

- 1 DRAFT Montgomery County Planning Department
- 2 Bicycle Parking Guidelines
- 3 June 26, 2016

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- 4 Abstract: These bicycle parking guidelines are intended as a resource to help developers, planners,  
5 architects and property owners provide high-quality bicycle parking in Montgomery County. The  
6 guidelines summarize the bicycle parking requirements in Section 59 of the County Code and identify  
7 recommended practices and practices to avoid. The full text of the County Code is available online at:  
8 <http://www.montgomerycountymd.gov/mcg/countycode.html>.  
9 Note: References to the County Code are current as of February 17, 2016 but should be verified.

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54 **1 Introduction**

55 Bicycling is increasing in Montgomery County and across the region.<sup>1</sup> As the number of cyclists grows,  
56 the need for safe, secure and accessible bicycle parking is becoming more apparent. Recognizing this  
57 need, Montgomery County included a major overhaul to the bicycle parking required of new  
58 developments in its 2014 zoning ordinance. Whereas the previous ordinance calculated bicycle parking  
59 requirements as a percentage of automobile parking with a maximum of 20 bicycle parking spaces, the  
60 new ordinance calculates bicycle parking requirements based on land use category with a maximum of  
61 100 bicycle parking spaces. This change to the zoning code will help ensure appropriate levels of bicycle  
62 parking for Montgomery County employees and residents as part of new development projects.

63 These bicycle parking guidelines are intended as a resource to help developers, planners, architects and  
64 property owners provide high-quality bicycle parking in Montgomery County. The guidelines summarize  
65 the requirements in the County Code and identify recommended practices and practices to avoid. The  
66 full text of the County Code is available online at:  
67 <http://www.montgomerycountymd.gov/mcg/countycode.html>.

68 The guidelines are divided into five sections:

- 69 1. Short-Term Bicycle Parking
- 70 2. Long-Term Bicycle Parking
- 71 3. Wayfinding
- 72 4. Security
- 73 5. Bicycle Support Facilities
- 74 6. Appendices

75

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<sup>1</sup> *Trends and Determinants of Cycling in the Washington, DC Region*, Mid-Atlantic Universities Transportation Center <http://ntl.bts.gov/lib/47000/47100/47120/VT-2009-05.pdf>

76 **2 Short-Term Bicycle Parking**

77 Short-term bicycle parking is intended to provide quick access to short-term destinations, such as shops,  
78 offices and civic facilities, and therefore should be convenient and easy to use. It is typically located in  
79 highly visible locations, in front of building entrances and along streets and bikeways, and is available for  
80 public use. (6.2.6.B.1.a.i)

81 **2.1 Types of Short-Term Bicycle Parking**

82 Short-term bicycle parking can be located in two locations:

- 83 • **Sidewalk:** Many communities begin their short-term bicycle parking programs by installing  
84 bicycle racks on sidewalks. In locations without on-street parking, sidewalks may be the only  
85 space available for bicycle racks. Bicycle parking on the sidewalk should be located at a sufficient  
86 distance from the intersection so that it does not inhibit a motorist’s ability to see what is  
87 happening around the corner or obstruct pedestrian movement.
- 88 • **On-Street Parking:** Since sidewalk space is often limited in commercial areas, in some instances  
89 it may be more appropriate to locate bicycle parking in an on-street parking space. On-street  
90 parking, also known as “bike corrals,” increases parking capacity for all users, since one car  
91 space is equivalent to 8 to 12 bicycle spaces, and increases the visibility of bicycling. Bike corrals  
92 are non-standard for Montgomery County and must be approved by the Montgomery County  
93 Department of Transportation to be installed.



94

95 [A conventional inverted-u rack](#)



96

97 [A temporary bike corral installed in Downtown Silver Spring](#)

## 98 2.2 Bicycle Parking Requirements

99 Total bicycle parking space requirements are based on a metric specific to each use, a maximum number  
100 of total bicycle parking spaces and a percent of the total spaces that are intended for short-term and  
101 long-term use. The bicycle parking space table is provided in Appendix 6.1 and Appendix 6.2.

## 102 2.3 Relationship to the Street

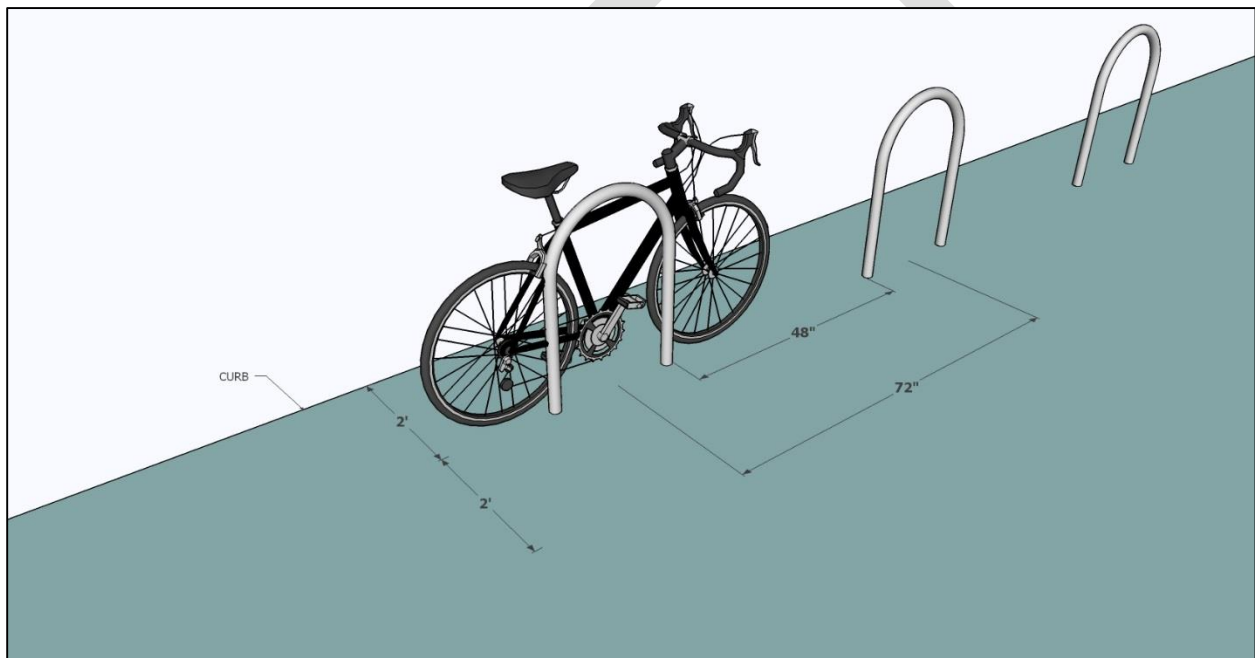
103 A lack of convenient bicycle racks often results in bicycles locked to sign posts, trees and street furniture.  
104 Bicycles locked to these objects are vulnerable to damage and theft, and can damage the object to  
105 which they are locked. If not properly located, bicycle racks can impede pedestrian travel on the  
106 sidewalk, access to buildings and emergency responders. Therefore, bicycle racks:



