



# BCycle Dash Bike Share System

## Revolutionizing public transportation.

BCycle, a subsidiary of Trek Bicycle, envisioned a bike share system that could help change how we think about public transportation. But when they ran into project challenges, they turned to Plexus for a solution. We stepped in to assist with designing, manufacturing and delivering BCycle's Dash bike share system to the market – in only four months.

### SOLUTION SPOTLIGHT



**CUSTOMER:**  
BCYCLE, A SUBSIDIARY  
OF TREK BICYCLE



**PRODUCT:**  
DASH SMART BIKE



**SOLUTIONS:**

- Design and Development
- Supply Chain Solutions
- New Product Introduction
- Manufacturing
- Aftermarket Services

There are plenty of challenges in building a strong and vibrant community.

Community health. Environmental responsibility. Public transportation. These are big issues that play an important role in shaping life in today's communities. And they present big challenges. BCycle, a subsidiary of Trek Bicycle, wanted to create a solution that could impact all of those areas.

So they began working on a project with an exciting and ambitious vision – create an urban bike share system that could help reimagine how we think about public transportation. They knew that adding a strong bike share program to a city's public transportation infrastructure can make a huge impact. It's a cost-



effective alternative or addition to existing mass transit. It can help cut pollution and clear up traffic. And it can be a valuable enabler in our efforts to make our communities healthier.

The product was called BCycle Dash – a rider-centric, intuitive, and premium bike share experience utilizing a smart bike, and BCycle was well on their way to making the vision a reality. But when they came to Plexus, they were in a tough spot. They had a quickly approaching launch date and numerous project challenges keeping them from meeting it. Knowing they had cities lined up and waiting to take delivery, BCycle needed to find a new partner who could get the job done. They found that partner in Plexus.

Components came with 8 to 12-week lead times, leaving only about four weeks to get the product's design in order.



## Getting the project up to speed.

There were two parts to BCycle's Dash project – the RFID-and-GPS-enabled smart kits for the bicycles and the AC or solar-powered kiosks users would interact with to access them. The technology allows users to easily check out their bike, get turn-by-turn directions on a heads-up display, lock their bike anywhere and find other stations.

When we joined the project, most of the design and engineering was complete. But drawings still needed to be completed and the strategy for meeting tough FCC and UL regulations was unclear. We found manufacturability challenges in the product design. And we saw a significant opportunity to reduce costs. If we were going to help BCycle get Dash across the finish line and into the hands of their waiting customers, we needed to assist with design and supply chain efforts, manufacture the product, and deliver it – all in only four months.

The most challenging aspect of the Dash project came in redesigning, testing and iterating the product to meet tough quality and regulatory standards in such a short time. Some standards were nonnegotiable – requirements that had to be met in order to legally take the product to market. Others were quality standards that could make or break the product experience. With the success and reputation of BCycle in our hands, we immersed ourselves in not only making Dash happen, but doing everything it took to send the product out the door flawlessly.

## Getting the details right.

BCycle Dash was meant for an outdoor environment and consistent use by a city's worth of riders. It had to be durable. It had to be watertight to keep the electronics inside protected from rain, snow and whatever weather Dash would encounter. Everything had to be sturdy enough to withstand the wear and tear of daily use or even extreme cases like vandalism.

To make sure no water could get inside the kiosk unit, it had to pass the UL rain test. It's an intense process. Three to four times a week, we would test for leaks by subjecting the product to an hour long, continuous spray of water from three sides, hitting every possible angle. Remote cameras inside the unit would show us wherever water was leaking into the device. While there had been some preliminary testing before BCycle had partnered with Plexus, most of this had been theoretical. The harsh, practical testing environment revealed design considerations we needed to readdress. We would then iterate the prototype, changing gaskets, moving the

Plexus redesigned and thoroughly tested the product to meet strict regulations and make sure it could stand up to harsh outdoor conditions.



seams, modifying tolerances, and finding different materials or thicknesses. If Dash was going to succeed, it had to be entirely free from leaks before we could hit the market.

Closely connected to the ingress protection, we had to address tough flammability ratings. All open electrical leads had to be protected from dust, water and other elements. Batteries had to be self-extinguishing. To meet UL standards, the entire material list had to be flame retardant. We collaborated across engineering, supply chain and manufacturing to pore through every material. Together, our integrated team was able to find solutions and source materials quickly to meet UL ratings under intense time pressures.

But there was another, more critical element to successfully getting the product to market. Dash had to meet the FCC's electromagnetic compatibility (EMC) requirements to even be cleared for legal sale. This testing is all about uncovering any electromagnetic issues, like harmful radiation or communications interference, caused by the interaction between parts. And this isn't a test you can plan for – it's an iterative debugging process that requires a fully functioning prototype. The process takes time. So we had to compress our timeline to get a manufacturing prototype completed as soon as possible. Working as efficiently as possible, we were able to create the prototype about 30 days before launch, leaving maybe 15 days to work out any EMC issues so Dash could make its delivery date.

Our Aftermarket Services team supports the product in the field to ensure the best possible experience for BCycle's users.

### Making public transportation the best part of your day.

The short timeline to get BCycle Dash to market meant we had one shot to get it right. Our integrated process and the strength of the relationship between BCycle and Plexus were critical to making that happen. Optimizing the supply chain, re-engineering, doing extensive redesign for manufacturability – our collaborative approach, both with the customer and within our own value stream, was invaluable to the project. From the very beginning, our team made sure they understood BCycle's vision for Dash, and we committed ourselves to making it a success. Trust is critical. We worked hard to make sure BCycle saw that they could count on us to bring their vision to life.

Despite all the work to be done and such a short time to complete it, the Plexus team was able to deliver all of the Dash systems to the cities that had placed orders, on time. Dash is brand new to the market, and it's well positioned to make an impact in the communities it now supports.

BCycle knows they've found the right partner in Plexus. We've proven that they can trust us to follow through. That we'll do what it takes to make the project a success. They were incredibly grateful to our team – including the president of the company, who made a point to personally thank us for the work we did to get the Dash smart bike system to market on time.

Ready to get started? Contact our Industrial and Commercial team at [plexus.com/contact](https://plexus.com/contact) or by using the appropriate phone number below.

AMERICAS  
+1 877 733 7260

EUROPE  
+44 (0)1506 637 997

ASIA PACIFIC  
+604 632 5252

PLEXUS.COM

