

Bicycle Share Equipment

The Alta Bicycle Share, Inc. (ABS) team combines the world's best technology, bikes, and stations from Public Bike System Company (PBSC) with global experience in launching and operating bike sharing systems. We bring a collective passion for creating healthy and green communities and the technical expertise necessary to execute and operate effective, successful programs.

System Specifications

Bicycles

PBSC bicycles include patented design elements found in the critical components of the bicycle, making it a reliable, durable, and dependable vehicle. Its features include:

- An aluminum frame that is light, strong, and durable
- A one-piece handlebar that covers and protects all components
- Covered cables and derailleur for better protection
- A chain cover that:
 - protects the chain and protects riders against dirt, grease, and debris
 - increases the structural integrity of the frame
- Active lighting, front and back, powered by a Shimano Nexus hub dynamo (10,000-hour lifespan)
- Front/rear internal brakes
- A luggage carrier/cargo rack
- An adjustable seat that cannot be removed; seat post is marked with a numbered scale to help users remember their optimum setting
- An RFID tag, which works as an anti-theft mechanism and uniquely identifies each bicycle for easier maintenance
- Optional GIS microchip for bicycle route and location tracking
- Low center of gravity for greater stability
- Rims – heavy duty, double-wall (to avoid pinch flat), 36 spokes
- Tires made with a heavy duty puncture-proof casing and security reflector band on each side
- An extended gearing range with three- or seven-speed hubs



The Bicycle

Stations

The PBSC stations and their components are modular, portable, and designed to fit harmoniously into their urban surroundings.

A station is comprised of a platform on which docking points and a terminal are mounted. Because of the modularity of the system, each station can easily be expanded to meet demand, but preparatory analyses carried out jointly with a municipality typically dictate optimal station configuration. Because the size and geometry of a station vary considerably from one location to another, or even from one time to another, the PBSC System is designed to allow maximum flexibility with minimal disruption to urban surroundings.

Typically, the station includes:

- A wireless terminal where users, subscribers, and occasional riders carry out a wide range of transactions.
- A variable number of docking points where bicycles are secured when not in use.



The Station and Terminal

All components are seamlessly integrated into the technical platform and easily interconnected (“Plug and Play”) without the need for costly excavation or preparatory work.

Bicycle Share Equipment, *continued*

The PBSC System is highly resilient due to its independence from external power sources. The system is fully autonomous because it uses solar power and wireless communications.

Station-wide electrical requirements are powered by a constant supply from two batteries. The charge from the solar panels is controlled by a proprietary internal power controller board (power hub). This protects the PBSC system from power failures across the grid.

As patterns of use are captured, the stations may be relocated and resized to accommodate fewer or more bicycles or reconfigured in a wide range of geometries (L-shaped, U-shaped, circular, etc.) using a variable number of docking points.

Terminal

The terminal is the station component where all communications are linked between bicycles, docking points and the PBSC Control Center. It is also the place where non-subscribers and occasional users, such as tourists, are able to secure a temporary membership.

Moreover, the terminal can be set up to provide a wide range of additional services. Its communications device, credit card processing capabilities and multi-function user interface allow the terminal to be configured to dispense parking tickets for metered zones (for use as a “Pay and Go” or “Pay and Display” parking system), special event tickets, coupons, public transportation passes, and other information.



The Technical Platform and Docking Point

Docking Point

The docking point is the module where bicycles are parked and locked when not in use. It is also the point where subscribers can check in and check out a bicycle by simply inserting a PBSC-Key in the reader.

In compliance with PBSC's rigorous standards for modularity and flexibility, docking points feature all the characteristics needed to make the system adaptable to changing needs:

- Uniform “Plug and Play” modules enable an easy fit into the technical platform
- Made from aluminum – resistant to corrosion
- Easy to remove, replace and repair
- Virtually no downtime
- Simple and easy-to-use interface
- Front-end protector that also serves as an anti-theft mechanism
- Breakdowns may be reported directly from the docking point

Technical Platform

The platform is the physical support onto which docking points and terminals are mounted. As such, it is the base and hub for all electronic communications between a docking point and the terminal.

- The same base is used to mount the terminal or docking point. Its “Drop and Go” design makes the station completely portable and infinitely expandable. As many as 250 bicycles may be parked at a single station. This makes the PBSC System capable of accommodating special events, such as festivals, in a matter of days.
- No construction, excavation, or site preparation is needed, and no damage is done to the area. The stations are easy to install, maintain, relocate, and remove.

Bicycle Share Equipment, *continued*

The PBSC-Key and Software

The PBSC-Key is an RFID-embedded key. Upon registration, each user is given a PBSC-Key that allows them to go directly to a docking point, choose the bicycle they want, insert the key, and upon account validation, ride away.

The PBSC software provides a complete suite of tools for real-time system management, facilitating maintenance, repair and redistribution. At all times the system allows verification of critical information such as:

- The number of docks and bicycles available in real-time and accessible via the internet or wireless handheld device
- Users may notify PBSC of bicycle malfunction upon returning a bicycle to a station, which in turn triggers a response from the control center and a real time work order sent to the ground maintenance crew
- The real-time status of key station components, such as the communications devices, solar panels and electronics
- Real-time location of any bicycle at any station in the network



The Key

Other useful usage data that the system generates includes:

- Number of trips and their duration
- Number of customers by membership type
- Number of rentals per member by day, week, or month
- Average number of miles biked per user
- Amount of additional time granted when the station is full
- Number of bikes in service per day/month
- Percentage “up” time
- Number of bicycle docks used per day



Photos courtesy of DDOTDC and Hubway