



The Versatility of Cycling:

Programs Evolve to Respond to Diverse Customer Needs





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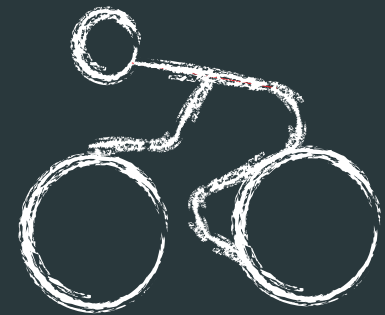


The Versatility of Cycling

The strength of mobility management is that it excels at matching customers with transportation solutions drawn from across the entire spectrum of options. Cycling is a versatile choice that is being adapted for many segments of the population beyond just commuters: people with limited income are cycling to training opportunities, older adults are using three-wheeled bikes to get to grocery stores, and employees are cycling to meetings and errands. Cycling is also valuable as a stand-alone transportation option or as a complement to transit and carpooling or vanpooling. It is one more choice that mobility management practitioners can consider in matching customers to the most appropriate travel mode.

In the last decade, tens of thousands of American commuters have rediscovered cycling as a cost-effective option for getting around town. They are drawn to cycling because of its zero negative impact on the environment and its many positive impacts on their personal health. Hopping on a bike after a long day at work relieves stress, stretches muscles that have been sitting all day, and provides heart-healthy exercise. A short cycle to or from a bus or rail station can also be the connection that makes transit a viable choice for people who could not otherwise access those services.

Communities that are truly bike-friendly have conquered the “five E’s” – engineering/infrastructure, education, encouragement, enforcement, and evaluation. We are seeing many U.S. communities progress in these areas by adopting new policies and infrastructure investment strategies that support cycling as well as embarking on education campaigns that tout the benefits of cycling to commuters and others. Innovative programs that allow people to share, rent, or purchase bikes are being implemented nationwide. Private companies and universities are also launching cycling programs that support employee and student use of bikes. Some of the most exciting new developments are bike sharing programs to specifically promote health; bicycle sharing and purchase for people whose transportation choices are otherwise limited because of income level; adapted bikes for people with disabilities and older adults; and bikes for adults who travel with



young children or need to carry packages.

Each step U.S. communities take to bolster cycling more fully integrates this mode with other transportation modes, such as bus, carpool, vanpool, and train. And there are data that suggest that this is indeed happening: although, as of 2013, cycling represented only 0.6% share of all commuting modes in the United States,¹ in some urban areas the percentage was far higher, such as 6% in Portland, OR and Madison, WI; 8.5% in Cambridge, MA; 12% in Boulder, CO; and 19% in Davis, CA.² In Copenhagen, Denmark, which is seen as setting the standard for urban cycling, 36% of commuters bike to work.³

This report reviews the types of bicycle programs that exist, the populations they are serving, and the innovations being implemented to expand the numbers of people who bike. We will also examine the community partnerships that are making these programs happen.

1. League of American Bicyclists: "[Where We Ride: Analysis of Bicycling in American Cities. Annual American Community Survey data report for 2012.](#)" See footnote on page 2 of this report for limitations in data used in calculating this figure.

2. Andy D. Clarke, President, League of American Bicyclists, personal communication, 1/7/14.

3. European Metropolitan Network Institute: "[The Cycling Challenge: Cases of Copenhagen and Sevilla.](#)" July 2013.



Section 1: Bike Sharing

Bike sharing is most popular in urban areas, where destinations can be easily reached within a 30-minute bike ride. Rather than owning a bike, bike share members can rent a bike for a short period and only when they need it. From the original model of informal bike sharing in the 1960s, where bicycles were left on the street for use by anyone, bike sharing has evolved into a high-tech system with GPS tracking and payment by smart card technology.

Urban Bike Share Programs

As of January 2014, more than 500 cities worldwide have bike sharing programs, including 49 cities and 29 university campuses in the United States.⁴ The programs range from the largest (New York City with 332 stations and 5,850 bikes) to the smallest (Vallocycle in Montevallo, AL with 3 stations and 60 bikes). In addition to universities, some employers sponsor bike sharing to help employees move about their campuses.

