

By Corinne Kisner

Integrating Bike Share Programs into a Sustainable Transportation System

Individuals are attracted to cities for the ease of mobility and proximity to jobs they provide, but cities of all sizes face challenges in maintaining effective, agile transportation systems. A shift in mentality can prioritize the efficient movement of people rather than vehicles, in order to equitably accommodate buses, pedestrians, cyclists and motorists. Among the many available policy and programmatic solutions, bike share programs are emerging as a cost effective and sustainable way to expand the portfolio of transit options. By adding another travel mode as a convenient and attractive choice, cities can provide a connected transportation system in which residents feel confident that their mobility needs can be met.

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Generally, a bike share system is an automated, public, bicycle rental program comprised of a network of stations that house commuter bikes. The bike share system is not intended to replace all-day bike rentals, but rather is considered a form of public transit, often complementing bus routes and subway lines. For a reasonable membership fee, charged daily, weekly, monthly or annually, users can unlock a bike from the rack, embark on a journey and return the bike to any station within the system. In some cities, smartphone applications allow users to view station locations and check bicycle availability. Pricing is

Benefits of bike share:

- Low-cost public transit option for users
- Cost-effective infrastructure investment for cities
- Reduces congestion and wasted fuel
- Creates and improves access to jobs
- Boosts retail exposure and home values
- Increases connectivity
- Encourages physical activity
- Decreases air pollution

designed to keep bikes in circulation and provide maximum utility, so short trips are encouraged with a sliding fee system: for example, the first 30 minutes might be free, with charges accumulating for additional increments. Nearly half of all trips using any form of transportation in the United States are less than three miles, an ideal distance for 30 minutes of bicycling.

A sustainable transportation system is one that achieves residents’ mobility needs through equitable, affordable and efficient options with limited impact on the natural environment. Bike sharing contributes to these goals by offering a low-cost and low-pollution option to a wide range of individuals. By promoting bike sharing, especially for short trips or as

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connections to longer transit trips, cities can provide residents and visitors with a substantially less expensive alternative to driving. Users benefit from the flexibility of travel within a multimodal transportation system and are free of the responsibilities of bike ownership and maintenance. When bike share programs are used to connect to other forms of transit, cities can maximize the utility of existing bus and rail infrastructure and minimize the need to construct costly new road infrastructure. Fewer vehicle miles traveled means less wear and tear on public roads, reducing the financial cost to the city for road maintenance and repair. A reduction in motor vehicle congestion saves commuters time, reduces fuel wasted in traffic and decreases the economic costs of congestion. Furthermore, reducing dependence on fossil fuels decreases greenhouse gas emissions and air pollution. Long-term, cities can reduce the amount of land necessary for vehicle infrastructure such as parking lots and garages. With good planning and improved infrastructure, more bikes on the roads can actually serve to calm traffic and decrease accidents.

Bike share programs have a variety of economic benefits. Bicycling increases exposure to storefronts compared with driving, which leads to more spending in retail areas. Bicycling facilities can increase home values and consequently add to municipal tax revenues. The physical activity gained by bicycling improves worker productivity and public health, reducing health care costs. Investments in bicycle infrastructure create nearly twice as many direct, indirect and induced jobs per dollar than typical road projects. At the community level, bike sharing is the lowest cost-per-mile form of public transit; London's bike share program is the only one of its public transport systems on track to make an operating profit, while bus and rail networks rely heavily on subsidies. At an individual level, bike share members save money on transportation and can spend those dollars elsewhere.

Denver B-Cycle

Denver, Colorado

Population: 610,345

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In 2008, Denver leveraged its role as host of the Democratic National Convention to develop high-profile sustainability initiatives. A temporary bike share program called Freewheelin' allowed visitors to tour the city on 1,000 donated bicycles. Following the convention, the host committee donated \$1 million from a budget surplus to create a large-scale bicycle sharing system. In spring 2010, the city launched Denver B-

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cycle, a Web-enabled, credit card-operated system, in service from March 1 to November 30. After paying a membership fee online, users receive a B-card to unlock one of 500 bikes from 50 stations between 5:00 a.m. and 11:00 p.m., seven days a week. Members can login to a personal page on the B-cycle website to review their ride history, miles traveled, calories burned and carbon emissions avoided. In B-Cycle's first operating season, users took 102,981 trips, rode more than 200,000 miles, and lost a collective 1,810 pounds. A member survey demonstrated that 43 percent of B-Cycle rides replaced car trips, resulting in a 15,868 gallon decrease in gasoline consumption and avoiding 312,121 pounds of carbon emissions. Boasting 850 miles of bike routes and trails, Denver strives to increase the share of bicycling commuters from 1.6 percent to 10 percent by 2018. For Denver, bike sharing is a cost-effective means to reduce obesity and greenhouse gas emissions through affordable, alternative transportation, supporting goals outlined in the city's Strategic Transportation Plan and Climate Action Plan.



