

# BIKE PARKING GUIDE

**GROUND CONTROL**  
SYSTEMS™  
Bike & Board Parking

The Bicycle Parking Guide offers simple tips and tools to plan out a successful bike parking project.

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# THE BENEFITS OF BICYCLE PARKING

## **CURB APPEAL**

People appreciate attractive facilities, millennials in particular are drawn in by businesses or housing units that offer amenities and support active transportation. Bicycle parking adds appeal to infrastructure.

## **REPUTATION**

Gain positive exposure by staying in tune with the bicycle-friendly movement. Recognition by [The League of American Bicyclists](#) and earning [LEED Credits](#) are a way to bolster your reputation. Investing in bicycle parking and supporting cyclists is great PR.

## **COMMUTER BENEFITS**

Qualified employers and employees can be reimbursed for commuting expenses. The [National Center for Transit Research](#) is a good place to start for employers to support their employees with commuting costs, like providing \$20 a month for cycling, that may be claimed as business expenses.

## **REVENUE**

The [economic impact](#) of cycling and cycling infrastructure has been widely studied, and has proven to not only benefit businesses, but also the entire city. Cyclists spend more money at businesses, save the city money, increase tourism, and sales tax revenue.

## **AMENITIES & LONG-TERM BIKE PARKING**

Bicycle parking can be treated as an amenity, not just a requirement. Apartments and multi-family housing can incorporate [long-term bicycle parking as a benefit](#) for the tenants. [Luxury](#) apartment buildings in particular, include bicycle parking as a feature alongside pools and gyms.

## **REPLACING CAR PARKING**

Bicycle parking is less expensive than car parking, which is better for businesses. City governments worried that transportation revenue will be reduced by replacing car parking will find that bicycle parking makes up for it with increased sales taxes. One shopper in a single car can be replaced by 8-12 shoppers in a single bicycle corral.

## **HEALTH & WELLNESS**

Encouraging cycling amongst employees means happy, productive, healthy employees. Over long periods of time health costs are reduced.

## **ENVIRONMENTAL IMPACT**

Alternative and active transportation can largely reduce vehicle carbon emissions, but it needs the support to get there. Increasing bicycle parking, bike lanes, and other infrastructure by extension will encourage more cycling, which encourages a greener world.

# ORDINANCES

The first item to cross off your to-do-list is checking ordinances and meeting those requirements. Ordinances vary by location and building type, but there are [tools](#) to help get the planning started.

## WHAT ORDINANCES WILL TELL YOU:



The number of bicycles needed to be parked.

## PARKING CLASSES

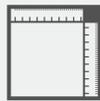
If you need to provide Class 1 bike parking, Class 2, or both.



Misc additional requirements, like location or types of racks.

## WHAT TO LOOK FOR:

Look for these specifications when browsing ordinances to find what applies to your project.



Bikes per square foot minimums, esp. for offices, retail, financial services, restaurants, and more



Bikes per dwelling unit ratios, including student housing or other group housing buildings



Minimum bikes per vehicle parking ratios & percentages



Bikes per employee or guest ratios, esp. for arenas or other large venues

## LONG-TERM PARKING

Class 1 bicycle parking is considered long-term parking and requires shelter from most, if not all, elements. Long-term parking caters to residents, public transit users, employees, or similar riders. Bike lockers, or any bike rack may be used in conjunction with rooms, cages, supervised spaces, or other facilities, as long as weather-protection and security needs are met.

**Density:** If high quantities of bikes need to be parked, two-tier or vertical racks are recommended. Lift-assist racks or on-ground racks may be needed to accommodate elderly, disabled, or non-standard bicycle types.

**Security:** People need to feel comfortable leaving their bicycles for over 2 hours. Not only should racks be U-lock compatible, but the storage facility containing the racks should also be lockable.

## SHORT-TERM PARKING

Short-term parking, or Class 2 bicycle parking, is intended for a couple of hours. Class 2 parking caters to riders visiting businesses, institutions, event centers, or other short-term trips.

