A bike-sharing system is a public active transportation program composed of interconnected stations that exchange bicycles for free (first 30 minutes) or at an affordable rate for short-distance trips in urban areas.

These programs have been developed as an alternative to motorized transportation to prevent its negative externalities, and also as a response to the increasing need for urban sustainable development. It presents a way to resolve health problems associated with sedentary lifestyles, such as obesity.

### Benefits

#### Environment
- Reduces travel by car, public transportation and private bikes
- Improves air quality and climate
- Reduces vehicle emissions, congestion, and fuel use

#### Equity and Community
- Contributes to neighborhood economy
- Increases access to jobs, services (health/education), healthy groceries, and recreational/social activities
- Increases social capital, sense of community and quality of life
- Improves health of community members by encouraging walking and biking
- Provides flexible mobility options and supports multimodal transportation
- Cuts transportation costs for community members
- Bike-share is a public transit program that is part of an intermodal transportation system, with potential benefits for those with few mobility alternatives.

Because accessibility of bicycles is important for the program to succeed, stations located in low-income neighborhoods with information and traffic-safety conditions in languages other than English will increase participation.

### Barriers to Implementation

#### Institutional
A common barrier preventing all residents from bicycling is lack of space to store a bicycle; bike-share programs might overcome this barrier.

Cities might not have the capacity to design and implement a bike-share program. Conditions of the built environment might limit the number of locations for bike stations, where bicycles can be rented or returned. Conflicts might arise between city...
Based on average rider speeds, bicycles are competitive with cars as a means of transportation. Grouping the stations by proximity between origin and destination is a good policy: short-range trips are best for shared bicycles. Closer stations exchange more bicycles than more distant stations do.

Main network hubs should be close to train stations, residential zones, campuses, business/commercial and recreational areas, and downtown, where most trips take place.

Most trips last 26–34 minutes, with a median of 11 minutes (reflecting the fact that the first 30 minutes are free).

Trips are part of an intermodal transportation system. People use bicycles near train stations or buses mainly to commute to and from work: during weekdays people use them in the morning (8 a.m.–9 a.m.), at noon, and in late afternoon (5 p.m.–7 p.m.)—the peak. Weekends, people use them mostly at 5 p.m.

In South Korean cities and in Barcelona, Spain, area density (in terms of destinations and population), the number of bikes and stations, and accessibility from origin to destination has a favorable effect on bike-share programs (increases commutes).

Australian cities have calculated the following benefits per day of their bike-share program: congestion benefit—$199 (Australian); climate change benefit—$58 (Australian); and physical activity benefit—$3,645 (Australian).

A coordinated bicycling policy is an important factor for the success of the program in different cities.

Vancouver, BC shows that the built environment predicts bicycle mode: density (balance between residents and employments), land use mix (activity density per square mile), intersection density, proportion of developed land, and proximity to bike trails and bike lanes.

Vancouver, BC also shows a negative association between bike use and topographical conditions (hilly pathways), weather (cold and precipitation), and age (people older than 65 bike less).

In addition to infrastructure such as bicycle lanes, tracks, and racks, the success of bike-share programs depends on planning: infrastructure design; education for bicyclists, pedestrians and drivers; communication; law enforcement; marketing; program evaluation; and providing facilities such as showers and lockers for bicyclists.

### REFERENCES


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