- 107 • Each bicycle parking facility is prohibited from obstructing pedestrian traffic or interfering with  
108 the use of the pedestrian area. (6.2.6.B.1.b)
- 109 • Each parked bicycle must be accessible without moving another bicycle. (6.2.6.B.1.f)
- 110 • Any sidewalk rack that is parallel to the curb must be located 2 feet from the curb face. (6.2.6.B.1.c)
- 111 • Any sidewalk rack aligned perpendicular to the curb must be located so that the nearest vertical  
112 component of the rack is a minimum of 4 feet from the curb. (6.2.6.B.1.d)
- 113 • Each sidewalk rack must be a minimum of 14 feet from any stand-alone fire hydrant. (6.2.6.B.1.e)
- 114 • A bicycle parking facility must have an aisle a minimum of 4 feet in width behind all occupied  
115 parking racks to allow room for bicycle maneuvering. (6.2.6.B.1.g)

116 Short-term bicycle parking adjacent to the street is typically located parallel or perpendicular to the  
117 curb.

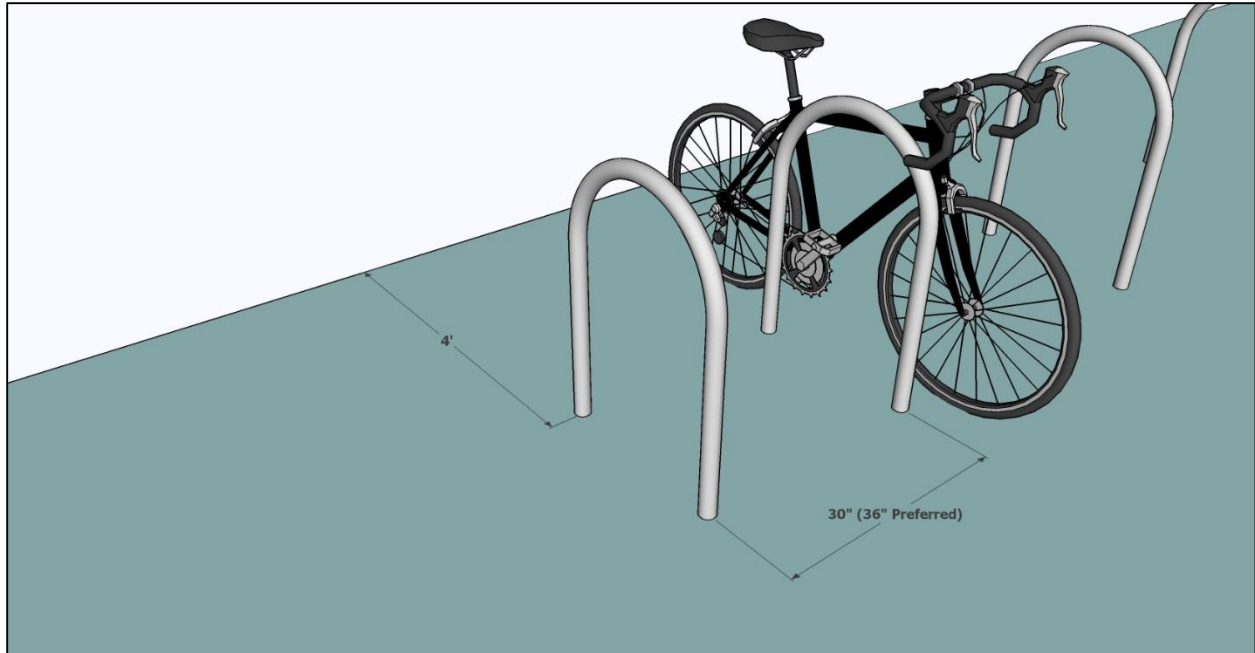
- 118 • Parallel to the curb: Short-term bicycle parking is located parallel to the curb when there is a  
119 desire to limit the amount that bicycles protrude into the sidewalk.



120

121 **Short-term bicycle parking parallel to the curb**

- 122 • Perpendicular to the curb: Short-term bicycle parking is located perpendicular to the curb when  
123 more parking spaces are desired and when there is sufficient sidewalk space.



124

125 **Short-term bicycle parking perpendicular to the curb**

## 126 2.4 Relationship to the Building

127 The location of short-term bicycle parking is an important determinant of how well the parking space is  
 128 used. Bicycle racks that are located in convenient, well-lit and visible locations will have greater use.

129 Short-term bicycle parking spaces must therefore be located:

- 130 • In a convenient, well-lit area that is clearly visible to both a visitor to the building and a person  
 131 who is on the sidewalk that accesses the building's main entrance. (6.2.6.B.1.a.ii)
- 132 • Within 90 feet from: 1) the main entrance of any building; or, 2) at least one main entrance of a  
 133 building with more than one main entrance; unless 3) the applicable deciding body approves an  
 134 alternative location during the site plan or conditional use process. (6.2.6.B.1.a.iii)

## 135 2.5 Rack Selection

136 Accessibility to and proper location of parking facilities are not the only requirements in the provision of  
 137 high-quality bicycle parking. The most accessible and well-located bicycle parking is insufficient if  
 138 bicyclists are concerned about their security or the security of their bicycles. Bicycles parked in both  
 139 short- and long-term spaces benefit from being in a visible location with moderate to high levels of  
 140 pedestrian traffic. The presence of people diminishes the risks of theft and damage. Locating bicycle  
 141 parking located in well-lit, high-visibility areas can increase the safety of people using the bicycle  
 142 parking.