**LOCATION:** The right location is necessary for success of short-term parking. High-traffic, well-lit areas that are obvious to a rider and next to building entrances will ensure people are using the bike racks.

**SECURITY:** Bike racks that are made of sturdy materials and U-lock compatible design will help riders secure their bikes in public places. Location is also vital for security; parking should be next to highly visible and well-lit areas.

**USER-FRIENDLY:** Riders will neglect racks that are difficult to use or placed in an inconvenient spot.

# LOCATION

Local ordinances vary in requirements, so it is important to confirm that you have met those specific ordinances when choosing a location. The right location is crucial for successful parking.

## IS YOUR LOCATION A PROBLEM AREA?

Even the best racks will go unused if they are installed in the wrong location. Areas that are hidden, out of sight, or inconvenient will be avoided.

However, if people are leaning bicycles against rails, trees, or buildings, consider placing bike parking there to solve a problem.

## ARE YOU PARKING INDOORS OR OUTDOORS?

If your parking is indoors, visibility is lessened, so proper signage must lead riders to their destination.

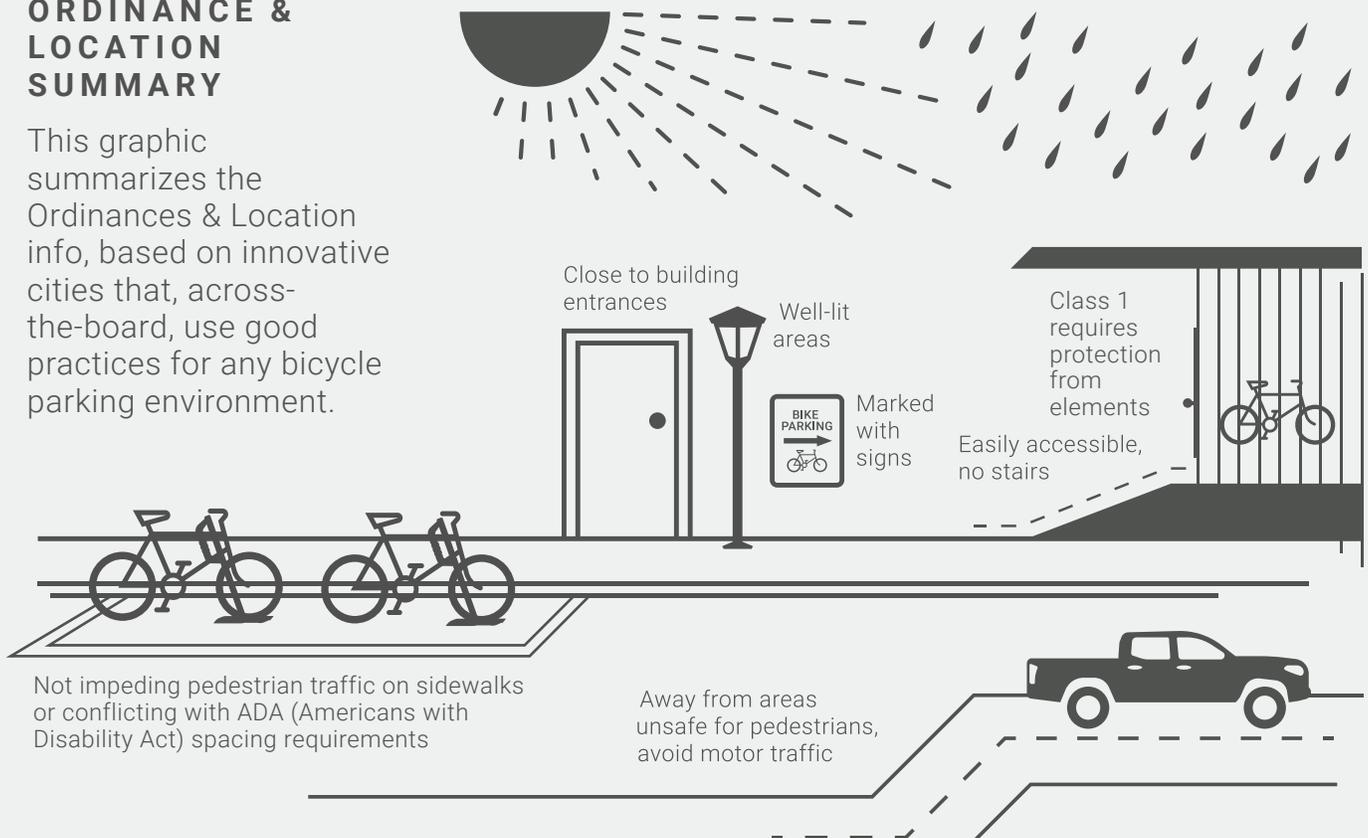
Outdoor parking should be visible and a natural place for riders to park their bikes as they arrive at their destination.