Most bike share programs require that users become pre-registered members and either pay a deposit, using a debit or credit card, or pay an annual fee. Short-term memberships are also available from many programs, such as daily (e.g., for out-of-town visitors), three-day, weekly, and monthly memberships. Some bike share programs offer membership discounts to older adults, military members, and students, such as in Charlotte, NC; Kailua, HI; Kansas City KS/MO; and Denver, CO. Rented bikes must be returned to a docking station, but it does not have to be the station where the bike was initially rented, which facilitates one-way trips.

Bike Share in Three Cities

Bike sharing in the San Francisco Bay Area was launched August 29, 2013 in five communities along CalTrain routes. The Bay Area Bike Share program allows for different levels of membership to accommodate regular users, tourists, and other occasional users. For an annual fee of \$88, regular members receive a key fob that gives them access to any bike located within the regional system. Short-term renters receive a code for use in unlocking a bike. To keep as many bikes in circulation as possible, the system allows short-term usage of the bikes for no additional fee; fees are charged after 30 minutes. In the first three months of usage, the system logged 13,393 total members (short-term and annual) and 80,749 rides.⁵ Program staff regularly circulate bike stock throughout the region and remove bikes for repair. Docking stations, located within reach of many transit stops, are wireless, solar powered, and modular so that they can be easily installed or moved.

Capital Bike Share in Washington, D.C. began in 2008 as SmartBike, with a major relaunch in 2010 as Capital Bike Share. Similar to many other urban areas, Capital Bike Share's program has shown quick success. As of January 1, 2014, it had over 300 stations across the region providing access to over 2,500 bikes. In 2013, its members logged a

4. Pedestrian and Bicycle Information Center. [List of bikeshare programs in the U.S.](#)

5. [Bay Area Bike Share: A Three Month Report Card](#). December 2013.



high of 296,333 trips (August), and even maintained a high level of activity in November 2013 (197,569 trips).⁶

Chicago's Divvy bike share program began operations in July 2013 and will expand its number of bike stations from 300 to 475 in 2014. In the first four months since its launch, Divvy provided more than 600,000 trips to riders, who traveled more than 1.5 million miles.⁷

Both Capital BikeShare and Divvy programs have a similar set up to that of the Bay Area Bike Share. All three programs are run under contract with vendor Alta Bicycle Share.

A stationless bike sharing program was piloted at the University of Maryland campus in 2009 and then operated off campus during 2010-2011 by WeBike. Using an SMS text messaging platform, registered riders could check out bikes and then return them to any bike rack within the designated region, sending a text message with the rack number or location of the bike to the local program. In 2011, WeBike revised its business model to offer a free, open-source template for stationless programs for use by others. This model of bike sharing reduces the initial cost and maintenance of a bike share program considerably, as stations do not have to be constructed and bicycles do not have to be moved about town to accommodate demand.⁸



Photo credit: Allie Armitage, WeBike

Rural Bike Share

Montevallo, AL has the distinction of being one of the few U.S. rural communities (population 6,450) that has a bike share program. The [Vallocycle](#) program, run through the University of Montevallo's Department of Service Learning and Community Engagement, is open to all city residents. The city, which has very little outside funding for the program, has received all its 60 bikes through donations. City businesses sponsor baskets mounted on the bikes to help carry groceries and other parcels. Program members either pay an annual fee of \$25 or donate 25 hours of community service to use the bikes (they have access to the bikes after the first 10 service hours). Bikes can be checked out at one of three locations for a period of one week (bike locks and helmets are included), after which they must be returned for a mandatory safety check. University students being trained in bicycle maintenance perform the safety check and certify the bikes for re-rent. The city has posted "share the road" signs along city streets to alert automobile drivers to the presence of cyclists. The city has also made a commitment to consider complete street design within its street maintenance agenda.⁹

6. [Capital Area Bike Share Dashboard](#).

7. Chicago Sun-Times: [Chicago's Divvy expected to become biggest bike-sharing program in North America](#). November 2013.

8. Ginger Moored: "[For Bikesharing, Forget Stations; All You Need Is a Phone](#)." The City Fix. January 2011.

9. Hollie Cost, Service Learning Coordinator, Department of Service Learning and Community Engagement, University of Montevallo, Montevallo, AL, personal communication, 1/6/14.



