

Bikeshare

What is it? Why is it good for Cities? How does it work? And what might it look like in the City of Key West?

In the last few years technology has enabled new forms of the sharing economy including in the transportation sector. Witness the rise carshare, Uber, real-time bus arrivals and traffic reports via smart-phones. It has enabled the bicycle to become a practical shared vehicle too. Cities



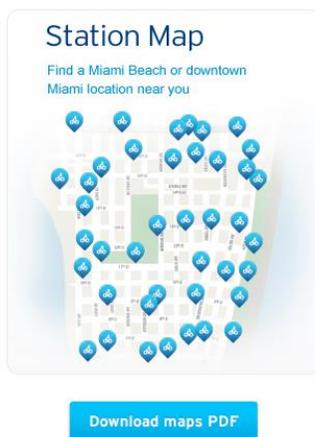
across North America and the world are starting bikeshare systems in order to make their city's street networks more efficient. Bikeshare enables cities to grow more prosperous, green and healthy. It is now common for travelers across the continent to encounter bikeshare in the city they are visiting and to come home and wonder when their home town will get it.

What is a Bikeshare System?

According to Wikipedia:

“A bicycle-sharing system, public bicycle system, or bike-share scheme, is a service in which bicycles are made available for shared use to individuals on a very short term basis. Bike share allows people to borrow a bike from point "A" and return it at point "B". Many bike-share systems offer subscriptions that make the first 30–45 minutes of use either free or very inexpensive, encouraging use as transportation. This allows each bike to serve several users per day. In most bike-share cities, casual riding over several hours or days is better served by [bicycle rental](#) than by bike-share. For many systems, [smartphone](#) mapping apps show nearby stations with available bikes and open docks.”

The central concept of these systems is to provide affordable access to bicycles for short-distance trips in an urban area as an alternative to motorized public transport or private vehicles. This reduces traffic congestion, noise, and air pollution. Bicycle-sharing systems have also been cited as a way to solve the "[last mile](#)" problem and connect users to public transit networks.



To date, no publicly owned and administered bicycle sharing program has yet been able to consistently operate as a self-funding enterprise, using only revenues generated from membership subscriptions or user fees and charges. As a consequence, most publicly owned bicycle sharing systems utilize funding from governmental and/or charitable sources. Bike sharing schemes may be administered by government entities,

not-for-profit private organizations, or via [public-private partnerships](#).”

Article: *Cities Must Understand Bikeshare Is Transit:* <http://mobilitylab.org/2015/04/17/cities-must-understand-bikeshare-is-transit/> Key takeaway from this article: “Bikeshare is relatively inexpensive, but to truly expand a local transportation network with this new option, cities must be willing to take on some of the burdens of its costs.”

Benefits of Bikeshare or Why Do Local Governments Get Involved

According to various research studies bikeshare eases traffic congestion, increases transit use and reduces auto use. It is good for local businesses. It provides health benefits to users and



environmental benefits to communities. Bikeshare works particularly well with transit as it helps solve the first-mile and last-mile problem. Bikeshare bridges gaps in existing transportation networks and encourages people to use multiple modes. In cities where there is bikeshare an increase in one-way trip making decisions is found. Meaning a person may decide to take the bus one-way and a bikeshare for the return trip. The knowledge that there is another option assures people

there are multiple ways to do the trip other than driving and that lifts use of all alternate modes.



Although harder to document, bikeshare has been cited to help a city’s streets become safer in what is called the “Safety in Numbers Affect.” When more people are on a street biking, cars are more aware and slow down, making it safer for pedestrians, bicyclists and drivers. Bikeshare has also been cited as a

gateway to more biking. People who might not commit to buying a bicycle try bikeshare. Then they realize it is easy and often, over time, end up getting their own bike. Bikeshare has also proven incredibly safe. As bikeshare bikes are heavy, slow, upright, have wide tires and are very visible, crash rates are lower than with regular bikes.

How Does Bikeshare Work?



Join. Take. Ride. Return.

In a nutshell one “**joins**” a system. For a day, month or year. One then “**takes**” a bike via a station, or the bike itself, by using a key FOB or a code. One “**rides**” the bike for a short trip, typically for less than 30 minutes. And then one “**returns**” the bike to any available station

within the system or parks it and locks it and “returns” it by sending a code to the system via smart-phone that it is now available for someone else to use.

Operating Models. In North America there are three main types of bikeshare: Fixed, Flexible and Hybrid:

1. *Fixed Model.* The first, which you’ll find in most major cities, uses a Fixed station model. Bikes can only be locked in a docking station. The station docks have the technology in them so they are “smart-docks.” A Fixed model makes bikes easy to find. The user unlocks the bike by inserting a key (or code in the case of a day user) into the dock. One



can locate stations, available bikes and available docks via apps on smartphones. Fixed Model operations can be found in big cities like [Washington, D.C.’s Capital Bikeshare](#), [New York City’s CitiBike](#), [Boston’s Hubway](#), [Chicago’s Divvy](#), [Chattanooga TN’s Bicycle Transit System](#), [Bay Area \(San Francisco\) BikeShare](#) and [Miami’s CitiBike](#).



