

Bicycle Parking Design Guidelines

Whether you are required to install bicycle parking, or are volunteering to do so, these guidelines are intended to make sure bicycle parking works for everyone. Effective bicycle parking essentially requires a good rack placed in the right location; these guidelines should provide enough information to help you plan for effective bicycle parking, for both long and short term use.

Why is Bicycle Parking Important?

The provision of convenient and secure bicycle parking is essential to cyclistsⁱ. When good bicycle parking is provided as part of bicycle infrastructure in a community, it makes bicycle use more convenient and attractive, thereby helping to encourage the use of bicycles as a means of transportationⁱⁱ. Transition from automobile transportation to active modes of transportation, such as cycling, results in increased transportation sustainability, and has personal and community-wide health, environmental, and economic benefits.

According to the 2011 Census, 3.8% of Nelsonites bicycle to work. This is significantly more than the provincial average of 2.1%ⁱⁱⁱ. This higher-than-average use of bicycles to commute indicates a need for bicycle facilities. It also shows that bicycling is a viable form of transportation in Nelson, and that there is the potential to increase the mode share of travel by bicycle. One way to help people choose to cycle more *and* more often is to provide facilities such as excellent bicycle parking.

Furthermore, encouragement of active transportation, including cycling, is supported by City of Nelson guidance documents such as the:

- *City of Nelson Active Transportation Plan, 2010;*
- *Path to 2040 Sustainability Strategy, 2010;*
- *Low Carbon Path to 2040: Community Energy and Emission Action Plan, 2011;*
- *Sustainable Waterfront & Downtown Master Plan, 2011; and*
- *City of Nelson Official Community Plan, 2013.*

Percentage of Work Commutes by Bicycle – Selected BC Communities
Victoria: 10.6%
Vancouver: 4.4%
Nelson: 3.8%
Kelowna: 3.5%
Squamish: 3.5%
Castlegar: 1.1%
Salmon Arm: 1.1%
(Statistics Canada, 2013)

Types of Bicycle Parking

Two types of bicycle parking are useful for cyclists, and both are required for most developments.

1. LONG TERM BICYCLE PARKING means a secure, weather protected bicycle parking facility used to accommodate long term parking, such as for residents or employees.
2. SHORT TERM BICYCLE PARKING means a short term visitor bicycle parking facility that offers some security and may be partially protected from the weather.

Provision of more and better bicycle parking in Nelson is part of several broader strategies aimed at working toward increased transportation sustainability for the benefit of individuals and the community at-large. Providing bicycle parking is a relatively straightforward and inexpensive way to move forward with these strategies.



When not enough parking is provided, bicycles are often locked to street furniture, trees, and other infrastructure, which can lead to damage, theft, and can inconvenience pedestrians.

Location

Long Term Bicycle Parking

Employees who commute by bicycle require bicycle parking for the duration of the work day. For this reason, long term bicycle parking is useful at any place where people are employed. Long term bicycle parking is also needed in multi-family residential buildings, where space restrictions or difficulty moving bicycles to homes above ground level may pose challenges for cyclists and potential cyclists.

All long term bicycle parking should be:

1. Located within 30 to 50 m of the destination it serves;
2. Located either indoors or outdoors in an easily accessible, weather-protected area;
3. Located at grade, or accessible without the use of stairs or an elevator; and
4. If not in a highly visible location, then marked with signage directing cyclists to the parking facility.

Long term bicycle parking is often provided in some type of enclosure. Enclosures can be located in existing structures, such as in room or a parking garage, or in purpose-built structures. As an alternative to enclosures fitted with bicycle racks, secure lockers designed to accommodate one bicycle each can be used.

At place of employment, long term bicycle parking often features complementary infrastructure such as change rooms and showers for men and women, outlets for charging electric bicycles, and lockers for storage of bicycle helmets and other gear. These types of facilities are encouraged in Nelson, as they help to make bicycle commuting a viable option for more people.



Bicycle locker at The University of British Columbia (left) and secure bicycle room in a residential building (right).