Bike Share for Low-Income Cyclists

To enable low-income cyclists to participate in bike sharing, communities have tweaked their programs. As mentioned above, bike share members must usually register with a debit or credit card, which helps to secure the cost of the bike if it is lost or willfully damaged. For those who do not have or qualify for a debit or credit card, indeed who may not have any formal bank account, this would normally prevent them from joining a bike share program. To ensure “unbanked” customers can use its bike sharing services, Capital Bike Share in Washington, D.C. partnered with Bank on DC, a financial institution partnership that provides free or low-cost bank accounts with no minimum balance requirements. Two of those institutions, United Bank and the District Government Employees Federal Credit Union, will also pay \$25 toward the annual \$75 Capital Bike Share fee for participants for the first year. The two participating banks also agreed to accept some financial responsibility for stolen bikes, but since the program began in 2011, no thefts have occurred. Capital Bike Share also allows members to pay the annual fee in month installments of \$7, for a slightly higher \$84 annual fee.¹⁰

Even a low annual fee for a bike share membership can seem an insurmountable barrier for low-wage workers. The Boston Public Health Commission subsidizes annual memberships for low-income Boston residents, who only have to pay \$5.00/year, and also provides a free helmet.¹¹ Montgomery County, MD, received a federal Job Access Reverse Commute grant that allows it to provide a free one-year membership in Capital Bike Share, free bicycle education and safety training, and a free bike helmet to qualified individuals.¹²

Another potential barrier is that fewer bike stations are located in low-income areas of cities relative to the number of stations in business districts or tourist areas. To increase bike access to low-income populations, Nice Ride, based in Minneapolis-St. Paul, MN, has installed bike stations in historically low-income neighborhoods where lifestyle factors have led to a high incidence of obesity, heart disease, diabetes, and high blood pressure. Nice Ride partners with a growing list of social service organizations in these neighborhoods – including Hope Community, the American Indian Health Board, The Link, the Northside Residents Redevelopment Council (NRRC), and La Clinica – to introduce active lifestyle choices and motivate people to ride. The Target Corporation has sponsored introduction-to-cycling events and free helmet give-aways; it has also enabled Nice Ride to distribute 600 free annual subscription coupons to low-income residents.¹³

New York City’s CitiBike program is also reaching out to low income neighborhoods, but with limited success. The docking station closest to a Brooklyn public housing project often remains full of bikes, waiting for riders. New York’s Department

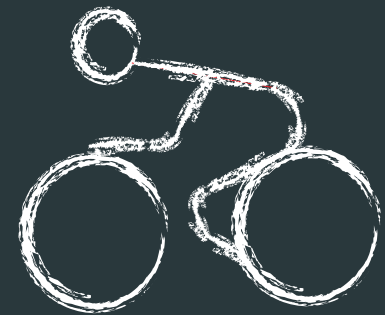


10. Emilie Badger: “[Bike-Sharing for the Unbanked.](#)” The Atlantic Cities. December 2011.

11. Daisy De La Rosa: [Addressing Health Equity in Boston’s Bike Share System.](#) Webinar presentation, May 3, 2012.

12. Capital Bike Share: “[Bikesharing Rolling into Montgomery County.](#)” September 2013.

13. Nice Ride Minnesota: “[2011 Annual Report and 2012 Mid-Season Update.](#)”



of Transportation has held more than two dozen public meetings aimed at introducing CitiBike to low-income New Yorkers, and has given away more than 100,000 free helmets. The city is continuing to consider ways to make program membership affordable and to promote knowledge of the program. One option it is considering is how to link bike share accounts to a cell phone account, rather than a credit card account, for easy rental and payment.¹⁴

Three-Wheeled and Other Adapted Bicycles

In 2013, [Madison, WI's B-Cycle](#) became the first U.S. bike sharing program to include three-wheeled bicycles. Known as B-Trikes, these bikes were co-designed with an advocate for individuals with disabilities to give riders more stability. This makes them a good choice for people with limited mobility, those who have difficulty with balancing, and those who simply are uncomfortable riding a two-wheeled bike. Three-wheeled bikes are now also available through bike sharing programs in San Antonio, TX; Denver, CO; Battle Creek, MI; and Spartanburg, SC. The B-trike fits alongside other bikes in a station without blocking other docks.¹⁵



Photo credit: Madison B-cycle

Other adaptations to bicycles for use by people with disabilities include four-wheeled cycles for a single rider, designed for track or off-road setting; handcycle tricycles that are upright or recumbent; tandem bicycles for cyclists with poor vision, where they can ride on the back with a pilot to steer; and different variations of companion cycles, such as one that includes a wheelchair or a seat for a wheelchair user and a cycle seat for someone to steer and pedal.¹⁶