## DOES OUTDOOR SEATING WORK WITH BIKE PARKING?

Yes, and no. If your project has a lot of outdoor seating, like a business front, consider indoor parking. If you must park outdoors, racks cannot interfere with walkways and should be orderly and high-density.

## ORDINANCE & LOCATION SUMMARY

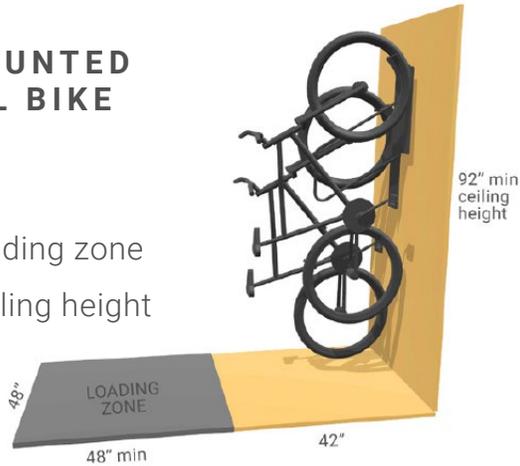
This graphic summarizes the Ordinances & Location info, based on innovative cities that, across-the-board, use good practices for any bicycle parking environment.



# SPACING

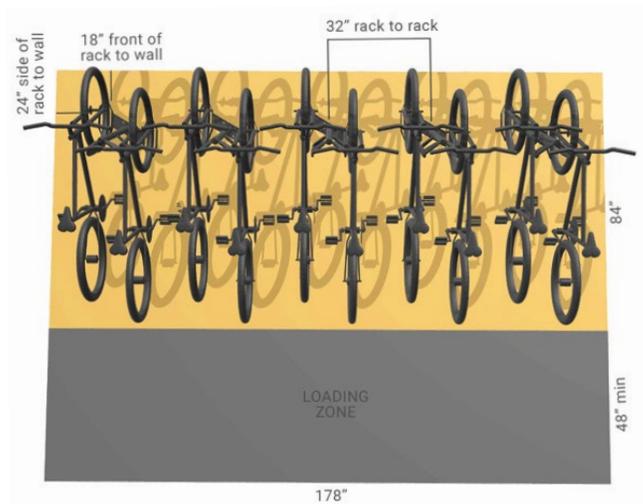
## WALL-MOUNTED VERTICAL BIKE RACK

- 2 bikes
- 48" min loading zone
- 92" min ceiling height



## BIKE DOCK

- 2 bikes
- 48" - 60" loading zone
- 32" rack-to-rack spacing

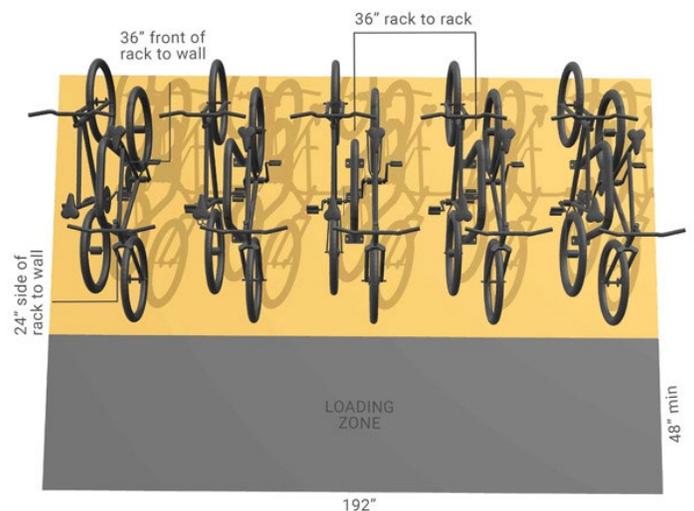


Determine how many bikes per square foot you need, then what type of bike rack suits those spacing requirements. The following spacing dimensions are using average bicycles, more room may be needed for cargo or e-bikes.