143 Proper rack selection is essential for secure bicycle parking. The requirements specified in the  
 144 Montgomery County Zoning Ordinance reflect best practices recognized by the Association of Pedestrian  
 145 and Bicycle Professionals (APBP), rack manufacturers and other bicycle-friendly jurisdictions. Secure  
 146 bicycle racks tend to be fairly straightforward. In fact, a simple, easy-to-use rack is inherently more

147 secure because a typical bicyclist is more likely to use it properly. Racks known as “inverted-u” racks are  
148 the preferred style in most cases. Other considerations that enhance the security of bicycle parking  
149 include:

- 150 • Anchors and installation: Installing bicycle racks into concrete is the most secure option. If  
151 bicycle racks are being installed after concrete has been poured, or in an interior space that  
152 cannot be drilled, the racks should be affixed with tamper-resistant hardware. Anchor bolts  
153 should be approximately 6 inches long and drilled into a concrete base.
- 154 • Bicycle rack materials: Bicycle racks are now available in a range of materials and finishes. It is  
155 important to select racks manufactured with thick exterior walls that resist cutting by tools  
156 commonly used by thieves, including bolt cutters and hand saws. The rack finish should be rust-  
157 resistant, as rusting can compromise the strength of the rack over time. Powdercoat or  
158 thermoplastic finish options are available.
- 159 • Type of lock: Bicyclists are expected to provide their own locks to secure their bicycle to a rack,  
160 but developers and property management companies can provide signage to educate users  
161 about the proper way to lock a bicycle. As required by the Montgomery County Zoning  
162 Ordinance, all bicycle racks must be compatible with a standard U-lock, which is much more  
163 difficult to sever than a cable lock.

164  
165 The Montgomery County Zoning Ordinance has several requirements regarding the selection of bicycle  
166 racks:

- 167 • Permit a bicycle frame and one wheel to be locked to the rack with a high security lock. (6.2.6.B.2.a)
- 168 • Permit a bicycle to be securely held with its frame supported in at least 2 places. (6.2.6.B.2.b)
- 169 • Be durable and securely anchored. (6.2.6.B.2.d)
- 170 • Have a locking surface thin enough to allow standard u-locks to be used, but thick enough so the  
171 rack cannot be cut with bolt cutters. (6.2.6.B.2.e)
- 172 • Perform as well as an inverted-u. (6.2.6.B.2.h)

173 The Montgomery County Department of Transportation maintains guidelines on the selection of bicycle  
174 racks at: <http://montgomerycountymd.gov/dot-dte/bikeways/index.html>.

175 The Essentials of Bike Parking, prepared by the Association of Pedestrian and Bicycle Professionals,  
176 identifies several styles of bike racks that are not recommended.



177

178

179

Schoolyard racks do not support a bicycle with two points of contact leading to inefficient, haphazard parking that can damage bicycles. Photo: Steven Vance



180  
181

Wave racks do not support a bicycle with two points of contact leading to inefficient, haphazard parking.

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182

183 **Wheel well racks can damage wheels and do not provide sufficient security, since they do not lock to the bicycle frame.**  
184 **Photo: Toole Design Group**

## 185 2.6 Rack Installation

186 The Montgomery County Zoning Ordinance includes dimensions for the placement of bicycle racks:

- 187 • Be offset a minimum of 30 inches on center. (6.2.6.B.2.c)
- 188 • Have aisles a minimum width of 48 inches between racks. (6.2.6.B.2.f)
- 189 • Have a minimum depth of 72 inches between each row of parked bicycles. (6.2.6.B.2.g)

190 Additionally, the Montgomery County Department of Transportation requires bicycle racks to be  
191 installed on a stable concrete or asphalt surface with a security bolt to prevent tampering and provide  
192 stability. Installing bicycle racks into concrete is the most secure option. If bicycle racks are being  
193 installed after concrete has been poured, or in an interior space that cannot be drilled, the racks should  
194 be affixed with tamper-resistant hardware. Bicycle racks should not be anchored to bricks or pavers.

195 The Montgomery County Department of Transportation maintains guidelines on the installation of  
196 bicycle racks at: <http://montgomerycountymd.gov/dot-dte/bikeways/index.html>.

197 **2.7 Custom Designs**

198 On occasion, property owners request permission to install custom-designed bike racks. These bike  
199 racks must meet the requirements set forth in the Montgomery County Zoning Ordinance and must be  
200 approved by the Montgomery County Department of Transportation.



201  
202 **A custom bike rack in Rockville Town Center**

203 **2.8 Recommended Practices**

204 A number of recommended practices can enhance the quality of short-term bicycle parking, but are not  
205 required in the Montgomery County Zoning Ordinance.

206 **2.8.1 Sheltered Bicycle Parking**

207 Sheltered bicycle racks help to protect cyclists and their bicycles from rain and snow, and can make  
208 bicycling a year-round mode of transportation. Shelters can include awnings, roofs or enclosed  
209 structures. Location selection should consider how the structure affects sight distances and pedestrian  
210 travel.



211

212 [Sheltered bicycle parking in Seattle. Source: Dan Malouff](#)

### 213 2.8.2 Elongated Racks

214 Elongated U-racks, like the one shown below, provide additional support and points of contact for  
215 bicycles with longer frames or trailers. The ability to lock both the frame of the bicycle and add-on  
216 accessories helps prevent damage and improves security.





217

218

219

This bicycle parking area is not long enough to accommodate a bicycle trailer without blocking the sidewalk. Photo: Toole Design Group



220

221

Elongated-U racks like this at the Silver Spring Metrorail Station accommodate a variety of bicycle types.

## 222 3 Long-Term Bicycle Parking

223 Long-term bicycle parking is intended to provide sheltered and secure bicycle storage for residents,  
224 employees and long-term visitors who are leaving their bicycles in a residential or commercial building  
225 for several hours or longer and therefore need their bicycles to be protected from vandalism, theft and  
226 the elements.

### 227 3.1 Types of Long-Term Bicycle Parking

228 There are five types of bicycle parking in residential and commercial buildings:

- 229 • Bicycle rooms on the ground floor.
- 230 • Bicycle rooms in a parking garage.
- 231 • Bicycle cages in a parking garage.
- 232 • Bicycle lockers.
- 233 • Bicycle racks in a parking garage.

#### 234 3.1.1 Bicycle Rooms on the Ground Floor

235 A bicycle room located on the ground floor of a commercial or residential building is the preferred form  
236 of long-term bicycle parking because it provides:

- 237 • Highly secure bicycle storage in an enclosed facility.
- 238 • Direct access to the street or sidewalk.
- 239 • Little or no conflict with automobiles.