2. *Flexible Model.* In the second model the bicycle itself has the locking technology (often referred to as a “smart-bike”) so there doesn’t need to be any stations. One unlocks the bike via a code provided by smartphone. One can find available bikes via an app on a smartphone so the bikes can be left anywhere. These type of systems are typically found in closed environments like

university or corporate campuses. The [University of South Florida Share-A-Bull](#) bikeshare is this kind of program. While each individual bike is more expensive than in a Fixed model system, Flexible systems are usually less expensive overall because of the lack of station infrastructure.



3. *Hybrid Model.* The third type of system is a hybrid of the first two. The locking mechanism is on a smart-bike, as in the Flexible modal, but stations without technology are provided (think branded bike racks) and bikes are only supposed to be parked at these stations. The advantage of a Hybrid system is that the fixed station

locations provide a reliable transit-like network. These can be found in smaller cities like [Long Beach, NY](#); [Orlando, FL’s Juice Bikeshare](#); [Lakeland, FL’s Swan City Bikeshare](#); [Ottawa, ON’s Right Bike](#); [Carmel, IN’s Carmel Bike Share](#); [Coast Bikeshare in Tampa](#) and soon Gainesville, FL. There are further still, other places that use a combination of fixed stations and allow smart-bikes to be parked anywhere too. Usually there’s an additional fee if one doesn’t use the fixed station. The

[University of Virginia's Ubike](#) and [Boise, ID's Green Bike](#) are this kind of system. Again, allowing bikes to be parked anywhere only works well in a very small, confined area.

Pricing and Why It Doesn't Compete With Bike Rental. Typically in North America bikeshare systems provide for daily, monthly and annual memberships or passes. Annual Member/Pass rates range from \$50 to \$150. Daily Member/Pass rates are typically about \$8 to \$15. This membership/pass allows persons to check out a bike and use it, usually for free, for 30 to 45 minutes. User fees escalate dramatically once you go over your initial free period in order to promote short-term use and put the bike back into circulation. (*Austin B-Cycle example below*)

Passes & Memberships				Access B-cycles w/ credit card	Online account management	Instant check-out w/ B-card	Fee forgiveness over 30 mins	Access in other B-cycle cities
PASS ACCESS	RATE	INCLUDED	FEES					
Explorer: 24-hour access Visiting or out for a daylong adventure? This is your ticket to fast, fun mobility.	\$8	First 30 minutes of every ride included in pass or membership	\$4 for each add'l 30 mins after the first half-hour	B				
Weekender: 3-day access Beat the traffic for a full weekend festival or B-cycle the sites when family visits.	\$15			B	B			
Local30: Monthly membership Whip out your member card for instant access; membership charged monthly	\$11/mo plus one-time \$15 B-card fee			B	B	B	B 5-minute grace period on each ride	
Local365: Annual membership Get your ride on all year, plus extra perks like B-card access in other B-cycle cities	\$80 B-card included at no charge			B	B	B	B 5-min grace period plus first 60 mins of fees each month waived	B

This also encourages people to use bike rental for longer-term use. For example, in the case of Capital Bikeshare the next 30 minutes after the initial free period would cost \$2. Another 30 minutes would cost a total of \$6, then \$14 (for up to 2 hours), then \$22 (for a total of 2 ½) and \$30 for a total of 3 hours and on up to \$94 for up to 24 hours. This is on top of the Daily Member/Pass fee. If someone checked out a bike for 3 hours they'd have paid \$40 (\$10 daily Member/Pass + \$30 in User Fees). In the Austin B-cycle example above the same 3 hours bike ride would cost \$28 (\$8 + \$20). The typical daily rate for bike rental, for example in Key West is between \$10 and \$25. This is why bikeshare doesn't compete with bike rental.

Bikeshare Coverage. Station spacing is key to a successful bikeshare system. Optimal systems are designed with bikeshare stations every two or so blocks. Systems shouldn't be designed that have stations more than a few blocks away or no more than a five-minute walk. The National Association of City Transportation Officials (NACTO) finds that high station density and even spacing is key. Best practices say to "go all in" or "start big." Meaning it is better to start with dense coverage in a more compact area, rather than trying to stretch the available resources to cover a wider area.



Ideal Station Location. Ideally stations are located where people want to go. This means retail,



employment, and tourist places. It also means density of where people, live, work and play. Research shows having stations located near bike lanes, bike trails and protected bike lanes increases use too. The goal is for bikeshare to act as public transportation, which means co-locating a bikeshare station with a transit station is important too. Studies indicate a good chunk of bikeshare trips are used to access first and last mile transit trips. Stations are most often located in on-

street car-parking spaces and on sidewalks where there is room. Stations can also be found in publicly owned plazas, public spaces and parks. Most stations tend to be on public right-of-way but in many cases private interests will also want stations on their property. Usually agreements with the property are needed to indemnify the system.