Photo credit: Back on My Feet DC

Bicycles for Homeless Individuals
[Back on My Feet](#) (BoMF), a national nonprofit, incorporated bike sharing into its services for the homeless and other underserved populations in several cities. The organization helps to create independence and self-sufficiency in these individuals by first engaging them in running as a means to build self-esteem and then connecting them to educational, job training, and employment opportunities. In a pilot program, 10 qualified BoMF members received free annual memberships in Washington D.C.'s Capital Bike Share program so they could cycle to and from job interviews, classes, trainings, or early morning runs.¹⁷

To put cycling within reach of homeless populations, in 2011 the Yellow Bike Program (Branson, MO) began providing "free use" bicycles at area weekly and extended stay motels for use 24 hours a day, seven days a week. The program was

14. [Shifting Gears to Make Bike Sharing More Accessible](#). National Public Radio segment. December 12, 2013.

15. Claire Hurly, Madison B-Cycle, personal communication, January 8, 2014.

16. Cycling for all: "[Cycles for All!](#)"

17. Autumn Campbell, Back on My Feet DC, personal communication, October 22, 2012.



created in response to a 2010 survey of motel residents in which they identified transportation as one of their three greatest needs. Bikes were made available at six locations (two bikes each), complete with bike stand, signage, baskets and odometers on the bikes. Volunteers collect and repair bikes. During the first six weeks of operation, 1,000 miles of rides were logged.¹⁸

Bike Sharing on University and Business Campuses

Universities and employers, mostly located on large campuses or with several buildings in close proximity, offer bike sharing to employees and students to reduce automobile travel on campus.¹⁹

Colleges and universities are implementing bike share programs to assist students, faculty, and staff in traveling on or near a campus. At two ends of the spectrum of formality and cost are Hampshire College in Massachusetts and the University of California at Irvine. [Hampshire](#) offers free yellow bikes to share. Bikes can be used anywhere and left on any well-traveled campus path. There are no bike stations. [Zotwheels](#) at UC Irvine offers a \$40 annual membership fee, a three-hour maximum borrowing time, and docking stations for the bicycles. The University of Buffalo is working with partners to serve its campuses. Buffalo BikeShare recently launched with support from two state agencies – the New York State Energy Research and Development Authority and the New York State Department of Transportation. System planning began in 2011, through a partnership with the Buffalo Niagara Medical Campus. The program operates like most others, whereby members locate and reserve a bike, gain access via a personal PIN number, ride and return the bike to a rack in the designated area.



The biotech firm [Genentech](#), in South San Francisco, implemented a bike share program on its campuses by partnering with vendor B-Cycle to provide the bikes and infrastructure. Bikes are free to eligible Genentech employees and can be used for short-term cycles (e.g., to attend a meeting on another campus, to go to lunch). The bike share program is part of the company's wider gRide program, which promotes all alternative commuting modes, such as transit, vanpool, carpool, walking, and the company's own 40 commuter shuttles. The program was originally started as a way to avoid building more parking lots and to provide a benefit to employees. In the first 6 years of the gRide program, the company estimates it saved 100 million driving miles through all these alternatives.

Amenities offered cyclists by employers range from on-site bike lockers and showers to subsidies that cover the costs of purchasing bicycles and company shuttles designed to accommodate bikes. Apple offers a subsidy to help employees pay for bicycle or other transit costs and provides lockers and showers for use by employees who bike to work. The Calvert Group (Bethesda, MD) provides bicycle commuters with a substantial subsidy toward the purchase of a bike. Nike routinely provides information about biking and bike routes via the company's intranet to employees in Portland, OR, and Yahoo provides bicycle repair services on site at its Sunnyvale, CA location. Other employers, like Humana, offer in-house bike share programs for employees. Freewheelin', a component of Humana's transportation benefits program, allows employ-

18. Linda Russell: "[Yellow bikes don't cost Branson riders a penny.](#)" March 2011.

19. Visit pikapedinfo.org for a full list of bike sharing on campus.



ees to check out bikes from any of the company's three downtown stations. Bikes are primarily used to ride during lunch hour and to and from home. (For additional information, see the Joblinks Employment Transportation Center's "[Success Stories of Employer-Sponsored Transportation Programs](#)").