#### 240 Requirements

- 241 • Clearly marked as a long-term bicycle parking space. (6.2.6.A.1.c.i)
- 242 • Available and accessible to all building tenants during the building's hours of operation. For  
243 residential tenants, each space must be accessible 24 hours a day, 7 days a week. (6.2.6.A.1.b)
- 244 • Located in a well-lit, visible location near the main entrance or elevators. (6.2.6.A.1.c.iii)
- 245 • Must not be accessible to anyone without authorized access. (6.2.6.A.1.d)
- 246 • Must be well-maintained and well lit. (6.2.6.A.1.f)

#### 247 3.1.2 Bicycle Rooms in a Parking Garage

248 A bicycle room located in the parking garage of a commercial or residential building is the second best  
249 form of long-term bicycle parking because it provides:

- 250 • Highly secure bicycle storage in an enclosed facility.
- 251 • Indirect access to the street or sidewalk through a parking garage.
- 252 • Some conflict with automobiles as cyclists navigate through the parking garage.

#### 253 Requirements:

- 254 • Clearly marked as a long-term bicycle parking space. (6.2.6.A.1.c.i)
- 255 • Located no lower than the first complete parking level below grade, and no higher than the first  
256 complete parking level above grade. (6.2.6.A.1.c.ii)

- 257 • Available and accessible to all building tenants during the building’s hours of operation. For
- 258 residential tenants, each space must be accessible 24 hours a day, 7 days a week. (6.2.6.A.1.b)
- 259 • Located in a well-lit, visible location near the main entrance or elevators. (6.2.6.A.1.c.iii)
- 260 • Must not be accessible to anyone without authorized access. (6.2.6.A.1.d)
- 261 • Must be well-maintained and well lit. (6.2.6.A.1.f)

262 Recommended:

- 263 • Bicyclists should have direct bicycle access to bicycle room so that they do not need to take their
- 264 bicycles through building lobbies. However, if garage ramps are excessively steep, elevators
- 265 should be sized to accommodate bicycles.
- 266 • Parking garage gate arms should be positioned to allow bicycles to pass by.



267

268 **A Bicycle Room with Stacked Bike Racks**

269 **3.1.3 Bicycle Cages in a Parking Garage**

270 A bicycle cage located in the parking garage of a commercial or residential building is the third best form  
 271 of long-term bicycle parking because it provides:

- 272 • Secure bicycle storage in a facility typically constructed of chain-link fence, which can be cut and
- 273 leaves bicycles visible to vandals and thieves.
- 274 • Indirect access to the street or sidewalk through a parking garage.
- 275 • Some conflict with automobiles as cyclists navigate through the parking garage.



276

277 [A bike cage at The Citron in Downtown Silver Spring](#)

278 Requirements:

- 279 • Clearly marked as a long-term bicycle parking space. (6.2.6.A.1.c.i)
- 280 • Located no lower than the first complete parking level below grade, and no higher than the first  
281 complete parking level above grade. (6.2.6.A.1.c.ii)
- 282 • Available and accessible to all building tenants during the building’s hours of operation. For  
283 residential tenants, each space must be accessible 24 hours a day, 7 days a week. (6.2.6.A.1.b)
- 284 • Located in a well-lit, visible location near the main entrance or elevators. (6.2.6.A.1.c.iii)
- 285 • Must not be accessible to anyone without authorized access. (6.2.6.A.1.d)
- 286 • Must be well-maintained and well lit. (6.2.6.A.1.f)

287 Recommended:

- 288 • Bicyclists should have direct bicycle access to bicycle room so that they do not need to take their  
289 bicycles through building lobbies. However, if garage ramps are excessively steep, elevators  
290 should be sized to accommodate bicycles.
- 291 • Parking garage gate arms should be positioned to allow bicycles to pass by.

### 292 3.1.4 Bicycle Lockers

293 A secure, locked box that stores a single bicycle is the fourth best form of long-term bicycle parking  
294 because it provides:

- 295 • Highly secure bicycle storage in an enclosed box.
- 296 • Direct or indirect access to the street or sidewalk depending on whether it is located in a parking
- 297 garage or at street level.
- 298 • Varying amount of conflict with automobiles depending on whether it is located in a parking
- 299 garage or at street level.
- 300 • Typically an inefficient use of space.

301 Requirements

- 302 • Clearly marked as a long-term bicycle parking space. (6.2.6.A.1.c.i)
- 303 • Located no lower than the first complete parking level below grade, and no higher than the first
- 304 complete parking level above grade. (6.2.6.A.1.c.ii)
- 305 • Available and accessible to all building tenants during the buildings hours of operation and at all
- 306 times for residents in residential contexts. (6.2.6.A.1.b)
- 307 • Located in a well-lit, visible location near the main entrance or elevators. (6.2.6.A.1.c.iii)
- 308 • Separated from vehicle parking by a barrier that minimizes the possibility of a parked bicycle
- 309 being hit by a car. (6.2.6.A.1.c.iv)
- 310 • Must be securely anchored. (6.2.6.A.1.d)
- 311 • Must be well-maintained and well lit. (6.2.6.A.1.f)

312 Recommended:

- 313 • Bicyclists should have direct bicycle access to bicycle room so that they do not need to take their
- 314 bicycles through building lobbies.
- 315 • Bicyclists should have direct bicycle access to bicycle room so that they do not need to take their
- 316 bicycles through building lobbies. However, if garage ramps are excessively steep, elevators
- 317 should be sized to accommodate bicycles.
- 318 • Parking garage gate arms should be positioned to allow bicycles to pass by.
- 319 • Bike lockers should not be stacked unless a ramp is provided to allow the user to roll their
- 320 bicycle into the stacked lockers.

321 See Appendix 6.5 for a discussion of the advantages and disadvantages of using bicycle lockers.



322

323 [A bike locker at the Silver Spring Transit Center](#)

### 324 3.1.5 Bicycle Racks in a Parking Garage

325 Bicycle racks located in a parking garage of a commercial or a residential building is the least preferred  
326 form of long-term bicycle parking because it provides:

- 327 • Less secure bicycle storage because bicycles are accessible to vandals and thieves.
- 328 • Indirect access to the street or sidewalk through a parking garage.
- 329 • Some conflict with automobiles as cyclists navigate through the parking garage.

