CAMPUS BIKE PARKING
BEST PRACTICES, TIPS & DISCUSSION

BENEFITS
CASE STUDIES
BIKE PARKING 101
FUNDING

GROUND CONTROL SYSTEMS
Innovative Bike & Board Parking
BENEFITS of bicycle parking

1. Economic
2. Health & Wellness
3. The Future is Green
ECONOMIC BENEFITS

Cost per car spot 30x to 300x more to develop and maintain

10-12 bikes, on average, can replace a single car.

*Bikenomics, Elly Blue (2016)*
HEALTH & WELLNESS

- Improves posture/balance
- Lowers blood pressure
- Increases energy/focus
- Increases flexibility and muscle strength
- Lowers stress levels
- Reduces the risk of:
  - Depression
  - Heart disease
  - Obesity
  - Adult-onset diabetes
  - Osteoporosis
THE FUTURE IS GREEN

LEED RECOGNIZES
201,000
CAMPUS AND BUSINESSES INTEGRATING GREEN PRACTICES

HIGHER ED INSTITUTIONS
93
SIGNED CLIMATE COMMITMENT

AASHE TOOL
809
INSTITUTIONS REGISTERED FOR SUSTAINABILITY IMPROVEMENTS

THE LEAGUE RECOGNIZES
182
BRONZE TO PLATINUM BICYCLE FRIENDLY UNIVERSITIES
You need bike parking...but how much?
Even the best racks go unused if they are installed in the wrong location. Areas that are hidden, out of sight, or inconvenient should be avoided.

However, if people are leaning bicycles against rails, trees, or buildings, consider placing bike parking at those locations.
LOCATION

PARKING INDOORS OR OUTDOORS?

IS YOUR LOCATION IN A PROBLEM AREA?

OUTDOOR SEATING AND BIKE PARKING?

- Close to building entrances
- Well-lit areas
- Marked with signs
- Easily accessible, no stairs
- Class 1 requires protection from elements

- Not impeding pedestrian traffic on sidewalks or conflicting with ADA (Americans with Disability Act) spacing requirements
- Away from areas unsafe for pedestrians, avoid motor traffic

9.
LAYOUTS

MAX DENSITY
- Highest density bikes per square foot
- Highest value layout
- Some lifting required, may not accommodate all riders

RIDER FRIENDLY
- Follows APBP guidelines
- Easier to use bicycle docks
- No bike-on-bike conflict
- Greatest user satisfaction
- Lower density bikes per square foot

BALANCED
- Accommodates all cyclists
- Follows APBP guidelines with on-ground parking
- May use a combo of two-tier racks, docks, and vertical racks
MAX DENSITY

Highest density bikes per square foot

Highest value layout

Some lifting required, may not accommodate all riders
MAX DENSITY - 20 x 20

MAX DENSITY
40 Bikes = $10000*

Products used:
• Double Docker™
• Security Camera

Pros:
• Ultra high-density
• Highest value per bike

Cons:
• More difficult to park bicycles
• Less rider friendly

*Prices listed are reflective of a typical industry price range. Pricing varies depending on products used, room size, and installation materials. If pricing is the most important factor in your bike room, contact Ground Control Systems for an Economy option.
RIDER FRIENDLY - 20 x 20

RIDER FRIENDLY
18 Bikes = $3080*

Products used:
- Varsity® Bike Dock
- Repair Station
- Security Camera

Pros:
- Easy to park bicycles
- Bicycles are spaced comfortably
- Highest user satisfaction

Cons:
- Low-density
- Higher cost per bike
BALANCED - 20 x 20

BALANCED
22 Bikes = $3505*

Products used:
• Offset™ Vertical Bike Rack
• Varsity® Bike Dock
• Security Camera

Pros:
• High-density
• Rider friendly

Cons:
• Less bikes per square foot than Max Density layouts
INSTALLATION

Typical Installation Sample Setbacks Using APBP* guidelines

SURFACES

CONCRETE
Compatible with all surface mounted rails. Inexpensive and easy to work with.
INSTALLATION:
Wedge Anchor or Drop-in anchors

ASPHALT OR PAVEMENT
If concrete is underlaid, use free-standing or specially
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: Rock embedment or additional stingers

GRASS OR DIRT
Without a stable base to anchor a rack, use a freestanding surface mounted rack or pour
concrete to use an in-ground mount.
USE: In-ground stingers

WALLS

CONCRETE
Compatible with all wall mounted rails.
USE: Strike Anchor or Wedge Anchors

BRICK OR BLOCKS
Compatible with all wall mounted rails.
USE: Strike anchor

STEEL STUDED WALLS
Properly engineered for cantilever loads.
USE: Toggle nut style fasteners. Must use a unistrut style rails or ledger boards.

