frequent Bike Route sign type used in Urbana.



Figure A7

Bike Route Decision sign

(Credit: NACTO Urban Bikeway Design Guide, <http://nacto.org/publication/urban-bikeway-design-guide/bicycle-boulevards/signs-and-pavement-markings/>)

Turn signs are placed on the near side of intersections where bike routes turn. However, it is recommended to install Decision signs at Bike Route turns in Urbana instead of Turn signs.

For consistency, and to fully realize the benefits of Bike Route signs previously stated, it is recommended to always install MUTCD D1-1, D1-1a, D1-2a, or D1-3a signs beneath every D11-1 sign installed in Urbana.

WAYFINDING SIGN ASSEMBLY

Key destinations or the cross street at the end of the Bike Route designation are suggested for wayfinding signage. Based on guidance from NACTO, the following types of destinations can be included on wayfinding signage. They are generally ranked to assist the Urbana Park District with choosing destinations when assembling signs. See [Chapter 11 of the Urbana Bicycle Master Plan](#) for more information on what specific destinations should be listed on specific existing and proposed Bike Routes.

1. Urbana Green Loop (MUTCD D1-1 sign)
2. Schools / University of Illinois campus
3. Local or regional parks and trails
4. Bikeways
5. Commercial centers
6. Civic/community destinations
7. Hospitals

Based on guidance from NACTO (see [Figure A8](#)), the Urbana Park District should follow these guidelines for assembling Bike Route wayfinding signage:

- Place the closest destination in the top slot.
- Destinations that are further away can be placed in slots two and three. This allows the nearest destination to “fall off” the sign and subsequent destinations to move up the sign as the bicyclist approaches.
- Rank destinations using the list above to determine which should be listed on a sign where more than three destinations are nearby.
- For longer routes, show immediate destinations rather than include all destinations on a single sign.
- Stack or abbreviate destination names to accommodate longer destination names before reducing text size.
- At greater distances, list area destinations (e.g. downtown, neighborhoods) as a general location.
- Consider reserving space for future destinations or bikeways. This can be done by always installing MUTCD D1-3a signs.
- If bicycling time is included, it should assume a typical speed of 10 MPH.

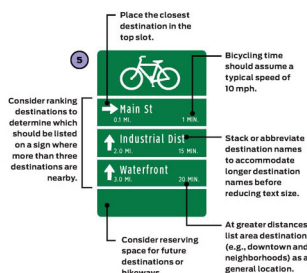


Figure A8
Bike Route wayfinding sign
assembly guidance

(Credit: NACTO Urban
Bikeway Design Guide)

WAYFINDING SIGNAGE ON NON-BIKE ROUTES

For guidance on placement of bicycle wayfinding signage on streets with bike lanes, see [Section 5.2.1 of the Urbana Bicycle Master Plan](#).

For guidance on placement of wayfinding signage on shared-use paths, see [Section A1](#).

Although the MUTCD allows for Bike Route (D11-1) signs to be installed on any type of bikeway (on-street and off-street), it is not recommended to install these signs on shared-use paths. Bike Route signs along sidepaths also face vehicular traffic, and signs can confuse motorists, especially if the sign is on the opposite side of the road. These signs can also confuse bicyclists, who may not be sure if the sidepath or road is the designated bicycle facility.

Trail signage for shared-use paths were developed as part of the *Champaign County Greenways & Trails Plan*, and should be installed along all off-street bikeways in Urbana. Supplemental distance, destination, and directional signage that match these trail signs should also be installed.

SIGN CONSOLIDATION

The *AASHTO Bike Guide 2012* states “when appropriate, bicycle guide signs may be placed on existing posts and light poles to reduce sign and post clutter. However, the MUTCD prohibits displaying certain types of signs on the same post and should therefore be consulted.”

This plan recommends wayfinding signs that list destinations, distances, and directions on one sign to reduce the burden of sign maintenance on the Urbana Park District.

PEDESTRIAN FACILITIES

All on-street Bike Routes should have an adjacent pedestrian path (e.g. sidewalk) constructed or already existing. This would serve the same users that shared-use paths accommodate. Wayfinding signage can also serve pedestrians, although they may not walk as far as bicyclists will bike.