330

#### 331 Requirements

- 332 • Clearly marked as a long-term bicycle parking space. (6.2.6.A.1.c.i)
- 333 • Located no lower than the first complete parking level below grade, and no higher than the first  
334 complete parking level above grade. (6.2.6.A.1.c.ii)
- 335 • Available and accessible to all building tenants during the buildings hours of operation and at all  
336 times for residents in residential contexts. (6.2.6.A.1.b)
- 337 • Located in a well-lit, visible location near the main entrance or elevators. (6.2.6.A.1.c.iii)

- 338 • Separated from vehicle parking by a barrier that minimizes the possibility of a parked bicycle  
339 being hit by a car. (6.2.6.A.1.c.iv)
- 340 • Must be well-maintained and well lit. (6.2.6.A.1.f)

341 Recommended:

- 342 • Bicyclists should have direct bicycle access to bicycle room so that they do not need to take their  
343 bicycles through building lobbies. However, if garage ramps are excessively steep, elevators  
344 should be sized to accommodate bicycles.
- 345 • Parking garage gate arms should be positioned to allow bicycles to pass by.

### 346 3.2 Bicycle Parking Requirements

347 Total bicycle parking space requirements are based on a metric specific to each use, a maximum number  
348 of total bicycle parking spaces and a percent of the total spaces that are intended for short-term and  
349 long-term use. The bicycle parking space table is provided in Appendix 6.1 and Appendix 6.2.

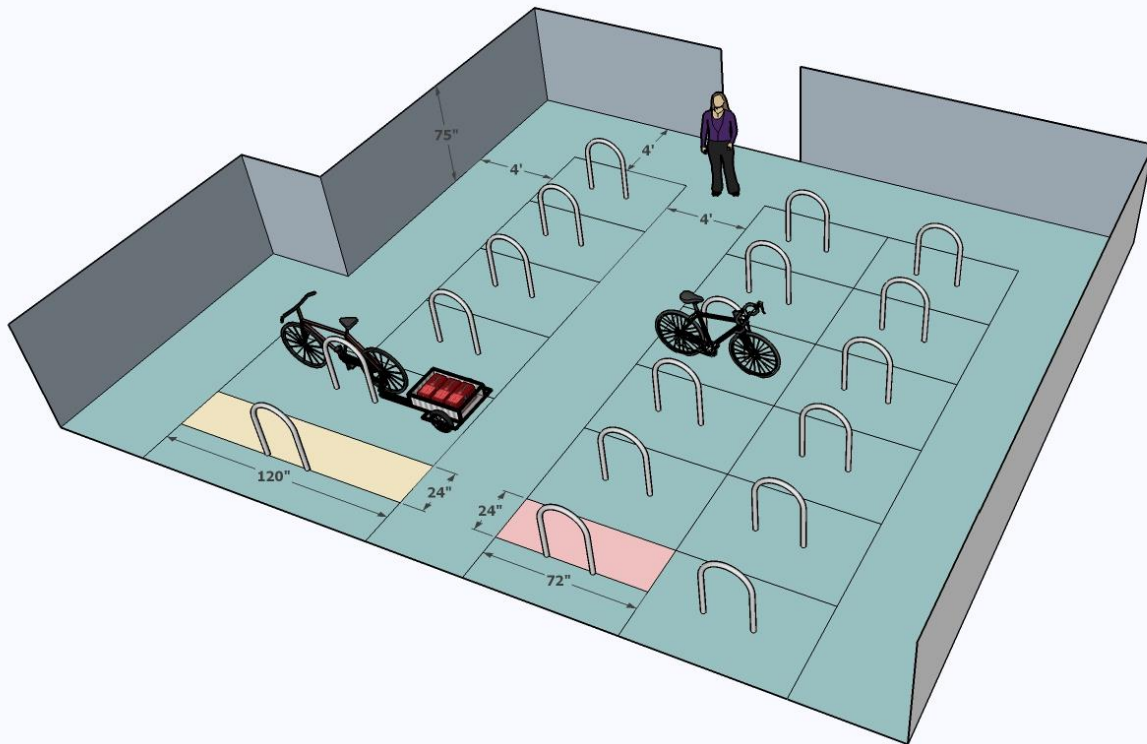
### 350 3.3 Dimensions

351 The Montgomery County Zoning Ordinance specifies minimum dimensions for long-term bicycle parking.

- 352 • Each long-term bicycle parking space must have:
  - 353 ○ A minimum vertical clearance of 75 inches for spaces other than lockers. (6.2.6.A.2.a.i.)
  - 354 ○ A minimum vertical clearance of 48 inches for a locker. (6.2.6.A.2.a.ii.)
  - 355 ○ A minimum length of 72 inches and width of 24 inches if a bicycle is placed horizontally.  
356 (6.2.6.A.2.a.iii.)
  - 357 ○ A minimum length of 40 inches and width of 24 inches if a bicycle is placed vertically.  
358 (6.2.6.A.2.a.iv.)
- 359 • A bicycle parking facility must have an aisle a minimum of 4 feet in width between rows of  
360 bicycle parking spaces and the perimeter of the area devoted to bicycle parking. (6.2.6.A.2.b.)
- 361 • If a room or common locker is not divided into individual spaces, each 12 square feet of floor  
362 area is counted as one bicycle parking space.

363 An example of the dimensions of a bicycle room with inverted-u racks is shown below.





364

365 [Example of long-term bicycle parking](#)

### 366 [3.4 Recommended Practices](#)

367 A number of recommended practices can enhance the quality of long-term bicycle parking, but are not  
 368 required by the Montgomery County Zoning Ordinance.

#### 369 [3.4.1 Entrances](#)

370 Entrances to long-term bicycle parking locations should be designed with bicyclist's needs in mind:

- 371 • Doorways should be wide enough for a bicyclist to comfortably walk through with a bicycle and  
 372 a trailer.
- 373 • Automated doors should be considered, as they eliminate the need for a bicyclist to hold the  
 374 door open while maneuvering a bicycle through the doorway.
- 375 • There should be adequate space on either side of the door for a bicycle to maneuver and  
 376 bicyclists to wait for someone else to enter or exit.
- 377 • The panel for the key fob or access code should be visible and easily accessed by the user, who  
 378 will be simultaneously maneuvering a bicycle and operating the door.