## INVERTED-U

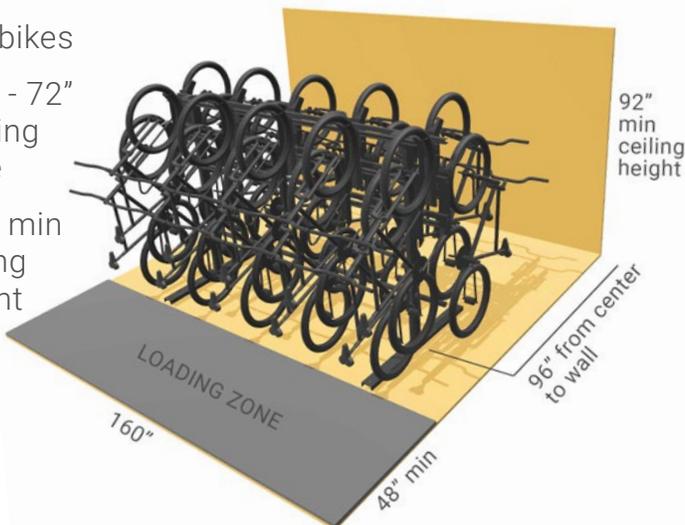
- 2 bikes
- 48" - 60" loading zone
- 36" rack-to-rack spacing

\*Racks without wheel docks leave room for imperfect parking or bikes that slip and fall. Bikes that slip and tip could cause liability issues as well as a bad rider experience.



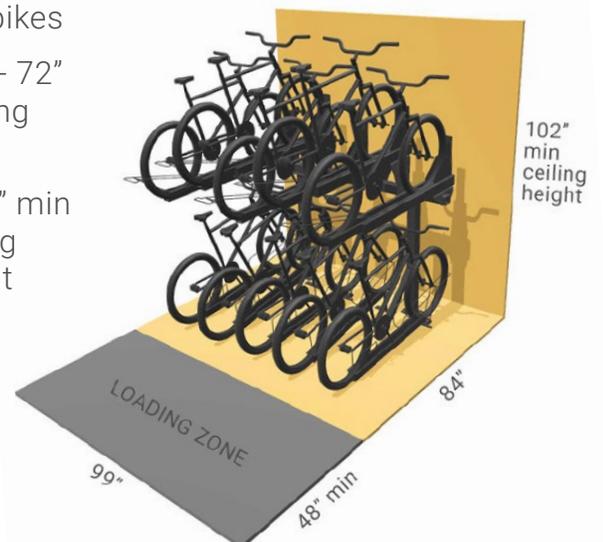
## FREE-STANDING VERTICAL BIKE RACK

- 20 bikes
- 48" - 72" loading zone
- 92" min ceiling height



## TWO-TIERED BIKE RACK

- 10 bikes
- 48" - 72" loading zone
- 102" min ceiling height



# LAYOUTS

## GET YOUR LAYOUT RIGHT, THE FIRST TIME

- For outdoor parking, plan around trees, planters, curbs, benches, or other objects.
- For indoor parking, plan around HVAC ducts, fire hydrants, containers, or other objects.
- Confirm ceiling height is compatible with vertical and two-tier bike racks for indoor parking.
- Cargo bikes, e-bikes, or bikes with trailers may need to be accommodated.