Short Term Bicycle Parking

Short term bicycle parking is needed at places that people visit for shorter duration, for example at shops and restaurants, service centres, parks and attractions, and transit facilities.

All short term bicycle parking should be:

1. Located in a convenient, well-lit, and highly visible location that is accessible by visitors;
2. Separated from car parking by a physical barrier or sufficient space; and
3. Located so as not to interfere with pedestrians; and
4. Located along a principal line of approach to a building, not more than 15 metres from a building entrance.



'Post and ring' bicycle rack in Portland, Oregon (left); 'staple' bicycle rack in Vancouver, BC (middle); and artistic bicycle rack in Toronto, Ontario (right)

(Image Sources: Corey Templeton (left), David Niddrie (middle), Copyright © 2010-2013 Occasional Toronto (right))

Sidewalk Bicycle Racks

In areas where buildings are set close to sidewalks, bicycle racks should be placed in the public right-of-way. Where sidewalks are greater than 3.0 m wide and there is sufficient space between street trees, utility poles, and street furniture, bicycle racks can be located on the sidewalk in the furnishing area, or

on bulb-outs or curb extensions. So as not to impede pedestrian traffic flow, bicycle racks located on sidewalks should be oriented so that bicycles are positioned parallel to the curb.

On-Street Corrals

Where sidewalks are narrower than 3.0 m, or there is not sufficient space for a bicycle rack, short term bicycle parking can be created in the curbside lane, replacing one or more parallel or angled vehicle parking spaces. This type of on-street bicycle parking is known as a 'bike corral'. When converted to a bike corral, each vehicle parking space can typically be replaced with 6-10 bicycle parking spaces. Use of bike corrals leaves more room for pedestrians and street furniture. Because bicycle parking does not block sightlines to the extent that motor vehicles do, bike corrals can sometimes be located closer to intersections and crosswalks than is possible for vehicle parking. When bike corrals are located adjacent to cafes with outdoor patios, they have the added advantage of creating a buffer between motor vehicles and patio users.

Physical barriers such as curbs, fences, or bollards should be installed around bike corrals in order to protect cyclists and their bicycles from motor vehicles. Responsibility for maintenance of bike corrals, including street sweeping and snow removal, should also be established before installation.



Bike corrals in New York, NY (left) and Victoria, BC (right)
(Image Sources: NY Department of Transportation (left), John Luton (right))

Bicycle Racks on Private Property

In areas where buildings are set back from sidewalks, bicycle parking should be located on private property rather than in the public right-of-way. Bicycle parking on private property should be located so as to meet all four conditions for short term bicycle parking listed above. Permission of property owners must always be obtained prior to installing bicycle parking on private property.

Bicycle Racks on City Property

Installation of bicycle parking on City-owned property is encouraged but requires prior approval from the City of Nelson.

Spaces & Racks

Bicycle parking spaces have to be adequately sized to fit standard bicycles and positioned to allow for easy maneuvering that does not result in damage to bicycles. When bicycle parking spaces are well-

designed, they allow for greater bicycle use capacity, which means greater efficiency of bicycle parking and reduced cost-per-space of this infrastructure.

In order to accommodate most standard bicycles, bicycle parking spaces should be at least:

- 0.6 m wide,
- 1.8 m long, and
- 2.0 m high

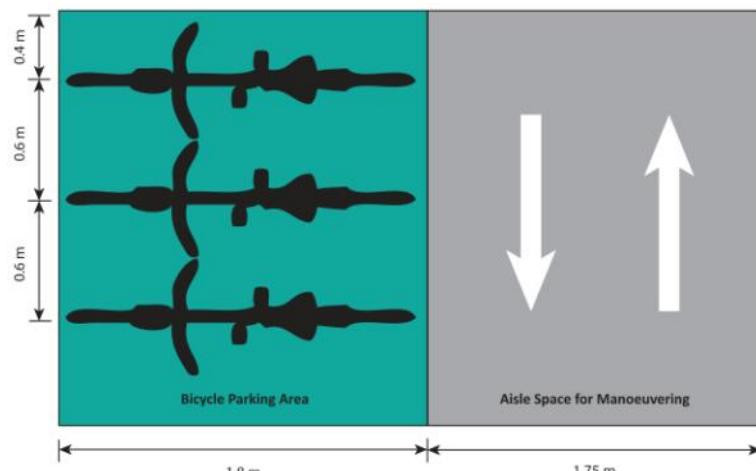
Bicycle racks are located within bicycle parking spaces in order to support bicycles and provide a way to secure them with a lock. There is a wide range of possible options for bicycle racks, but there are standards that every bicycle rack should meet regardless of its design.