#### 379 [3.4.2 Wayfinding](#)

380 Since long-term bicycle parking is often not visible from the street or building entrance, wayfinding  
 381 should be provided to direct bicyclists to the appropriate location. Pavement markings and signage  
 382 should be used to identify the routes bicyclists will use to access the long-term parking area. The signs  
 383 and markings also serve as visual reminders to other garage users to expect bicyclists.

384 **3.4.3 Stacked Racks**

385 Stacked bicycle racks are a common way to provide a large number of long-term bicycle parking spaces  
386 in less space. However, they can exclude some users based on their age, ability or bicycle type. One way  
387 to mitigate is to provide lift assist for upper-level parking.



388

389 **Stacked Bike Racks at The Citron, Silver Spring, Maryland**

390 **3.4.4 Vertical Racks**

391 While the zoning code permits both standard inverted-u racks and vertical racks on the wall, it is  
392 recommended that vertical racks only be used as overflow parking beyond the typical demand. Vertical  
393 racks are commonly used as a way to incorporate bicycle parking in a smaller footprint, however, they  
394 have several disadvantages:

- 395 • they can be a challenge for some users to lift their bikes onto these racks
- 396 • they do not fit children’s bicycle
- 397 • they do not fit many non-standard bicycles, including children’s bicycle
- 398 • they require removing accessories



399

400 [Vertical Bike Racks at The Premier, Silver Spring, Maryland](#)

401 Vertical racks are challenging for some people to use and do not accommodate all types of bicycles.

402 [3.4.5 Building Management Policies](#)

403 Bicycle parking in commercial and residential buildings can be compromised if building owners do not  
404 communicate their bicycle parking policies and requirements to building managers and security  
405 employees.

406 [3.4.6 Physical Barriers](#)

407 While the County Code indicates that there should be barriers to minimize the possibility of a parked  
408 bicycle being hit by a car, it does not specify the type of barrier. Bollards are an example of a heavy  
409 barrier that provide adequate physical protection from cars.



410

411 [These bicycle racks are separated from motor vehicles by bollards.](#)

#### 412 3.4.7 Security Cameras

413 Security cameras can assist with monitoring use of bicycle parking areas and may be helpful in the event  
414 a theft does occur, as well as for deterrence. If a building has a system of cameras for security  
415 monitoring, incorporating additional cameras for this purpose will generally be of small incremental cost  
416 and can provide bicycle owners an added measure of comfort.

#### 417 3.4.8 Accommodating Longer Bicycles

418 The footprint of a standard bicycle parking space is 24 inches wide by 72 inches deep. While a standard  
419 bicycle fits comfortably within that footprint, non-standard bicycles, such as tricycles, cargo bicycles,  
420 tandems and recumbents, require additional space (see Appendix 6.5 for examples). These non-  
421 standard bicycles are likely to become more common over time because a variety of bicycle models  
422 accommodates a diverse range of various ages, abilities, needs and interests. Furthermore, accessories,  
423 such as baskets, rear racks, child seats and trailers, can also increase the footprint of a standard bicycle.

424 In order to accommodate non-standard bicycles and accessories, 10 percent of long-term parking spaces  
425 should be 8 feet long<sup>2</sup>. These larger spaces will help prevent spillover into access aisles and ensure racks  
426 are used as efficiently as possible.

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<sup>2</sup> There are no national best practices for the amount of parking that should accommodate larger bicycles. The bicycle parking standards in Cambridge, Massachusetts require enclosed rack areas with 20 or more racks to provide at least 5 percent of spaces an additional 2 feet in length to accommodate tandem bicycles and bicycles with trailers.<sup>2</sup> As interest in bicycling for all utilitarian purposes grows, the need for larger bicycle parking spaces in Montgomery County will increase.

427 **4 Bicycle Parking Wayfinding**

428 Bicycle signs are required to direct bicyclists to bicycle parking spaces and can be used to provide  
429 bicyclists with information about bicycle support facilities and bicycle routes.

430 Required

- 431 • If a long-term bicycle parking facility is not visible from the street or main building entrance, the  
432 property owner must post a sign in a lobby or common area indicating the location of the  
433 bicycle parking. (6.2.6.A.3.)

434 Recommendation

- 435 • In addition to indicating the location of bicycle parking, signs and pavement markings can be  
436 used to inform bicyclists and other users of the location of other bicycle support facilities, such  
437 as showers, lockers, changing rooms and repair stations, and provide information about bicycle  
438 routes in the surrounding area.



439

440 Signs direct bicyclists to parking at this Target in Seattle. Source: Google Maps



441

442 [The 2011 Maryland Manual of Uniform Traffic Control Devices \(MUTCD\) includes D4-3 is the bicycle parking sign.](#)

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## 443 5 Bicycling Support Facilities

444 Bicycling support facilities include lockers for storing helmets and clothes, changing rooms, showers and  
445 bicycle repair stations with air pumps and tools to complete simple repairs. These types of facilities  
446 encourage bicycle use by addressing potential concerns, such as physical appearance and hygiene after  
447 a bicycle commute and bicycle maintenance.

448 While bicycling support facilities encourage longer-distance bicycle commutes by providing a place for  
449 employees to change clothing, and can extend the commuting season by providing a place to store the  
450 extra gear needed for riding in inclement weather, bicyclists are not the only beneficiaries. In an office  
451 setting, showers and lockers can also be used by employees who walk to work, commute using a  
452 combination of transit and walking or biking, or who may go to the gym or exercise before or during the  
453 workday. Overall, physically active employees are more productive, take fewer sick days and can help  
454 lower health insurance costs, all of which improve a company's bottom line.

### 455 5.1 Showers

456 Showers allow bicycle commuters to refresh and change clothes after their ride to work, so that they  
457 can maintain a professional appearance.