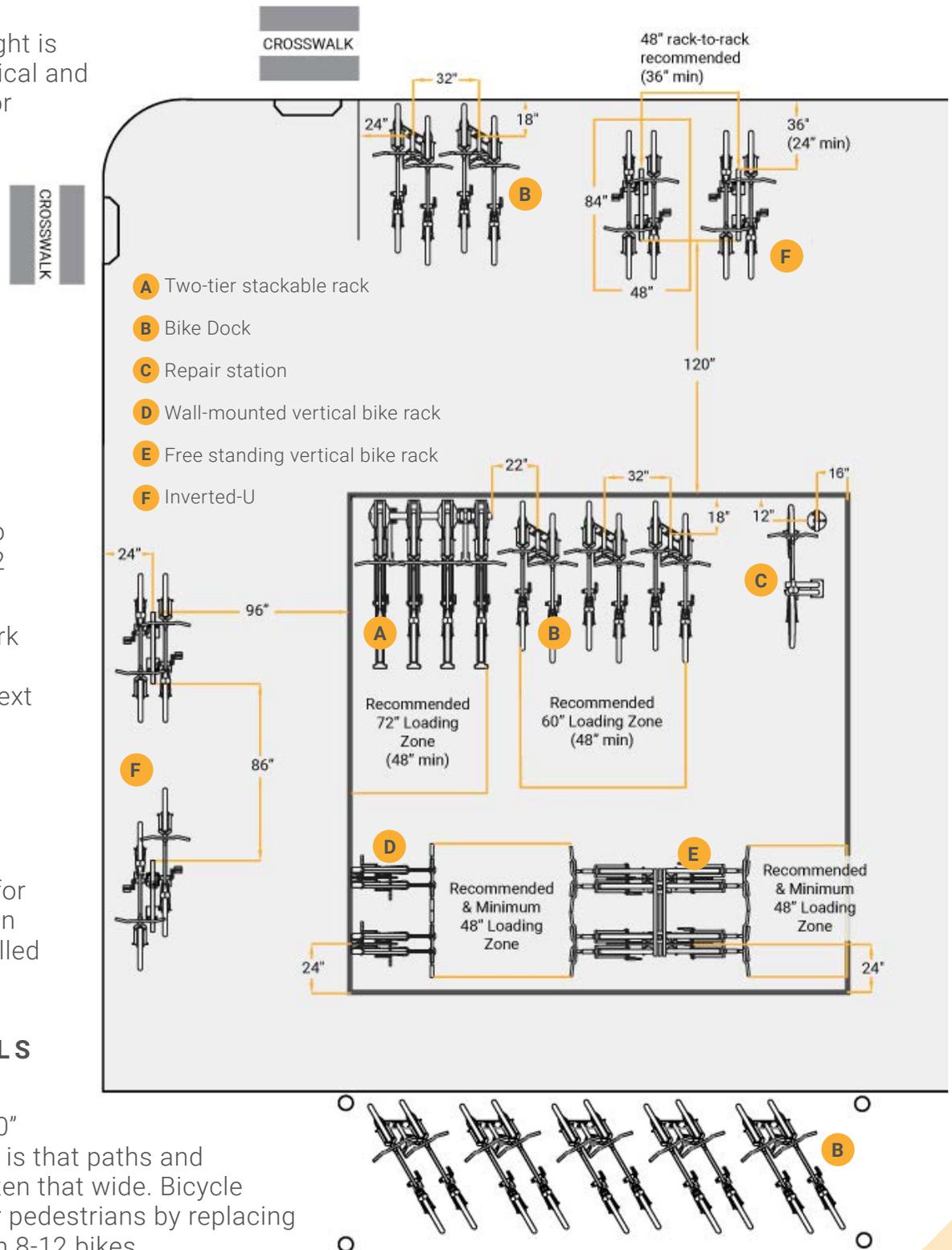
## INVERTED U & POST RACKS

- 24" from the rack to the street will allow 2 bikes to be parked.
- 36" is needed to park 2 bikes if the rack is placed by a wall or next to another rack.
- 72" from rack tip to rack tip is APBP recommended, 86" spacing is often successful account for user parking errors on racks without controlled footprints.

