

Bum-a-Bike: Community Bicycle Sharing Programs¹

This IPRO report presents an overview of community bicycle sharing programs in Iowa and across the American states.

Background:

With emerging issues of traffic congestion and the environmental impact from fossil fuel powered transportation, areas around the globe have been turning to alternative forms of inner city transportation. Traffic jams, smog, and acid rain that result from automobile overuse have become issues of high importance. Emissions from automobiles now account for more pollution than power plants.² Moreover, automobile pollution is accountable for more than half of the greenhouse gasses destroying the ozone layer.³ In an attempt to counter such issues, countries, states, and cities across the world have turned to community bicycle sharing programs as alternative forms of transportation.

First emerging in the Netherlands in the 1960s, community bicycle sharing programs have spread to cities across Europe as well as Asia and Australia.^{4,5} Now, 40 states in the US have some form of community bicycle sharing program.⁶ The goal of community bicycle sharing bicycle programs is to encourage the use of bicycle transportation by providing convenient stations for residents or tourists to rent bicycles. Community bicycle sharing programs aim to curb these environmental issues that result from fossil fuel powered transportation by providing an inexpensive, easy, and green alternative for the transportation needs of the citizens.

Definitions:

Community Bicycle Sharing Programs- programs that are set up to allow members of a community and tourists to rent bicycles as a means of transportation and recreation. Such programs differ greatly on

¹ This report was prepared by University of Iowa undergraduate students Andy Brehm, Andrew-brehm@uiowa.edu, and Mark Rigby, mark-rigby@uiowa.edu.

² Comparison, By. "Car Almanac | Statistics about Pollution, Energy Use, and Danger." *Bicycle Universe: The Kitchen Sink of Bicycles & Transportation*. Web. 14 Nov. 2010. <<http://bicycleuniverse.info/transpo/almanac.html>>.

³ Ibid.

⁴ "Zack Furness: One Less Car." *Temple University*. 14 Dec. 1989. Web. 14 Nov. 2010. <http://www.temple.edu/tempres/titles/1899_reg.html>.

⁵ "World Experience." *SmartBike*. Web. 14 Nov. 2010. <<http://www.smartbike.com/world>>.

⁶ "Community Bike Programs: USA Directory." *International Bicycle Fund: Promoting Bicycle Transport and Economic Development and Cultural Understanding Worldwide*. Web. 14 Nov. 2010. <<http://www.ibike.org/encouragement/freebike/directory/usa.htm#usa>>.

costs (if rentals are not free of charge) as well as time periods for rental. However, all programs provide some aspect of bicycle sharing within the community.⁷

Automated Bicycle Sharing Programs- a type of bicycle sharing program that uses automated hubs and some sort of electronic transfer of funds to rent a bicycle. Paris, France uses such a system.

Bicycle Libraries- community bicycle programs that allow residents or tourists to rent bicycles for specified periods of time. Most bicycle libraries are non-profit organizations. Bicycle libraries differ from automated community bicycle sharing programs by the use of a bicycle warehouse rather than automated sharing stations across the city.

Public-Private Bicycle Sharing Programs- community bicycle sharing programs that are funded in part by government entities and in part by private companies. In the most common forms of these programs government entities determine renting locations as well as provide funding. Specialized private companies provide the bicycles, set up the rental centers, maintain the bicycles, and manage the program.

Costs and Benefits of Community Bicycle Sharing Programs:

Benefits⁸ :

Lifestyle benefits:

- Promotes an active and healthy lifestyle, requiring exercise.
- The average person loses 13 lbs. their first year of commuting by bike.
- In cities with population sizes of over 50,000 people, the average commuter spends 50 hours every year in traffic.
- Cyclists are exposed to less pollution than taxi or bus passengers.

Environmental benefits:

- Five billion gallons of fuel are wasted every year from cars idling in traffic.
- A short, four-mile round trip by bicycle keeps about 15 lbs. of pollutants out of the air.
- By 2032 traffic delays will more than double and CO2 emissions traced to congestion will reach 60 million tons.

⁷ "Community Bike Programs, Bike Libraries, Bicycle Sharing, Bike Coop, Bicycle Collective." *International Bicycle Fund: Promoting Bicycle Transport and Economic Development and Cultural Understanding Worldwide*. Web. 14 Nov. 2010. <<http://www.ibike.org/encouragement/freebike.htm>>.

⁸ Building, By, and A. Comprehensive. "FAQs | Denver Bike Sharing." *Welcome | Denver Bike Sharing*. Web. 14 Nov. 2010. <<http://www.denverbikesharing.org/faqs.php#faq5>>.

Economic Benefits:

- The average American household spends more on transportation than on clothing, health care, and entertainment combined.
- On average, 18 percent of household expenditures are for transportation.