Figure A9 Inverted U bike racks at Brookens Gym

A3. BIKE PARKING

Providing secure bicycle parking is a necessary part of a bikeway network, allowing people to use their bikes for transportation and reducing parking in undesirable places. Successful bicycle parking requires a good bike rack in a good location within 50 feet of an entrance.

Bike parking should be located at trailheads and destinations along trails and bikeways, employment centers, schools, and public buildings (e.g. libraries, post offices, and shops). Bicycle storage facilities may be used in high traffic areas where users will be away from their bicycles for long time periods (e.g. employment centers, shopping malls, and schools) to protect bicycles from weather.

TYPES

A good bicycle rack provides support for the bike frame and allows both the frame and wheels to be secured with one lock. The most common styles include the “inverted-U” and the “post and loop” (accommodates two bikes each; see [Figure A10](#)).

Old-fashioned “school racks,” which secure only one wheel, are a poor choice for today’s bicycles (see [Figure A11](#)).

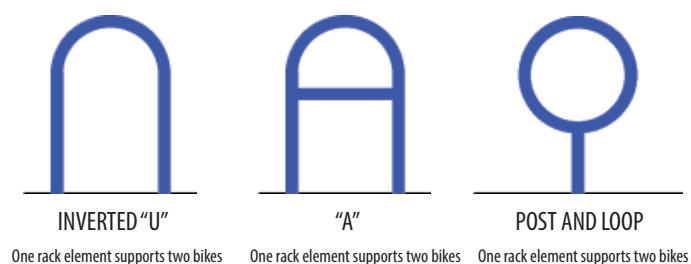


Figure A10 Recommended bike racks
(Source: APBP Bike Parking Guidelines)

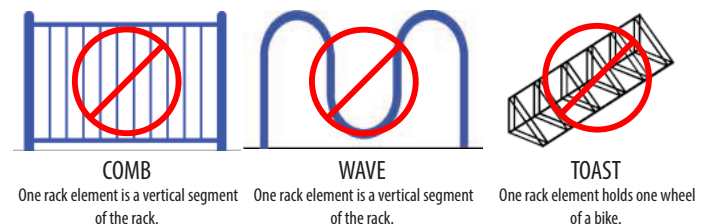


Figure A11 Not recommended bike racks
(Source: APBP Bike Parking Guidelines)

The Association of Pedestrian and Bicycle Professionals (APBP) provides comprehensive information on bike parking in the 2nd Edition of its *Bicycle Parking Guidelines*, published in 2010. This document further categorizes acceptable and non-acceptable bike parking types:

Recommended bike parking types (see [Figure A10](#)):

- Inverted U ("A" rack when it includes a crossbar)
- Post and Ring (i.e. Post and Loop)
- Inverted U Series

Acceptable bike parking types:

- Wall-Mounted Racks
- Wheelwell - Secured
- Tree Guard Bicycle Racks
- Modified Coathanger
- Two-Tier or Double Decker

Unacceptable bike parking types (see [Figure A11](#)):

- Undulating (i.e. Wave)
- Schoolyard (i.e. Grid, Comb)
- Sprial
- Wheelwell
- Coathanger
- Swing Arm Secured

The unacceptable bike parking types do not meet some of the critical design criteria in the APBP *Bicycle Parking Guidelines* 2nd Edition.

Other considerations for bicycle parking include:

- Sheltered bike parking (i.e. Covered bike parking)
- In-street bike parking facilities (i.e. Bike Corrals)
- Bike parking in public right-of-way
- Event bike parking
- Bike transit centers

Dero and Park-A-Bike (especially the Varsity Bike Dock) are two companies whose bike parking types have been installed in Urbana and on the University of Illinois campus. The Varsity Bike Dock is a secured wheelwell, an acceptable bike parking type (see [Figure A12](#)).