## STREET CORRALS

Although APBP recommends 96"-120" walkways, the reality is that paths and sidewalks are not often that wide. Bicycle corrals give room for pedestrians by replacing on average 1 car with 8-12 bikes.

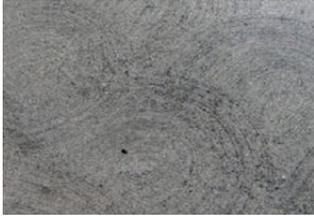
The layout below uses APBP guidelines and practical setbacks for sidewalk and bike room parking. [APBP](#) (Association of Pedestrian and Bicycle Professionals) sets the standard for user friendly layouts that meet many ordinances across the nation.



# SURFACES & MOUNTING OPTIONS

Finding the right location also depends on the surfaces in the environment. Concrete surfaces are great for all racks and installations, but it may not always be available. The information provided here outlines what racks and anchors work with each surface type.

## SURFACES



### CONCRETE

Compatible with all surface mounted racks. Inexpensive and easy to work with.

**INSTALLATION:** Wedge Anchor or Drop-in anchors.



### ASPHALT OR PAVERS OVER CONCRETE

If concrete is underneath, use free-standing or specialty anchor systems.

**USE:** Asphalt Anchor with epoxy.



### PAVERS

Without concrete, use a free-standing surface mounted rack or pour concrete to use an in-ground mount.

**USE:** Rack embedment or additional stingers.



### GRASS OR DIRT

Without a stable base to anchor a rack, use a free-standing surface mounted rack or pour concrete to use an in-ground mount.

**USE:** In-ground stingers

## WALLS



### CONCRETE

Compatible with all wall mounted racks.

**USE:** Strike Anchor or Wedge Anchors.



### BRICK OR BLOCKS

Compatible with all wall mounted racks.

**USE:** Strike anchor.



### WOOD STUDDED WALLS

Properly engineered for cantilever loads. Simple to mount to.

**USE:** Ledger boards need to be used with lag screws.



### STEEL STUDDED WALLS

Properly engineered for cantilever loads. Simple to mount to.

**USE:** Toggle nut style fasteners. Must use a unistrut style rails or ledger boards.

# CHOOSING A BIKE RACK

## DOES YOUR BIKE RACK SERVE ITS PURPOSE?

A bike rack is much more than a bent piece of metal. Racks can serve a purpose beyond a place to park a bike; if chosen carefully, they can significantly benefit a project.

## ARE HIGH-SECURITY RACKS WORTH IT?

Cyclists heavily rely on U-locks to secure their property. U-locks should wrap around the frame of the bicycle, at least one tire, and the bike rack at the same time. If a rack is not U-lock compatible, it may go unused.

In addition, racks with hollow or round tubing are easily cut and should be avoided, so look for square tubing, steel or solid materials.



## WHAT DOES IT MEAN TO BE USER-FRIENDLY?

Bicycle racks that are user-friendly are easy to operate and access. A rack is not user-friendly if bike handlebars are in constant conflict, spacing is difficult to navigate, or the rack may even damage the bicycle (wheel-bending or scraping).

Accommodating all demographics, based on age, ability, or bicycle type, is another part of user-friendly bicycle parking.