Capital Bikeshare

Washington, D.C.

Population: 599,657

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In 2008, the nation's capital launched a pilot bike share program that was considered the first in North America to use an automated system. With ten stations and 100 bikes, the pilot program tested consumer demand and feasibility. To boost utility and participation, the District Department of Transportation opted to expand the program in 2010 and launched Capital Bikeshare, a system with 114 stations and 1,100 bikes in D.C. and Arlington, Virginia that is open year-round, 24 hours a day. Developing, installing and maintaining the system directly created 25 living wage jobs locally, and the improvement in accessibility will allow countless residents to travel to employment opportunities. A corporate partnership program allows companies to cover the costs of their employees' membership. The stations are solar-powered, which in addition to reducing greenhouse gas emissions also dramatically increases the flexibility of station siting, since placement is not contingent on utility connections. Stations can be easily relocated to reflect adjusting consumer demand or to avoid construction sites. In Capital Bikeshare's first month, more than 3,500 people joined as annual members and the system averaged 1,000 rides per day. In the first three months of operation, users logged more than 100,000 trips. Another system expansion is already planned.

Adding to the portfolio of transit options is a wise move for Washington, D.C., where motor vehicle traffic often ranks the metropolitan area's road network as the most congested in the nation. According to the Texas Transportation Institute, 180,976,000 hours are lost annually due to traffic delays in the area, at a total cost of \$4 billion. The D.C. mass transit system is considered one of the best in the world, moving 1.2 million people each weekday, but trains and buses increasingly suffer overcrowding, and planners predict a 42 percent growth in ridership in the next quarter century. Capital Bikeshare is expected to ease congestion on roads and on mass transit.

Nice Ride Minnesota

Minneapolis, Minnesota

Population: 385,378

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In 2010, nonprofit organization Nice Ride Minnesota launched a bike share program in which members can ride one of 700 bikes from 65 stations across Minneapolis, 24 hours a day, seven days a week from April to November. The system was created through a combination of private and public funding from Blue Cross and Blue Shield of Minnesota, Bike Walk Twin Cities, and the City of Minneapolis, as well as through financial contributions and volunteer hours from many local businesses. With federal stimulus funding and continued financial support from Blue Cross and Blue Shield of Minnesota, Nice Ride plans to build new stations in north Minneapolis. In Nice Ride's first season, bicyclists logged nearly 100,000 trips, and 89 percent of riders reported using Nice Ride primarily for transportation, not recreation. The initial success comes as little surprise – despite often harsh weather conditions, 4.3 percent of the working population chooses to commute by bike, giving Minneapolis the second highest percentage in the nation. Bicycling Magazine named Minneapolis the best bike city in the United States – a title that's increasingly coveted by communities across the country.



Buffalo Blue Bicycle

Buffalo, New York

Population: 270,240

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Green Options Buffalo, a nonprofit organization dedicated to healthy, environmentally sustainable and community-friendly transportation, created the Buffalo Blue Bicycle program in 2006. For an annual donation of either \$25 or six hours of volunteer time, members can borrow bicycles equipped with a lock and bell for up to two days, and return the bike to any of the blue bicycle racks which are an increasing presence throughout the city. An online reservation process is similar to checking out a library book, bypassing the need for smart station infrastructure or the capital costs of the high-tech systems found in Denver, Minneapolis and D.C. The recycled fleet of metallic blue bicycles was accumulated through local donations, leftovers from police auctions and collections from trash bins. Buffalo's bike share program serves as an excellent example of a small-scale, community-driven, low-tech system that relies on available materials and volunteer time. The result is a sustainable transportation option that is helping to remake a city.

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About This Publication

Corinne Kisner is an associate in the Sustainability program in the Center for Research and Innovation at the National League of Cities. For additional information about cities and sustainability, visit the NLC webpage at www.nlc.org, e-mail sustainability@nlc.org, and follow on Twitter @NLCgreencities.

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The Home Depot Foundation, created in 2002, supports nonprofit organizations dedicated to creating and preserving healthy, affordable homes as the cornerstone of sustainable communities. The foundation's goal is for all families to have the opportunity to live in healthy, efficient homes they can afford over the long-term; to have access to safe, vibrant parks and greenspaces; and to receive the economic, social and environmental benefits of living in a sustainable community. For more information, visit www.homedepotfoundation.org and follow on Twitter @homedepotfdn. Created in 2009, the Sustainable Cities Institute (SCI) is a two-part initiative from The Home Depot Foundation that provides a one-stop shop for cities and sustainability professionals to find vetted best practices from across the country to help them identify and implement local sustainable practices and policies as well as communicate with other cities about sustainability related issues and topics. For more information, visit www.sustainablecitiesinstitute.org and follow on Twitter @sustcitiesinst.