



## APPENDIX C: BIKE SHARE

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# Appendix C: Bike Share

The following section of the appendix explains the different types of bike share systems, the pros and cons of each system type, and planning-level cost estimates for future consideration.

## Introduction

Bike share is a short-term, bicycle rental service where bikes are made available for short trips for a fee. Bike share systems allow for flexible trips, as users can pick up and return bikes at different locations, making bike share a convenient option for one-way trips.

There are currently several bike share systems operating in proximity to Northbrook: Divvy, in the City of Chicago and Evanston; Smoovebike, operated along the North Branch Trail and Dan Ryan Woods; oFo Bikes, operated on Chicago's far South Side; Zagster in Aurora; and JUMP bikes, currently being piloted in Chicago's North Lawndale neighborhood. The Village of Oak Park recently removed its 16 Divvy bike share stations due to low enrollment and usership.

At some point in the future, the Village may wish to consider a bike share program. The relatively short distances between major destinations, convenient and well-used transit stations (Northbrook Metra, Glen of North Glenview Metra), and many low-stress neighborhood streets for short trips can support the development of a bike share program.

The Village of Northbrook may benefit from having access to bike share that would support the objective of increasing bicycling in the Village and support first and last mile connections to transit. The possibility of participating in a regional bike share system in partnership with neighboring municipalities and regional agencies (e.g. Northwestern Municipal Conference,

Chicago Metropolitan Agency for Planning) is just one of many options for bike share, as well as using dockless providers to serve the same purpose. When exploring these options for bike share, an important consideration is the identification of local revenue and sponsorships to support bike share operations, as most bike share systems in the region are not self-sustaining, except for many dockless bike share systems, which are in most cases fully funded by the operator.

## Types of Bike Share Systems

There are three types of bike share systems available: dock-based, dockless, and hybrid systems.

### DOCK-BASED

Dock-based bike share is the traditional system of bike share, where there is a dock or station for each bike. Bikes must be checked out and returned to a dock or station, although it doesn't have to be the same dock, allowing for one-way trips.

### DOCKLESS

Dockless systems use smart bikes and do not require docks. "Stations" are created through the use of very small geofences. Geofencing uses GPS technology to create a virtual geographic boundary for each station, enabling software to register when a bike enters or leaves a station area. The stations can utilize existing bike parking (such as U racks and bike corrals), but it is not required. The bikes are equipped with self-locking



Figure 1. One of Aurora's three bike share stations (source: City of Aurora, Illinois, [www.aurora-il.org](http://www.aurora-il.org)).



Figure 2. An example of a docking point at a bike station in Boston, Massachusetts.

mechanisms and users can be directed to the desired parking areas (or “stations”) through paint or signage. The smart bike technology, such as the booking, payment, and locking technology, is located on board the bike, removing the need for set stations or docks.

Because of the relative autonomy of dockless bike share operators compared to other bike share systems, many local agencies have developed permitting processes, local ordinances, and other instruments to regulate dockless bike share systems. These policies and procedures ensure system operations and customer service meet the community’s and local agency’s expectations of bike share.



Figure 3. An example of a dockless bike share system by LimeBike.

**TABLE 2. BIKE SHARE PROS AND CONS**

TYPE	PROS	CONS
Dock-based/Hybrid	<ul style="list-style-type: none"> <li>Relies on sponsorship, which can create community partners</li> <li>More predictable- people know where bikes will be and local agency has control of where bikes will be</li> <li>Planning and designing of stations can be tailored to support local agency goals</li> <li>Control over service level (e.g. maintenance, customer service, bike quality)</li> <li>Permanence as infrastructure</li> </ul>	<ul style="list-style-type: none"> <li>Higher infrastructure costs (docks and more expensive bikes)</li> <li>Need to plan and design stations</li> <li>Most cities require a permit for each station</li> <li>Relies on sponsorship</li> <li>Station requires winter maintenance</li> </ul>
Dockless	<ul style="list-style-type: none"> <li>No station planning requirements- saves money</li> <li>More flexibility</li> <li>Privately funded- little to no public money required</li> <li>More affordable for single-trip (casual users)</li> <li>Less winter maintenance</li> <li>Less local agency liability for helmet laws</li> </ul>	<ul style="list-style-type: none"> <li>Less predictability</li> <li>Less public control over system</li> <li>Bikes can be left anywhere- “bike litter”; can be left in the street, blocking sidewalk*</li> <li>Unknowns- privately funded so little info on costs, such as re-balancing</li> <li>If cities aren’t prepared (with policies in place) then dockless companies have no rules</li> <li>Not affordable for members</li> <li>Shorter lifespan for bikes (poor quality bikes)</li> </ul>

\*Coordination between the bike share vendor, customers, and the Village can mitigate this concern

## HYBRID

A hybrid system uses smart bikes with docking stations. Though docks are available, the program does not require that a bike be left at a dock and permits it to be parked anywhere within a geofenced service area. This type of system typically charges a fee to park outside of the stations to encourage users to utilize the docks.

## Payment Scenarios

Many payment scenarios are currently utilized across bike share systems. Riders can either choose a deposit-based payment or an annual membership. Deposit-based rides allow for users to rent a bike for a single ride (typically 30 minutes) or a day pass (typically 24-hour access with unlimited trips) by paying a refundable credit card deposit. With an annual membership, riders can take unlimited trips, typically priced at the same cost as a single day pass. The majority of bike share systems require access to an account that is linked to a debit or credit card, and often is linked to a smartphone app.

## Pros and Cons

There are advantages and disadvantages to any bike share system. The following table outlines the pros and cons of each system.

## Cost Estimates

Planning-level cost estimates are based on cost averages derived from a sampling of existing bike share systems launched (or piloted on a limited basis) within the last two years and, where possible, representative of the three preferred system models. The range in costs reflect the range of pricing among different equipment providers and operators, as well as varying levels of service for operations and maintenance. These cost estimates do not account for Village staff costs, which may vary depending on Village involvement and type of system selected.

Operating costs for geofenced smart bikes are not currently available. As the bike share industry has undergone a recent, rapid shift towards a new business model for providing dockless bike share, private companies are upfronting the costs of both capital and operations in revenue-generating markets, so as not to burden a municipality that is considering dockless bike share. The table below provides estimates for the capital costs based on known equipment prices, but these may not be costs incurred by the Village in those cases. Similarly, in some cases, launch costs of dockless systems have been negligible.

**TABLE 1. BIKE SHARE COST ESTIMATE**

SYSTEM TYPE	START UP COSTS	CAPITAL COSTS	OPERATING COSTS
Dock-based/ Hybrid	\$800	\$1,600 - \$3,200	\$1,400 - \$2,500
Dockless	\$0 - \$800	\$1,100 - \$2,000	Not currently available

\*All costs per bike