#### 458 Required

- 459 • Any individual tenant space with more than 50,000 square feet of nonresidential gross floor  
460 area (excluding retail or uses with less than 50 employees during the largest shift), must have  
461 one shower changing facility for each gender, unless the development has shower and changing  
462 facilities in a common area that is available to all tenants. One additional shower and changing  
463 facility per gender must be installed for every additional 50,000 square feet of nonresidential  
464 gross floor area (excluding retail), up to a maximum of 3 for each gender. (6.2.6.A.4.a)

#### 465 Recommended

- 466 • Provide mirrors, sinks, toilets in close proximity, outlets for electric razors and hair dryers, iron  
467 and ironing boards, first-aid kits, hooks for towels and clothes. Shower rooms should have non-  
468 slip surfaces, adequate lighting and ventilation, and be included in regular cleaning and  
469 maintenance programs

### 470 5.2 Lockers

471 Lockers provide a space to store clothing, tools and supplies away from work areas.

#### 472 Required

- 473 • If a long-term bicycle storage facility is required for a nonresidential use, the facility must have a  
474 minimum of 0.3 clothing lockers for each required long-term storage space for each gender.  
475 Each clothing locker must be:
  - 476 ○ A minimum of 12 inches wide, 18 inches deep, and 36 inches high.
  - 477 ○ Available for use during all hours that employees are on-site.
  - 478



- 479                   ○ Installed adjacent to the showers and changing facilities in a safe and secured area.  
480                   6.2.6.A.4.b

481 Recommended

- 482                   • All lockers should be secure and designed to ensure proper ventilation. Additional lockers can be  
483                   provided for those who walk or jog to work, or exercise during the workday. Locker use should  
484                   be monitored on a regular basis to ensure cleanliness and availability. The dimensions specified  
485                   in the Montgomery County Zoning Ordinance will accommodate most hangers, which are about  
486                   18 inches in length. However, taller, deeper lockers better accommodate hanging clothing.

### 487 5.3 Repair Stations

488 Repair stations help bicyclists complete routine maintenance tasks.

- 489                   • Repair stations: While the Montgomery County Zoning Ordinance does not require repair  
490                   stations, the stations support and encourage bicycle use by providing the tools necessary to  
491                   perform simple bicycle repairs. Repair stations can be installed indoors or outdoors and do not  
492                   take up much space. For adequate clearance to maneuver and make bicycle repairs, a repair  
493                   stand needs a clear area measuring 90 inches by 45 inches, with the back of the repair stand  
494                   placed at least 12 inches from the wall. Repair stations are a relatively low-cost bicycle support  
495                   facility. A basic repair stand should have:
- 496                   ○ Supporting arm to hold a bicycle without causing damage.
  - 497                   ○ Basic tools attached to the stand with tamper-proof hardware.
  - 498                   ○ An air pump attached to the stand with tamper-proof hardware.



499

500 [A self-service bicycle repair station at the Blair's in Silver Spring](#)

501 6 Appendices  
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503 6.1 Bicycle Parking Spaces for Agricultural, Rural Residential, Residential, and Industrial  
 504 Zones

USE or USE GROUP	Metric	Minimum (Maximum)	% Long Term
<b>RESIDENTIAL</b>			
Household Living			
Multi-Unit Living	Dwelling Unit (20+ Units Only)	0.35 (100 max)	95%
Group Living			
Dormitory Independent Living Facility for Seniors or Persons with Disabilities Personal Living Quarters Residential Care Facility	Dwelling Unit (20+ Units Only)	0.25 (50 max)	95%
<b>CIVIC AND INSTITUTIONAL</b>			
Charitable, Philanthropic Institution	5,000 SF of GFA	1.00 (5 max)	85%
Cultural Institution	10,000 SF of GFA	0.50 (10 max)	15%
Day Care Facility			
Group Day Care Day Care Center	5,000 SF of GFA	1.00 (5 max)	85%
Educational Institution (Private)	5,000 SF of GFA	1.00 (50 max)	15%
Hospital	25,000 SF of GFA	1.00 (50 max)	85%
Private Club, Service Organization	10,000 SF of GFA	0.50 (10 max)	15%
Swimming Pool (Community)	5,000 SF of GFA	1.00 (25 max)	15%
<b>COMMERCIAL</b>			
Eating and Drinking			
Restaurant	10,000 SF of GFA	1.00 (10 max)	15%
Lodging			
Hotel, Motel	10 Guest Rooms	--	--
Medical and Dental			
Clinic Medical, Dental Laboratory	5,000 SF of GFA	0.50 (25 max)	85%
Office and Professional			
Life Sciences Office Research and Development	5,000 SF of GFA	0.50 (100 max)	85%
Recreation and Entertainment			
Conference Center Health Clubs and Facilities Recreation and Entertainment Facility	10,000 SF of GFA	0.50 (50 max)	15%
Retail Sales and Service			
Retail/Service Establishment	10,000 SF of GFA	0.75 (50 max)	15%
<b>INDUSTRIAL</b>			
Manufacturing and Production			
Light Manufacturing and Production Medical/Scientific Manufacturing and Production	10,000 SF of GFA	0.50 (15 max)	100%
Transportation			
Bus, Rail Terminal/Station	100 average daily riders	3.5 (100 max)	85%

505

## 6.2 Bicycle Parking Spaces for Commercial / Residential and Employment Zones

USE or USE GROUP	Metric	Minimum (Maximum)	% Long Term
<b>RESIDENTIAL</b>			
Household Living			
Multi-Unit Living	Dwelling Unit (20+ Units Only)	0.50 (100 max)	95%
Group Living			
Dormitory Independent Living Facility for Seniors or Persons with Disabilities Personal Living Quarters Residential Care Facility	Dwelling Unit (20+ Units Only)	0.25 (50 max)	95%
<b>CIVIC AND INSTITUTIONAL</b>			
Charitable, Philanthropic Institution	5,000 SF of GFA	1.00 (5 max)	85%
Cultural Institution	10,000 SF of GFA	1.00 (10 max)	15%
Day Care Facility			
Group Day Care Day Care Center	5,000 SF of GFA	1.00 (5 max)	85%
Educational Institution (Private)	5,000 SF of GFA	1.00 (50 max)	15%
Hospital	25,000 SF of GFA	1.00 (50 max)	85%
Private Club, Service Organization	10,000 SF of GFA	1.00 (10 max)	15%
Swimming Pool (Community)	5,000 SF of GFA	0.50 (25 max)	15%
<b>COMMERCIAL</b>			
Eating and Drinking			
Restaurant	10,000 SF of GFA	1.00 (10 max)	15%
Lodging			
Hotel, Motel	10 Guest Rooms	1.00 (25 max)	100%
Medical and Dental			
Clinic Medical, Dental Laboratory	5,000 SF of GFA	1.00 (25 max)	85%
Office and Professional			
Life Sciences Office Research and Development	5,000 SF of GFA	1.00 (100 max)	85%
Recreation and Entertainment			
Conference Center Health Clubs and Facilities Recreation and Entertainment Facility	10,000 SF of GFA	1.00 (50 max)	15%
Retail Sales and Service			
Retail/Service Establishment	10,000 SF of GFA	1.00 (50 max)	15%
<b>INDUSTRIAL</b>			
Manufacturing and Production			
Light Manufacturing and Production Medical/Scientific Manufacturing and Production	10,000 SF of GFA	1.00 (25 max)	100%
Transportation			
Bus, Rail Terminal/Station	100 average daily riders	7.0 (100 max)	85%

### 508 6.3 Advantages and Disadvantages of Bicycle Lockers

509 While bicycle lockers have some advantages, they also present some specific challenges that make them  
510 less desirable than other types of long-term bicycle parking.