Figure A12 Varsity Bike Docks (Credit: Park-A-Bike)

LENGTH OF STAY

All bike parking facilities fall into two categories: short-term (two hours or less) and long-term (more than two hours). Short-term bike parking accomodates convenience and ease of use, while long-term bike parking provides security and weather protection.² The San Francisco Municipal Transportation Agency (SFMTA) lists various short-term and long-term bike parking types in its *Bicycle Parking Standards, Guidelines, and Recommendations* document (see [Figure A13](#)).

2. APBP. *Bicycle Parking Guidelines*, 2nd Edition. Association of Pedestrian and Bicycle Professionals, Cedarburg, WI, 2012.

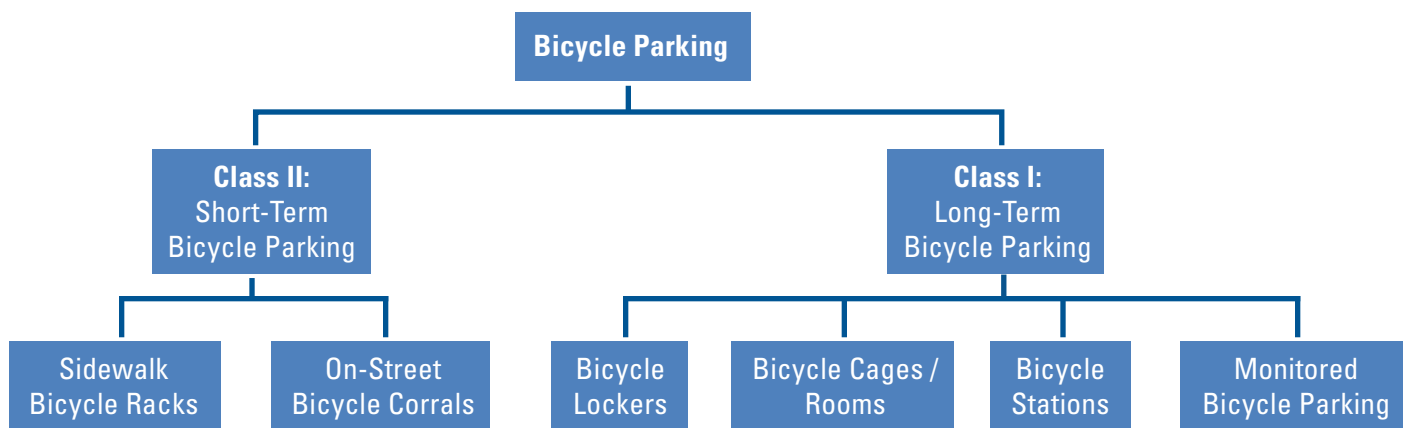


Figure A13 Bicycle Parking Typology Diagram (Credit: San Francisco Municipal Transportation Agency)

DIMENSIONS

According to the AASHTO Bike Guide, bicyclists will seek to park as close as practical to their final destination. Therefore, bike parking should be conveniently placed in a highly visible location within 50 feet or as close to the building entrance as practical. Bike parking should also be placed at both the trip origin and destination.

Following are the Urbana Park District design standards for bike parking, which incorporate the *Champaign County Greenways & Trails (GT) Plan's* bike parking design standards:

- Located no more than 50 feet from the building entrance or trail entrance.
- A minimum of 24 inches from a parallel wall and 30 inches from a perpendicular wall.
- A minimum of 4 feet from curb ramps, fire hydrants, building entrances, etc.
- Facilities should not interfere with pedestrian flow. If located on sidewalks, racks and the bicycles linked to them should provide sufficient clearance around them for all types of pedestrians, including wheelchair users.
- Bicycle racks should be mounted on a 6-inch thick concrete slab.
- Bike racks should support both wheels to prevent bent rims.
- Bike racks should be fabricated of pipe or other durable material.

SIGNAGE

MUTCD Sign D4-3 (see [Table A4](#)) may be installed where it is desirable to show the direction to a designated bicycle parking area, from either an on-street or off-street bikeway.


Signage Dimensions: Bike Parking	
Signs	Name & Dimensions
	MUTCD Sign D4-3 Bicycle Parking Area 12" x 18"

Table A4 Bike Parking sign dimensions
(Source: MUTCD Figure 9B-4)