Electric Bike Sharing

Electric bicycles have a low-powered motor that assists cyclists with pedaling on demand. The energy is supplied from a rechargeable battery that provides power to an electric motor mounted in the frame or in the front or rear wheel. With this assistance, cyclists can increase their speed to 15–20 mph. At a cost of \$300–\$3,000, these bikes can be a good alternative for those living in hilly terrains, or simply not wanting to rely solely on muscle power to cycle longer distances.

The nation's first automated electric bike share program, [Cycle-UShare](#), was introduced at the University of Tennessee-Knoxville in spring 2013 as a pilot program. Seven electric bikes and three regular bikes were made available on campus, free to any within the university community, with about 100 registered users. To use the fully automated system, users swipe their university IDs to check out the bikes for up to 4 hours. The program was begun as part of a research study reviewing the operational and economic feasibility of introducing electric bikes in a shared bike system. An agreement with one commercial partner, Conscious Commuter, will allow commercialization of a turnkey e-bike sharing system in 2014 or 2015.



Photo credit: CycleUShare

In January 2014, City CarShare in the San Francisco Bay Area, a region known for its hills, launched a 4-year pilot electric bike share program in partnership with the UC Berkeley Transportation Sustainability Research Center.²⁰ Eventually about 90 electric bikes, 22 equipped as cargo bikes, will be available at up to 25 stations in Berkeley and San Francisco. City CarShare will run and maintain the bicycles and stations. These e-bikes are being piloted as an alternative to car sharing, and not traditional bike share. Program rules will be similar to those in the City CarShare program in that they will require cyclists to be members of the CarShare program and to use the bikes for round trips only. The pilot program is being supported with a \$740,000 Federal Highway Administration Value Pricing Pilot grant through the San Francisco Metropolitan Transit Agency. The Transportation Sustainability Research Center will assess the project, including what factors will influence car share members to replace car trips with electric bikes.

Another new pilot being planned, the "Drive Oregon E-Bike Transit Connection Pilot Project," will deploy 30 folding electric-assist bikes over 18 months in Portland. About 150–180 Kaiser employees will participate in the study, using the bikes in three-month cycles. Participants will fill out weekly surveys, and their usage patterns and behaviors will be monitored and evaluated by project supporters. Funds will also go toward the research and analysis of the e-bike usage and the creation of marketing materials to encourage effective replication of e-bike programs for other major employers.²¹

20. Jessica Kwong: [Electric bicycle sharing program may be coming to S.F.](#) SF Examiner. January 9, 2014.

21. Jonathan Maus: [Pilot project will push potential of e-bikes as commute vehicles.](#) April 2013.



Section 2: Bike Loan Programs

Bike loans are similar to bike sharing, but generally occur over a longer period. Vancouver, WA, one of the nation's most bike-friendly cities, has designed a bike loan program with seniors in mind. The Vancouver Housing Authority, which owns and manages three downtown senior housing complexes, recently made available eight bikes with two and three wheels for use by residents of two complexes. Residents wishing to ride are required to complete a loaner bike agreement and a liability release. Bikes can be checked out during normal office hours and used for multiple days, but only during daylight hours. The housing authority provides helmets and bike locks at no charge. Currently, only a small percentage of older residents participate in the program, but they participate on a regular basis. Most trips are for pleasure.

Below are described three other bike loan programs.

- The [Community Library Bike Program](#) (Arcata, CA) offers long-term bike rentals through a program designed similar to a library book-borrowing system. The bikes are free to all community members, and are “checked out” to an individual for six months. Users are required to pay a \$20 deposit. Volunteers refurbish donated bicycles, and public and private funds help sustain the program.
- Emory University (Atlanta, GA) has partnered with [Bike Emory](#), a larger bike sale program in partnership with a private bicycle company, to allow students to check out a bike for a semester or the school year. Rentals are \$75/semester or \$130/year. Students who do not own a lock may rent one for a nominal fee.
- In 2010, using a federal grant, [Community Partners Bike Library](#) (St. Paul, MN)—a coalition of a non-profit community bike shop and 19 partners—created a bike access service for low-income and underserved community members. The bikes are loaned for up to 6 months through social service, government, nonprofit, and community institutions directly engaged with low-income community members. The program uses refurbished bikes, outfitted with racks, fenders, lights, lock, helmet, and bike map. It also provides child trailers for parents with young children. The Bike Library offers programmatic support in the form of safe cycling classes, bike maintenance workshops, group rides, and one-to-one commuter support.



