Bike Parking

What is it?

The provision of bicycle parking at key destinations (commercial, transit stations, employment centers) can vastly improve the convenience and reliability of bicycling as a travel mode. Bicycle parking includes both short-term and long-term bicycle parking solutions. Some examples include:

- Staple racks (for short-term parking on the sidewalk)
- Bicycle corrals (for short-term parking adjacent to commercial destinations with high demand)
- Bicycle lockers (for long-term parking at transit stations)
- High capacity secure bike locker facilities (at transit stations and/or commercial buildings with high demand)

Bicycle parking can also serve as an important first-mile / last-mile solution for accessing transit stations, similar to the role of bikesharing. The provision of bicycle parking at transit stations helps expand the catchment area of transit stations well beyond the range of walking, and comes at a lower cost than providing neighborhood feeder buses and park and ride facilities for cars.④

Bicycle parking requirements are also becoming more commonplace in cities across North America as a strategy to increase public bike parking supply. Requirements range from requiring a certain amount of bicycle parking in relation to car parking or requiring a minimum number of spaces per residential unit or square feet of commercial space. Some cities also include requirements or incentives to provide lockers and showers at workplaces. ⑤ These provisions help reduce barriers to using bicycles for commuting and other utilitarian trip purposes.

①Photo courtesy of CH2M HILL.
②Photo courtesy of CH2M HILL.
③Photo courtesy of CH2M HILL.
What are the benefits?

- **Accessibility:** Increases bicycle mode share by enhancing bicycle access to key destinations.
- **Environmental:** Reduces the emission of criteria air pollutants and greenhouse gas emissions (GHGs) that are harmful to the environment and human health by encouraging shifts to more sustainable transportation modes.
- **Quality of Life:** Facilitates the use of active transportation modes, which can increase physical activity and enhance health and quality of life.
- **Economic Vitality:** Increases total local parking capacity, which may translate into enhanced visibility and higher revenues for adjacent businesses.

Where is it being used?

Bike parking facilities and programs are used throughout the U.S. and internationally. Relevant examples in the Pacific Northwest include:

- **On-Street Bicycle Corral Parking Program**, Portland, OR
- **TriMet Bike & Ride**, Beaverton and Gresham, OR
- **Bike Parking Program**, Seattle, WA
- **Go By Bike Valet**, Oregon Health and Sciences University, Portland, OR
- **Bikestation**, Hillsboro, OR

How effective is it?

While quantitative empirical data on the general effectiveness of bicycle parking at inducing mode shift and reducing vehicle miles traveled (VMT) is limited, the following findings provide some insight as to the importance of bicycle parking at workplaces, transit stations, and businesses.

**Bike Parking at Workplaces**

- When four “Bike Central” locations were created in downtown Portland offering showers, changing facilities, and bicycle storage for a modest fee, before and after studies conducted in 1998 and 2001 found that users of the service increased their average frequency of commuting by bicycle from 3.1 to 15.5 days per month, while reducing their rates of driving and transit usage. First year estimates were 14,600 bicycle trips generated and 46,400 VMT, 23 tons of carbon monoxide, and 360 pounds of hydrocarbons reduced.  

- A stated preference study in Edmonton, Alberta, in 2007 found that the provision of secure parking at trip destinations was equivalent in benefit to avoiding 26.5 minutes of en route mixed-traffic cycling time. The effect was found to be larger for younger cyclists and less so for older groups.

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6 In this summary, the best available data on program effectiveness is used. Whenever possible, information is provided for the referenced examples; however, that was not always available.
A 2007 study in the UK examined the effects of different degrees of workplace bike parking and facilities provision on bike commute shares. With a base work trip bicycle mode share of 5.8%, the study estimated that bike share would increase to 6.3% with outdoor parking, 6.6% with secure indoor parking, and 7.1% with all of that and the addition of showers.10

Bike Parking at Transit Stations

A national walking and bicycling study estimated that, for the circa 1990 vehicle mix, 150 gallons of gasoline per year are saved for each park-and-ride commuter attracted to bike-and-ride. In the case of commuters previously using an automobile for the entire trip, the corresponding savings is an average of 400 gallons per commuter diverted to bike-and-ride.11

Secured bicycle parking was found to be the most cost-effective solution for reducing hydrocarbon emissions when accessing transit in Chicago because most drive-to-transit trips are relatively short and include higher than average pollutant emissions per mile. The study of bike-and-ride effects on emissions in Chicago found that increasing the capacity in nine Metra stations to 457 bicycles total led to an increase of 222 bicycles parked at the stations within a month, reducing VMT by an estimated 1,739 miles per day.12

A Transit Bike Depot in Colorado was found to reduce combined air emissions (volatile organic compounds [VOC], carbon monoxide [CO], and nitrogen oxides [NOx]) by 8.5 kilograms (kg)/day.13

A stated preference experiment focusing on transit access identified bike lockers as a significant incentive to “bike and ride” instead of driving to transit or all the way. Lockable covered parking was 40% as effective. Relative to bike lanes, lockers were 3 times more important for frequent cyclists, but slightly less important for infrequent cyclists.14

Bike Parking at Businesses

The provision of bicycle facilities in commercial districts can be beneficial for local businesses, especially destinations that experience high bicycle mode share. Case studies and examples of effectiveness are provided below.

Portland’s on-street bicycle corral program allows local businesses to request the City to install bicycle parking in the space that one or two automobiles might otherwise occupy, increasing the person capacity of curbside parking by up to 1,200%. Over 85 corrals have been installed throughout the city, and there is presently a long waiting list of businesses that would like one installed.15

In Portland, a study looking at the relationship between consumer habits and mode choice found that for certain establishments (bars, convenience stores, and restaurants), those who arrived by bicycle were on average spending 24% more per month than those arriving by vehicle (and more

overall than customers arriving by all other modes) because, while they were spending less during each trip, they made more trips per month. 

**How much does it cost to implement?**

The costs of bicycle parking can vary depending on the type of facility and the amenities that are provided.

- A simple bicycle staple rack holding two bicycles can cost around $240, including installation (indexed to 2012 dollars), while a bicycle rack (ribbon) holding 10 to 12 bicycles can cost between $400 and $900 (indexed to 2012 dollars).
- Bicycle lockers which provide secure, lockable storage for 1-2 bicycles are provided primarily at transit stations and can cost $1,225 (2012 dollars).  

- On-street bicycle corrals which replace 1 to 2 vehicle parking spaces in exchange for 6 to 12 racks that may park 12 to 24 bicycles cost $2,600 to install in Portland, Oregon. This cost includes an encroachment permit, racks, paint, signage, and installation.  

Bicycle station costs depend heavily on the amenities offered, including secure bicycle storage, showers, bicycle rental, lockers, and repair equipment.

- A bikestation facility in Washington, DC, with storage for 130 bicycles, lockers, changing rooms, a bike repair shop, and accessory store cost $4 million to build in 2009, while a similar facility in Chicago that featured storage for 300 bicycles cost $3.1 million. 

- The bikestation built as part of the Hillsboro, Oregon, Intermodal Transit Facility in 2010 cost $640,000 and includes storage for 80 bicycles, lockers, and shower facilities. 

- The TriMet Bike and Ride facilities in Beaverton and Gresham, Oregon, which include bicycle storage and repair equipment, cost $275,000 each to build. 

**Implementation resources**

Jurisdictions and businesses interested in adding bicycle parking should consult with these resources:

- **Bicycle Parking Guidelines**, Washington Bikes
- **Bicycle Parking Manual**, Cycling Embassy of Denmark

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