Costs:

High Initial Investment:

In order to successfully implement a community bicycle sharing program in Iowa cities, a large upfront investment is required. In 2008, the Washington DC District Department of Transportation formed a public-private community bicycle sharing program with SmartBike and created 10 bicycle sharing stations with 100 bicycles.⁹ However, this small initial set up failed to meet the standard goals of community bicycle sharing programs and caused the District Department of Transportation to form further public-private partnerships and expand the Capital Bikeshare program to 100 sharing stations with 1,100 bicycles.¹⁰

Non-ideal Population and Population Density:

The state of Iowa is ranked as the 30th state in terms of population and ranks 35th in terms of population density.¹¹ Moreover, Iowa has only one metropolitan area, Des Moines, which ranks in the top 100 most populous metropolis areas. This being the case, the negative impact of automobile use and the demand for alternative forms of inner city transportation in Iowa is relatively low. The success of community bicycle sharing programs in metropolitan areas is linked to the need for such programs.

Vandalism and High Replacement Costs:

Community bicycle sharing programs have been marked by high levels of vandalism in various European cities. The Velib bicycle sharing program in Paris, France has been a target of vandalism. Nearly all of the 17,000 bicycles provided through Velib have needed to be replaced since the start of the program in 2007.¹² Each bicycle costs approximately \$500, totaling \$8.5 million in

⁹ "DC.GOV." *District Department of Transportation*. 14 Nov. 2010. Web. 14 Nov. 2010.

¹⁰ Ibid.

¹¹ "; By =. "United States by States; and Puerto Rico - GCT-PH1-R. Population, Housing Units, Area, and Density (geographies Ranked by Total Population): 2000." *American FactFinder*. Web. 14 Nov. 2010. <http://factfinder.census.gov/servlet/GCTTable?_bm=n&_lang=en&mt_name=DEC_2000_SF1_U_GCTPH1R_US9S&format=US-9S&_box_head_nbr=GCT-PH1-R&ds_name=DEC_2000_SF1_U&geo_id=01000US>.

¹² Kurczewski, Nick. "Vandalism Vexes Paris Bike-Rental System." *New York Times* 11 Feb. 2009: n. pag. Web. 26 Oct 2010. <<http://wheels.blogs.nytimes.com/2009/02/11/vandalism-vexes-paris-bike-rental-system/>>.

replacement costs.¹³ Although the occurrence of bicycle vandalism in Paris is an extreme case, many other bicycle sharing programs have suffered from vandalism and theft.

Personal Inconvenience:

Using shared bicycles as a means of alternative transportation results in personal inconvenience in a number of ways. If automated sharing stations or bicycle libraries are not near one's residence, they must find a means of travel to get to and from the renting station. Also, using a bicycle to travel to work often requires a change of clothes and even a shower. Unlike many European cities that have workplace locker rooms and showers, many businesses in Iowa cannot accommodate for those who need to change clothes, shower, and store equipment such as bicycle helmets. However, many Iowa employees use onsite recreational facilities which do have showers and locker rooms.

State Action:

Action in Washington DC:

In 2008, the District of Columbia's District Department of Transportation launched a public-private partnership bicycle sharing program in partnership with SmartBike.¹⁴ The SmartBike DC bicycle sharing program established 10 bicycle sharing stations with 100 bicycles throughout Washington DC.¹⁵ Although SmartBike DC was the first bicycle sharing program of its kind in the U.S., SmartBike had previously established automated bicycle sharing stations in five European countries.¹⁶ The SmartBike DC program created 10 automated bicycle sharing stations in Washington DC that allows for bicycle rentals between the hours of 6 am and 10 pm Monday through Sunday.¹⁷

In the fall of 2010, the District Department of Transportation completed an expansion of its community bicycle sharing program called Capital Bikeshare.¹⁸ In partnership with Alta Bicycle Share, the Capital Bikeshare program created 100 bicycle sharing stations with 1,100 bicycles throughout Washington DC and Arlington County.¹⁹ Participation in the Capital Bikeshare program requires a membership fee ranging from \$5 for a 24-hour membership to \$50 for an annual membership.²⁰ Capital Bikeshare is now the largest bicycle sharing program in the U.S.²¹

¹³ Ibid.

¹⁴ Ibid.

¹⁵ Ibid.

¹⁶ Ibid.

¹⁷ Clear Channel Smartbike Washington DC. Web. 14 Nov. 2010. <<https://www.smartbikedc.com/faqs.asp>>.

¹⁸ Ibid.

¹⁹ Ibid.

²⁰ Bike, By. "Pricing." *Capital Bikeshare*. Web. 14 Nov. 2010. <<http://www.capitalbikeshare.com/pricing>>.