511 The advantages of bicycle lockers include:





- 512 • Flexibility: Bicycle lockers can be used indoors or outdoors, and can be moved to a different  
513 location if demand changes or construction requires a temporary relocation. Bicycle lockers can  
514 be co-located with other bicycle racks to provide short-term and long-term bicycle parking in the  
515 same location.
- 516 • Additional storage: Bicycle lockers allow bicyclists to secure helmets and other bicycling gear  
517 with their bicycle. Bicycles and bicycle gear are protected from the elements.
- 518 • Transit integration: In some cities, bicycle lockers are available on demand and can be paid for  
519 with a transit card. Providing bicycle lockers at transit centers can help reduce demand for  
520 vehicular parking by offering an alternate way to make the first/last mile connections between  
521 transit and users' final destinations.

522 Some of the challenges unique to bicycle lockers are:

- 523 • Security:
  - 524 ○ Bicycle lockers should have built-in locking mechanisms. Lockers that require users to  
525 provide their own locks are less secure as padlocks are easily cut, and the locker remains  
526 unsecured when not in use.
  - 527 ○ Lockers are often disfavored at federal facilities, especially when the contents inside are  
528 not visible. Lockers built with a security window or grate for viewing contents can  
529 increase safety and ensure the locker is being used for bicycle parking.
- 530 • Space efficiency: Bicycle lockers are larger than a standard bicycle parking space and can take up  
531 a considerable amount of space when several are located in the same area.
  - 532 ○ Bicycle lockers with only long-term leasing options are a poor utilization of space when  
533 only one person can rent them, since that person may only use the locker part of the  
534 time. Bicycle lockers with an on-demand rental system – rather than assigning a locker  
535 to a single person – are a more efficient use of space, since they can accommodate  
536 multiple users at different times (i.e., a daytime commuter and a nighttime resident).
  - 537 ○ Although bicycle lockers can sometimes be stacked, this practice is discouraged unless a  
538 ramp is provided to allow users to roll bicycles up to lockers on the second level.
- 539 • Ease of use: Information regarding how to rent a locker for either short-term or long-term use  
540 should be provided on or nearby the locker. The process to rent a locker should be  
541 straightforward and keys or access codes should be provided within a reasonable time frame of  
542 the request.
- 543 • Monitoring utilization: Bicycle locker usage should be monitored in terms of both  
544 appropriateness and frequency. Any lockers being used for non-bicycling related activities  
545 should be cleared out and made available again for bicycling-related use.

546 6.4 Types of Bicycles

Type of Bicycle	Description	Photo	Approximate Dimensions (L x W x H)
Standard bicycle	<ul style="list-style-type: none"> <li>• Designed for a single rider.</li> <li>• May have racks or panniers that add extra width.</li> <li>• Different frame styles and materials.</li> </ul>		72" x 24" x 48"
Recumbent bicycle	<ul style="list-style-type: none"> <li>• Pedals are located in front of rider, rather than below.</li> <li>• Seated position allows the rider's weight to be more evenly distributed over a larger area.</li> <li>• May be difficult to lock using a standard U-lock.</li> </ul>		82" length
Adult tricycle	<ul style="list-style-type: none"> <li>• Have three wheels to provide more stability than a standard bicycle.</li> <li>• Many have racks in the back for carrying cargo.</li> <li>• Wider than a standard bicycle, which may make it difficult to lock using a standard U lock.</li> </ul>		72" x 30" x 48"
Cargo bicycles	<ul style="list-style-type: none"> <li>• Single set of pedals.</li> <li>• May carry goods or children.</li> <li>• May have a compartment in front or rear.</li> <li>• Longer and heavier than a standard bicycle.</li> </ul>		96" x 24" x 43"

Type of Bicycle	Description	Photo	Approximate Dimensions (L x W x H)
Tandem bicycles	<ul style="list-style-type: none"> <li>Designed for two riders with two sets of pedals.</li> <li>Longer and heavier than standard bicycle.</li> </ul>		96" x 24" x 48"
Electric bicycles	<ul style="list-style-type: none"> <li>Designed for a single rider.</li> <li>Battery pack to help conquer inclines. The battery pack may detach or be fixed to the bicycle.</li> <li>May be heavier than a standard bicycle.</li> </ul>		72" x 24" x 48"
Children's bicycles	<ul style="list-style-type: none"> <li>Smaller and lighter than adult bicycles.</li> <li>Frame design may make it difficult to secure with a standard U-lock.</li> </ul>		Balance bike 34" x 18" x 24"
Bicycle Trailers	<ul style="list-style-type: none"> <li>Attaches to the back of a bicycle.</li> <li>May carry goods or children.</li> <li>Makes bicycle longer.</li> </ul>		Cargo Trailer – size varies 27" x 34" x 24"  Child Trailer – size varies 50" x 35" x 33"  Bicycle and trailer 117" length



Type of Bicycle	Description	Photo	Approximate Dimensions (L x W x H)
Trailer bike for children	<ul style="list-style-type: none"> <li>• Attaches to the back of a bicycle.</li> <li>• Has smaller handlebars, seat, pedals and rear wheel.</li> <li>• Makes bicycle longer.</li> </ul>		Adds approximately 36" in length

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548 6.5 Examples of Long Bicycles

<p>Tricycle Approximate Dimensions - 72" x 30" x 48"</p> 	<p>Cargo Bicycle Approximate Dimensions - 96" x 24" x 43"</p> 
<p>Tandem Bicycle Approximate Dimensions - 96" x 24" x 48"</p> 	<p>Recumbent Bicycle Approximate Dimensions – (length) - 82"</p> 
<p>Child Trailer Approximate Dimensions - 50" x 35" x 33"</p> 	<p>Trailer Bicycle Adds approximately 36" in length</p> 

549

## 550 6.6 Additional Resources and Guides

551

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