Photo credit: Bike Emory



Photo credit: Community Library Bike



Photo credit: Community Partners Bike Library

Section 3: Bicycle Recycling and Low-Cost Purchasing

Recycling bicycle programs offer not only used bikes, but also bike maintenance and mechanical training for young adults from families with low incomes. Often ownership of a bike can be earned through volunteer credits based on hours spent refurbishing bikes. Below are some examples of these programs.

- Yellow Bikes ([San Francisco, CA](#) and [Austin, TX](#)) are nonprofit community bike shops at which volunteers refurbish bikes or rebuild bikes from used parts, paint them yellow, and give them away for a donation. The shop volunteers also teach bicycle maintenance to interested community members. Their main objective is to promote bike usage among the general population, but sometimes they will donate bikes through projects that serve low-income and other populations.



- [Local Motion](#), a complete-streets advocacy group in Burlington, VT, leads a bicycling recycle program for Burlington's low-income residents. Each year Bike Recycle Vermont refurbishes hundreds of bicycles and sells them to eligible community members. The program also works with local schools and social service agencies to train children ages 8–18 in basic and more advanced bicycle mechanical skills.
- In Kentucky, the University of Louisville's [Earn-a-Bike](#) program provides \$400 vouchers to area bike shops for faculty, students, or staff willing to forgo a parking permit for a minimum of two years. In 2012, nearly 800 individuals participated in the program. In 2013 nearly 750 students, faculty, and staff participated in this annual program.
- Chicago's [Blackstone Bicycle Works](#) is a local bike shop and a partner in Experimental Station. Located on the South Side, Experimental Station hosts a variety of educational and cultural programs, as well as small business ventures. In addition to selling and repairing bikes, the shop provides neighborhood youth with job training and work-readiness skills in a safe environment through the Earn-a-Bike and Youth Apprenticeship programs.
- [Tulsa Hub's](#) program provides training to youth and adults. Founded in 2008, the program provides education about bicycling for transportation, refurbished bikes, safety gear, and follow-up support for area residents with disabilities or low earnings. Participants in the Adult Cycling Empowerment (ACE) are obliged to fulfill three requirements: (1) work at Tulsa Hub for a minimum of two hours, (2) completion of a six-hour bike training course, and (3) completion of a two-hour bike maintenance course. Participants who volunteer for a minimum of two hours a month earn credits toward the purchase of bike accessories. As with similar programs, bikes are donated by area residents and repaired by Tulsa Hub volunteer mechanics. Since 2009, the program has helped more than 200 adults earn a reliable transportation option.



Section 4: Community Supports for Cycling

Apart from long-standing cycling enthusiasts, most community members need extra encouragement to begin cycling. Communities worldwide, vested in reducing automobile-based harmful gas emissions, promoting healthy behaviors, and reducing automobile congestion and parking needs, are identifying what that “encouragement” needs to look like to promote more cycling. Probably the most powerful motivators are the ease of using the program, including enabling infrastructure; education on the existence and benefits of the program; and peer influence, often through visible evidence that others are engaged in cycling.

Infrastructure

A 2013 report by Active Living Research²² identified a strong association between enabling bicycling infrastructure and overall levels of bicycling. It noted, “One study of 35 large U.S. cities found that each additional mile of bike lane per square mile was associated with about a 1 percent increase in the share of workers commuting by bicycle. A more recent study using data from 90 large U.S. cities found that cities with 10 percent more bike lanes or paths had about 2 percent to 3 percent more daily bicycle commuters.”

This link between infrastructure and usage has been potently demonstrated in Seville, Spain.²³ From 2007 to 2010, the city installed over 100 km of bicycle paths, many separated from automobile travel lanes by bollards and other physical structures. In addition, it instituted a bike sharing program. These actions had remarkable results: the number of daily journeys by bike increased from about 6,000 in 2004 (less than 1% of all trips) to nearly 70,000 in 2010 (7% of all trips).

Types of road infrastructure that promote bicycle usage include the

- Presence of bike paths near riders’ homes and other destinations
- Physical barriers between cycle lanes and automobile lanes that increase cyclists’ sense of safety

22. [Active Living Research: How to Increase Bicycling for Daily Travel](#). May 2013.

23. European Metropolitan Network Institute: [“The Cycling Challenge: Cases of Copenhagen and Sevilla.”](#) July 2013.



- Effective pavement markings: sharrows, signage, and particularly different color pavement for bike lanes
- Other features, such as fewer required stops (stop signs, lights) on bike paths, good riding surfaces, and adequate bicycle parking

Equally important for bike share users is the presence of enough conveniently located bike stations, as well as easy access to the bikes themselves through smart cards, fobs, or easy-to-remember codes.