Iowa Action:

B-cycle is a non-profit next-generation bike-sharing program that is located in Des Moines, Iowa. The program attempts to meet the transportation, health, and environmental needs of communities. The program is currently offered in five cities: Louisville, Kentucky; Des Moines, Iowa; Chicago, Illinois; Denver, Colorado; and San Antonio, Texas. The program works by initially signing up online or purchasing a membership card that keeps track of individual bike rental information. All rides are tracked by the system and associated with members. Data such as distance, duration, calories burned, and carbon offset are captured and uploaded to personal web pages. The individual then chooses their bike from a B-Cycle station and returns the bike to the same station. Unlike the Capital Bikeshare program in Washington DC, B-cycle Des Moines is an entirely private community bicycle sharing program.

Iowa also hosts a number of bicycle libraries in various cities across the state.²² One notable bicycle library in Iowa is the Iowa City Bike Library located near the University of Iowa. The Iowa City Bike Library is a non-profit organization that rents bicycles for up to six months at a time.²³ Unlike the B-cycle and Capital Bikeshare programs, the library offers free bicycle rentals with a deposit that is returned once the bicycle is returned.²⁴ The Iowa City Bike Library is a small scale program that is only open for bike rentals one day a week.

International Action:

Action in France:

In 2007, Paris, France launched the world's largest community bicycle sharing program. The program, titled Velib, created over 1,200 bicycle sharing hubs with approximately 17,000 bicycles through the city of Paris.²⁵ Velib was financed entirely by JCDecaux, a French advertising company that beat out Clear Channel, SmartBike's parent company, for the Paris contract.²⁶ Similar to the Capital Bikeshare program in Washington DC, Velib is a public-private partnership.²⁷

²¹ 2020, By. "Capital Bikeshare: Washington, D.C. Launches The Nation's Largest Bike Share Program." *Breaking News and Opinion on The Huffington Post*. Web. 14 Nov. 2010. <http://www.huffingtonpost.com/2010/09/21/capital-bikeshare-washing_n_732927.html>.

²² Ibid.

²³ "Bike Checkout Overview." *Iowa City Bike Library*. Iowa City Bike Library, n.d. Web. 12 Nov 2010. <<http://www.bikelibrary.org/checkout.htm>>.

²⁴ Ibid.

²⁵ Ibid.

²⁶ Ibid.

²⁷ Ibid.

Action in Spain:

In 2007, Barcelona, Spain started the Bicing community bicycle sharing program. The city now has 200 bicycle renting hubs with over 6,000 bicycles.²⁸ The Bicing program was launched by Smart Bike, a Norwegian company that specializes in community bicycle sharing programs. Barcelona's bicycle sharing program is financed by Clear Channel Outdoor, a U.S. based advertising corporation.²⁹

Appendix:

Table 1 shows all community bicycle sharing programs across the nation.

Table 1.³⁰

State	Bicycle Library	Automated Bicycle Sharing Program
Alabama		
Alaska	X	
Arizona	X	
Arkansas	X	
California	X	
Colorado	X	X
Connecticut	X	
Delaware	X	
District of Columbia	X	X*
Florida	X	
Georgia	X	
Hawaii	X	X
Idaho	X	
Illinois	X	X
Indiana	X	
Iowa	X	X
Kansas		
Kentucky	X	X
Louisiana	X	
Maine		
Maryland	X	

²⁸ Ibid.

²⁹ "Corporate Information." *Clear Channel Outdoor*. Clear Channel Outdoor, n.d. Web. 3 Nov 2010. <<http://citationmachine.net/index2.php?reqstyleid=1&mode=form&reqsrcid=MLAWebDocument&more=yes&nameCnt=1>>.

³⁰ Ibid.

Massachusetts	X	
Michigan	X	
Minnesota	X	
Mississippi		
Missouri	X	
Montana	X	
Nebraska		
Nevada		
New Hampshire	X	
New Jersey	X	
New Mexico	X	
New York	X	
North Carolina	X	
North Dakota	X	
Ohio	X	
Oklahoma	X	
Oregon	X	
Pennsylvania	X	
Rhode Island	x	
South Carolina	X	
South Dakota	X	
Tennessee	X	
Texas	X	X
Utah	X	
Vermont	X	
Virginia	X	X*
Washington	X	
West Virginia	X	
Wisconsin	X	
Wyoming		

*- Indicates a public-private partnership automated bicycle sharing program

This report was prepared in November 2010 by the Iowa Policy Research Organization (IPRO), a non-partisan public policy undergraduate group at the University of Iowa. For additional research on this or other issues, please visit our website at <http://www.uiowa.edu/~ipro/> or contact caroline-tolbert@uiowa.edu.