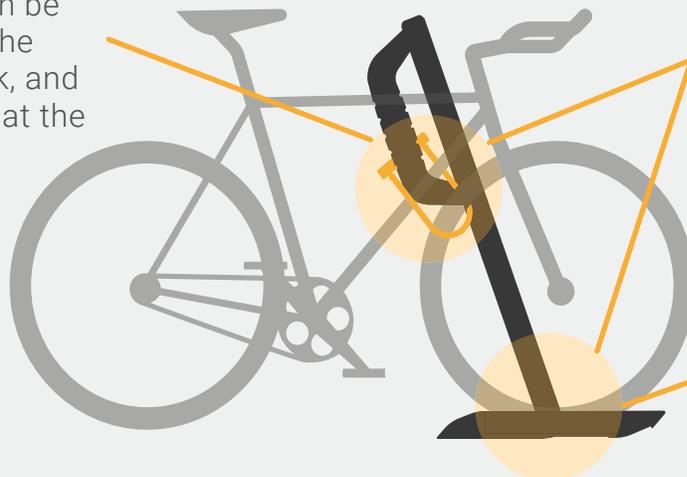
## DO YOU WANT EXTRA CUSTOMERS?

Eye-catching and colorful racks may be the first choice for businesses, thinking the extra style will pull in customers. These racks may look good, but if the purpose is to support cycling customers, they fall short.

Customers value convenience over appearance, so choose functional and recognizable bike racks over fun shaped ones.

## THE BASICS OF GOOD BIKE PARKING

U-locks can be locked to the frame, rack, and one wheel at the same time



At least two points of contact with the bike

Wheel troughs prevent bikes from slipping and tipping

# GOOD RACKS & DOCKS

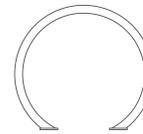


## PREFERRED VS. ACCEPTABLE

Acceptable bike racks have two points of contact and U-lock compatibility. For the best performance, bike docks also have wheel wells.



✓✓ PREFERRED



✓ ACCEPTABLE



✓ ACCEPTABLE

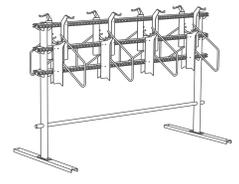
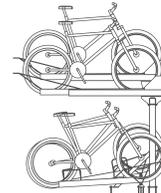
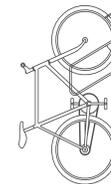


✓ ACCEPTABLE



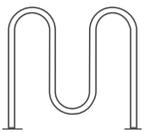
## TWO-TIERED & VERTICAL

These racks are optimal for high-density parking, often used in long-term storage when high quantity parking is important.

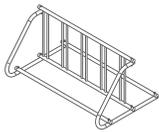


# BAD RACKS

These racks have a “bad” label from their long history of damaging bikes, being low-security, and generally difficult to use.



⊘ AVOID



⊘ AVOID



# MATERIALS & FINISHES

## WHAT TO LOOK FOR

### AVOID RUST & CORROSION

Hollow racks with a closed base often build moisture internally and rust from the inside-out, reducing the lifespan of the product.

Look for racks with an open-design, that not only drain moisture, but allow the interior to be coated with a protective finish to prevent corrosion.

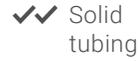
### WHAT'S BEST FOR THE BIKE?

Metal bike racks can scrape, dent, or chip bicycle frames.

Look for products that have protective guards around lockable loops to prevent metal-to-metal contact.

If the product doesn't have the loops, thermoplastic finishes are more bicycle-friendly than galvanized or steel.

### PREVENTING THEFT



✓ Solid tubing

Square tubing is more difficult to cut than round, but solid materials will be the most theft-resistant.



✓ Square tubing

Docks, post, and ring racks have lockable loops to lean bikes against. Look for solid steel loops for highest security.



⊘ Round tubing

## FINISHES



### THERMOPLASTIC

- Highest rating in marine or snowy landscapes, helps prevent rust for long periods of time.

- Withstands direct impact and damage from elements.

- Typically available in black or silver.

**STANDARD WARRANTY:** 20 years



### HOT-DIPPED GALVANIZED

- Abrasion-resistant, durable finish.

- Low maintenance, rarely requires touch-ups.

- Slightly rough texture.

- Common in environments with harsh conditions.

**STANDARD WARRANTY:** 10 years



### STAINLESS STEEL

- Extremely durable, long lifespan, low-maintenance.

- May have smooth or mirror shine finish.

- More expensive than other finishes.

- Most resistant to cutting.