Transit infrastructure is also important to cyclists who use their own bikes, such as the ability to load bikes on buses and take them into rail stations. Even in colder regions, transit operators report that their bike racks on buses are always being used.



Photo credit: League of American Bicyclists

Education and Promotion

Many cities have engaged in cycling promotional campaigns to increase cycling. The Active Living Research report²⁴ noted above found that there are long-term increases in bicycling following bike-to-work days and community events that close streets to cars for the enjoyment of cyclists, pedestrians, and others. The Portland, OR, Department of Transportation has a page devoted to bike and walking maps. New York City's Department of Transportation showcases bicycling as a transportation option on par with walking and transit. Indeed, many roads in the city are being torn up to devote street space for a more bike and pedestrian-friendly experience. Bike & Park Chicago offers ideas about how to create a bike program, realistic options for care of bikers (the need for showers, for example), mapping routes, and bike parking. The San Francisco Bicycle Coalition offers a guide for employers, including tips on how to combine cycling with transit trips.

Smartphone and other apps promote the use of bike sharing programs by giving real-time information on bike locations, and the number of available bikes and docking stations. Several on-line companies incorporate bike share information along with transit information. One new company, [TransitScreen](#), provides this information on publicly displayed screens near transit stations, in hotels, and other public spaces in 12 North American cities.

Bicycle Tax Benefits

In 2009 the federal government recognized the importance of bicycling as a commute option by including it in the Commuter Tax Benefit Program. The program allows employers to provide employees who commute primarily by bicycle with

23. [Active Living Research: How to Increase Bicycling for Daily Travel](#). May 2013.





Photo credit: League of American Bicyclists

reimbursements of up to \$240 a year (\$20 a month) for reasonable expenses incurred for the purchase, maintenance, and storage of a bike. Employees may not receive both the bicycle and transit benefits in any given month.

Trial Memberships

Individuals can be introduced to cycling, and bike sharing programs if they exist, through “bike to work” days, sponsored workshops at related conferences, and friends and colleagues. Many bike sharing programs make it easy for prospective members to try cycling with short-term rentals (such as 3 days or 1 month). (Personal note: One of the authors of this paper was introduced to urban cycling at a recent conference. The experience allayed her fears of cycling along city streets and encouraged her to join bike sharing in her home city.) A 2012 report from Portland State University found that commuting to work by active modes (cycling and walking) increases a commuter’s sense of well-being, even when controlling for distance, income, and other factors.²⁵

25. Oliver Smith: [“Commute well-being among bicycle, car, and transit commuters in Portland, Oregon.”](#) January 2013.



Section 5: Bicycling Partnerships

Many bike share programs are sustained by partnerships that are equally invested in increasing cycling. This includes transit agencies, which see the advantage of encouraging additional access to bus and rail stations; public health agencies and organizations that wish to promote physical exercise; environmental organizations that support alternatives to carbon-emitting vehicles; and public and private universities and businesses that want to provide students or employees with an easy way to travel on large campuses. Some car share companies are also launching bike share programs. Nice Ride Bike Sharing program in the Twin Cities of Minnesota counts Blue Cross and Blue Shield of Minnesota, Bike Walk Twin Cities, the Federal Highway Administration, the National Park Service, and the Target department store as partners.

Cycling and Transit

Pairing transit and bicycling is a win-win for the system and the community, as it provides cyclists with an alternative way to get to the transit station or to the office after a transit trip. For example, at Capital Bike Share in Washington, D.C. more than half (54%) of all respondents to a 2012 survey said that at least one of the Capital Bike Share trips they made in the past month either started or ended at a Metrorail station and 17% had used bike share six or more times for this purpose. About a quarter (23%) of respondents used Capital Bike Share to access a bus in the previous month.²⁶ Chicago Bikes has created a Bike to Transit guide that identifies bike paths that riders can access via transit and the specific bus route that serves those paths.²⁷

Transit operators have collaborated to position docking stations at or near public transit stations and integrating bike and transit information on maps, apps, and promotional literature. For example, in Boston, the Massachusetts Bay Commuter Rail Company (MBCR) supports Hubway bike sharing as a component of its intermodal transportation system, encouraging integrated travel throughout the region. The transit system in Denver, RTD, is an active partner in its bike share program. (See also [“Making First/Last Mile Connections to Transit: How Carsharing and Bikesharing Programs are Improving Connectivity.”](#))