Station Size. Industry practice has found that the larger the station, the better the odds are that a bike or free dock will be available when a user needs it. Most programs in big cities have a minimum station size of 11 to 15 docks and often have many more than that. In medium size cities the average station size is about 10 docks. Obviously big people generating

places should have larger stations. Transit stations too. Stations at the end of the line tend to be bigger. Stations in the middle and in residential neighborhood stations can be smaller.



Business Models. As a public transit system, the bikeshare business model closely resembles that of public transport. There are many and varied ways of putting the operation on the street. In North America the most common form is for a city government or municipal agency to contract for operations with a private vendor as opposed to running it with municipal employees. Ownership of the assets – the stations, terminals, docks, bicycles and IT system are often procured and then owned by the government agency. Companies exist that only sell equipment, like [PBSC](#) and [8D Technologies](#). Others only provide operations like [Bicycle Transit Systems](#) and [Cycle Hop](#) and will work with the equipment of your choice. A few companies both make equipment and do operations. They usually only operate the equipment they make. Those include major players [Motivate](#), [B-Cycle](#), and [Social Bicycles](#). Still other companies can provide a turnkey service whereby *they* own the equipment and provide the operations thereby relieving cities of the obligation for taking care of additional infrastructure. [Zagster](#) is such a company. It operates a Flexible/Hybrid smart-bike system.



Costs: Given the different operating models and business models described above, comparing apples to apples can be difficult, especially without a specific scope and place. There are also advantages and disadvantages to each of the systems in terms of bikes, stations, and technology that can be more important than cost. If one were to try to estimate costs for a small 20-station, 100 bike system that included all the infrastructure costs (divided over a useful life of 6 years) + operating, one could expect costs to be in a range as follows:

- Fixed, Smart-Dock systems = \$3,400 to \$4,000 per bike annually;
- Flexible and Hybrid Smart-Bike systems = \$1,800 to \$2,900 per bike annually.

These costs generally don't include planning, station sighting, and marketing. Depending upon the pricing structure, make up of the users, city geography, goals of the program, etc. one would expect to recoup some costs through sponsorship, memberships and user fees. Like with transit, the cost recovery ratio can range from 20 to 70 percent. Most systems that purchase infrastructure do not consider these capital costs when publishing cost-recovery ratios (transit does the same).

Other Issues:

Equity. The issue of equity is one the bikeshare industry is still tackling. As most systems require a credit-card there's a fear that the unbanked can't participate. Some cities have worked around this with ways of obtaining a membership without a card. Other systems require a cell phone (not necessarily a smartphone) and so this can put the system out of reach to some. Care must be taken to reach out to those without credit cards and cell phones.

Redistribution of Bikes. When there aren't enough bikes or docks at a station that can be a problem for the end user. This is why care in setting up the network is key. The more there is a need to move bikes by the system, the higher the costs.



Key Takeaways:

- Bikeshare is considered part of a city's transportation system.
- It is an ongoing financial commitment just like transit, although much less expensive and with a greater cost recovery ratio.
- Bikeshare is good for local business, our environment and health.
- Bikeshare increases the use of walking, biking, and transit and reduces auto trips.

Additional Resources:

- Research on Bikeshare: [Unraveling the Impacts of Bikeshare](#), Published, Fall 2015; by Susan Shaheen, Co-Director of the Transportation Sustainability Research Center
- More reports and studies: [Capital Bikeshare Year End Reports, Surveys and Transit Development Plans](#)
- [Bikeshare: A Review of Recent Literature](#); Transport Review, 2016 Vol.36,1,92-113



- [Bikeshare Implementation White Paper A How-to Guide to Planning and Installing a Bikeshare System](#). Reviewed six bikeshare feasibility studies to gain understanding of best practices. By Tucker Gaegauf, A2B Bikeshare, July 7, 2014
- [IDTP: The Bikeshare Planning Guide](#) Institute for Transportation & Development Policy
- [Bikesharing in the United States – State of the Practice and Guide to Implementation](#) by Pedestrian and Bicycle Information Center prepared for USDOT FHWA, 2012.

What might bikeshare look like in Key West?

The City wants to get more people biking, walking and using public transit instead of driving alone. Why? Because traffic congestion is bad for business and economic development, degrades our Island's environment and is unhealthy for our citizens. Parking problems exacerbate tensions in our neighborhoods, and are bad for business. Parking solutions such as building more garages is terribly expensive and only induces more people to drive, exacerbating the problem that there just isn't enough room for everyone to drive and park in our historic downtown. One way to get more people using transit, biking and walking is to provide bikeshare.



Key West is perfectly suited to bikeshare. It is small and compact. It's flat. It has a grid of streets perfect for biking. There's a high density of people who live and work here. And there's an awful lot of tourists. Of cities with bikeshare systems, the ones with large bases of tourists tend to perform better.

Imagine 20 to 30 stations covering downtown and another 20 to 30 stations covering the rest of the City and hundreds of bikeshare bikes scurrying people all over the island. The new transportation option instantly brands Key West as one of the "in" cities that "puts people first." Combined with [carsharing](#) and better positioned transit service, more people leave their cars and get around by biking, walking and transit. Life is made better for all.