All bicycle racks should:

1. **Support the bicycle in at least two places, to prevent it from falling over;**
2. **Allow locking of the frame and one or both wheels with a U-style lock;**
3. **Be securely anchored to the ground, floor, or building;**
4. **Be resistant to cutting, rusting, bending, and deformation; and**
5. **Provide easily accessible bicycle parking spaces that do not require moving another bicycle for access or maneuvering.**

It is common to see bicycle racks that have been placed too close to walls or other objects, which can restrict access to the rack, or without adequate space between a series of racks, which prevents access during times of heavy use. In order to avoid these inefficiencies, for all racks that hold more than two bicycles, at least 1.75 m should be provided as aisle space between bicycle racks, and the minimum of 1.8 m in length should be provided for each space that a bicycle might park in, plus adequate manoeuvering space so that bicycles can get in and out of each parking space.

Many configurations for bicycle parking are possible, including those in which bicycles partially overlap. When overlapping configurations are used, space between bicycles can sometimes be reduced, so long as the ability to easily maneuver bicycles into and out of spaces is maintained.



Bicycle Rack Examples

Not ideal:



- Racks are too close to the wall, so there is insufficient space to park and lock a bicycle.
- Racks are also too close together to accommodate a bicycle on each side, meaning that the racks cannot be used to their max.
- If set back farther from the wall and better spaced, this common design would be a good choice for a rack.



- 'Wheel bender' style racks do not support the bicycle by the frame, leaving it vulnerable to falling over.
- Difficult to lock the bicycle, and impossible to lock it with a U-style lock.



- This variation of the 'wheel bender', while somewhat easier to lock a bicycle to, does not support the bicycle by the frame, leaving it vulnerable to falling over.

Better:



- The 'coat hanger' style of bicycle rack is a good choice, but in both these cases it is underutilized because one side is inaccessible.

Best:



- Bicycle is supported by the frame.
- A U-style lock can be used.
- The rack is anchored to the ground.
- Both sides of the rack are accessible, maximizing utility.
- There is plenty of room to maneuver bicycles into and out of the rack.



- All of the good attributes listed above, plus located out of the path of pedestrians, parallel to the street.
- Each of these 'staple' racks is spaced sufficiently far from the others to accommodate two bicycles.

Art Racks

Attractive bicycle parking infrastructure can be created to double as public art. Non-standard bicycle racks are used in many places to enhance community image as well as convey a bicycle-positive message that helps to encourage more people to choose to ride their bikes. There are endless ways to create interesting and beautiful bicycle parking that conforms to these guidelines, a few examples are pictured below.



Image Sources:

<http://www.columbusalive.com/content/blogs/thelatest/2013/07/bike-racks-as-public-art-yes-please.html> (left)
<http://www.thisiscolossal.com/2011/11/a-paperclip-bike-rack/> (right)

ⁱ Pucher, J., & Buehler, R. (2008). Making cycling irresistible: Lessons from the Netherlands, Denmark and Germany. *Transport Reviews*, 28(4), 495-528. doi:10.1080/01441640701806612

ⁱⁱ Transport Canada. (2010). Bicycle End-of-Trip Facilities, A guide for Canadian municipalities and employers. Ottawa: Public Works and Government Services Canada.

ⁱⁱⁱ Statistics Canada. (2013). British Columbia (Code 59) (table). National Household Survey (NHS) Profile. 2011 National Household Survey. Statistics Canada Catalogue no. 99-004-XWE. Ottawa. Released June 26, 2013.