Public Health Agencies

Boston Public Health Commission subsidizes annual memberships in Boston’s Hubway for low-income Boston residents at \$5.00/year, which includes a free helmet. The first 30 minutes of every trip are included. The commission joined the city’s efforts to promote cycling as a way to combat the obesity crisis in the city, where 54% of adults are overweight or obese. To ensure that the targeted audience, often with limited incomes, had access to the program, the commission sponsored 600 subsidized memberships and supported the positioning of 3-4 bike stations in low-income neighborhoods. To encourage usage among nontraditional audiences, the commission helped with membership drives at partner sites and sup-

26. LDA Consulting: [“2013 Capital Bikeshare Member Survey Report.”](#) May 2013.

27. Chicago Transit Authority: [“Bike-to-Transit Guide: A Guide to Bicycling by Bus and Rail.”](#) 2007

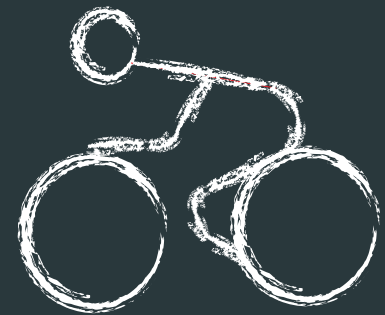


ported non-English speaking populations in registering through its language line. Program brochures were also produced in three languages.²⁸

Workforce Development Agencies

The Way to Work Transportation Center, a program of Family Resources Community Action (FRCA) in Woonsocket, RI, incorporates information about bicycle commuting into its transportation education workshops. The organization promotes cycling as a means of addressing limited access for workers commuting to jobs during hours when public transit is not available.

28. Daisy De La Rosa: [Addressing Health Equity in Boston's Bike Share System](#). Webinar presentation, May 3, 2012.



Section 6: Innovations in Cycling

To broaden the appeal of biking to young families, some bike share programs provide bicycles with child seats, such as in Hangzhou, China. This allows cyclists with small children to stop at child care or other interim locations on the way to/from work. The electric bike share program in Fukutsu, Japan features some bikes with child seats, and in Tel Aviv, Israel, most bike share bikes come equipped with adaptable child-seats pinned over the back wheel. The Community Partners Bike Library (St. Paul, MN) also provides child trailers that can be attached to their bikes.



The Dutch have applied the concept of cycling to moving groups of children around town in “bicycle buses.”²⁹ The bright yellow vehicles, which include eight sets of pedals for children ages 4–12, a place for an adult driver, and a bench for three additional children, is currently being used to transport children to school. It even includes a back-up motor for times when pedaling alone becomes too difficult. Similar models have been exported to Belgium and Germany. Other bike innovations include cargo bikes with large wagons attached to the front wheel in Belgium and the Netherlands, and a different version in [New York City](#) where a flat platform for carrying boxes and other items is situated between the front wheel and the seat.



As reported on the technology site, Ubergizmo, Organic Transit has created the ELF, an innovative solar/pedal hybrid vehicle.³⁰ This egg-shaped tricycle can be powered by an electric engine when needed or using pedals just like a bicycle. The durable shell comes fully equipped with lights, signals and mirrors just like a car, and the battery pack can be recharged using the solar panels located on the roof top (see photo in the gallery) or by plugging into a wall outlet. Additionally, the ELF’s compact size allows users to take advantage of the bike lanes.

Innovations in bicycles and the design of bike usage programs are rapidly emerging in the United States and other countries in the world. Communities are continually looking at ways to leverage this trend, and incorporate it as seamlessly as possible into all other local travel modes to achieve transportation, health, and environmental objectives.

Visit the National Center for Mobility Management’s [“By Topic”](#) web pages on “Cycling and Walking” and “Shared Use Mobility.” The [National Center for Bicycling and Walking](#) has a listing of the top 10 bicycling/pedestrian resources, and the [Bicycle Friendly Community program](#) offers tools and strategies for communities to improve their cycling environment.

29. Stephen Messenger: [“Bicycle Buses Let Dutch Kids Pedal Together to School!”](#) March 2012.

30. Eliane Fiolet: [ELF: Hybrid Solar / Pedal Vehicle by Organic Transit.](#) March 2013.