**STANDARD WARRANTY:** 20 years



### POWDER COAT

- Comes in many different colors.

- Inexpensive finish.

- Low durability, chips and peels to expose metal.

- Needs regular maintenance.

**STANDARD WARRANTY:** 1 year

# FUNDING OPTIONS

Funding opportunities are available in every city, from local to state government benefits, to clubs or nation-wide organizations. Use the following information for ideas and resources for funding your own project!

## **PUBLIC FUNDING**

Work with your local bike advocates to win public funding for bike parking. Many states and cities will pay for bike parking out of their transportation budget, but only in response to public demand. Your local advocacy organization can create that demand by emphasizing bicycling's high value for the public tax dollar. [Find an advocacy organization near you](#) to begin a public funding strategy. Use [best practices and examples](#) of funding and advocacy campaigns for inspiration.

## **ANCILLARY REVENUE**

Bicycle parking can pay for itself! Compared to car parking, bicycle parking is cheap and will create more business revenue over time.

Each city and project is different, so additional ancillary revenue methods may not always apply or be appropriate for the situation. For example, if car parking is free, bicycle parking should be free; so other methods generating ancillary revenue could benefit your project.

Some facilities have successfully increased revenue by creating valet parking, absorbing the costs of parking into rent, or adding storage fees. Bike sharing may be another way to add parking, but also increase revenue.

## **DONORS, BRANDING, & SPONSORSHIP**

Use donations, like San Luis Obispo's [Racks with Plaques program](#), to fund bicycle parking. With custom messaging opportunities, a rack can display a company brand or sponsor for additional revenue.

## **GRANTS**

Organizations such as People for Bikes offers [grant opportunities](#) for businesses or that focus on bicycling and active transportation development.

# RESOURCES

## Helpful Organizations

Association of Pedestrian and Bicycle Professionals  
<http://www.apbp.org/>  
[http://c.ymcdn.com/sites/www.apbp.org/resource/resmgr/Bicycle\\_Parking/EssentialsofBikeParking\\_FINA.pdf](http://c.ymcdn.com/sites/www.apbp.org/resource/resmgr/Bicycle_Parking/EssentialsofBikeParking_FINA.pdf)

People for Bikes  
<http://www.peopleforbikes.org/>

The League of American Bicyclists  
<http://www.bikeleague.org/>

Leadership in Energy and Environmental Design  
<http://www.usgbc.org/leed>

Municode  
<https://www.municode.com/library/>

## Benefits Of Bicycle Parking Links

<http://www.bikeleague.org/bfa>

<http://www.usgbc.org/leed>

<https://www.nctr.usf.edu/programs/clearinghouse/commutebenefits/>

[https://www.nytimes.com/2016/05/08/realestate/catering-to-new-yorkers-with-bike-rooms.html?\\_r=0](https://www.nytimes.com/2016/05/08/realestate/catering-to-new-yorkers-with-bike-rooms.html?_r=0)

<http://www.marketwatch.com/story/for-luxury-apartment-buildings-bike-rooms-become-a-must-have-amenity-2016-09-15>

[http://www.advocacyadvance.org/site\\_images/content/Final\\_Econ\\_Update%28small%29.pdf](http://www.advocacyadvance.org/site_images/content/Final_Econ_Update%28small%29.pdf)

## Choosing A Bike Rack

| <https://www.groundcontrolsystems.com/resources/tools-assets/how-to-choose-a-bike-rack/>

## Funding Links

<https://drive.google.com/file/d/0Bwim4iZE7J1RRUFuWGFvU2tIWEE/view>

[https://en.wikipedia.org/wiki/List\\_of\\_United\\_States\\_bicycle\\_advocacy\\_organizations#California](https://en.wikipedia.org/wiki/List_of_United_States_bicycle_advocacy_organizations#California)

<http://www.slocity.org/government/department-directory/public-works/programs-and-services/bicycling/racks-with-plaques>

<http://www.peopleforbikes.org/pages/grant-guidelines>

<http://www.pedbikeinfo.org/planning/funding.cfm>

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