WOOD STUDED WALLS
Properly engineered for cantilever loads.
USE: Ledger boards need to be used with lag screws.
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

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

FREE-STANDING VERTICAL BIKE RACK
- 20 bikes
- 48" - 72" loading zone
- 62" min ceiling height

TWO-TIERED BIKE RACK
- 10 bikes
- 48" - 72" loading zone
- 102" min ceiling height
Educational bicycle and board parking has more funding opportunities than many realize. Here are some examples and resources to help you get started.
The BIIC at Georgia Tech received $26,146 from its SGA for its proposal to add bike racks and lines to several areas of campus.
University of Illinois at Urbana-Champaign was awarded $225k from the SSC for bicycle parking. The campus is now recognized as Bronze level by The League of American Bicyclists.
Virginia Tech installed more than 250 bike parking spaces, total $42k in funding from the Green RFP program and the Bike, Bus, and Walk program.
The Platinum ranked University of Minnesota Twin Cities uses income from vehicle parking permits to entirely fund their alternative transportation program.
The Massachusetts Institute of Technology used a private donation to fund bicycle upgrades and facilities on campus.
Ground Control Systems offers discounts on high quantity purchases as well as University wholesale prices.
BIKE PARKING 101
Not all bike parking is created equal.

1 Parking Classes
2 Good vs Bad
3 Materials & Finishes
PARKING CLASSES

Class One

Class Two
Class 1 Bike Parking

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.
CLASS TWO BIKE PARKING

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.
GOOD VS BAD

GOOD

ARE HIGH-SECURITY RACKS WORTH IT?
Cyclists heavily rely on U-locks to secure their property. U-locks should secure the bike frame, one tire, and the bike rack simultaneously. Bike racks that are not U-lock compatible may go unused.

BAD

Racks with hollow or round tubing are easily cut and should be avoided; choose square tubing, steel or solid materials.

WHAT IT MEANS TO BE RIDER-FRIENDLY?
Bicycle racks that are rider-friendly are easy to operate and access. A rack is not rider-friendly if handlebars are in constant conflict, spacing is difficult to navigate, or the rack damages the bicycle with bending or scraping.

DO YOU WANT MORE VISITORS?
Many businesses think custom, colorful racks will pull in more customers. These racks may look good, but if the purpose is to support cycling customers, they fall short.

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

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

- 3 Point Locking
- Footprint
- Two-Tier
BAD RACKS

**CONTROLLED FOOTPRINT**
Racks often take up significantly more space than advertised with uncontrolled parking that isn't intuitive or organized.
The Varsity® keeps bicycles in a compact, controlled area.

**ORDERLY PARKING**
Without index points for docking and handlebar spacing, some racks create a difficult experience.
Although certain parking designs may be attractive, they are not necessarily functional.

**SECURE LOCKING**
The inability to properly lock bicycles to a rack opens up the possibility for theft.
When choosing a rack, make sure the frame of a bicycle, the wheel, and the rack can all be secured with a U-lock.

**DAMAGE PROTECTION**
Besides slipping and tipping, other racks inflict metal to metal contact, which shorten the life of the rack and bike.
Provide more than just a bent piece of metal for riders that will stand the test of time.

**LASTING FINISH**
Many racks' materials and coatings cannot withstand damage from the elements.
The state-of-the-art DuraPlas® coating was tested in rigorous conditions and is backed by a 20 year warranty.
Even in an ideal scenario, the overlap is so high that using this rack would be extremely frustrating and difficult to use for an average user.

Multiple bike sizes and conflict between handlebars and pedals means sliding racks are rarely as efficient as they are advertised.
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
Square tubing is more difficult to cut than round, but solid materials will be the most theft-resistant.
Docks, post, and ring racks have lockable loops to lean bikes solid steel loops for highest security.

FINISHES

THERMOPLASTIC
- Highest rating in marine or snowy landscapes, helps prevents rust for long periods of time.
- Withstands direct impact and damage from elements.
- Typically available in black or silver.
STANDARD WARRANTY: 20 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

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

POWDER COAT
- Comes in many different colors.
- Inexpensive finish.
- Low durability, chips and peels to expose metal.
- Needs regular maintenance.
STANDARD WARRANTY: 1 year