



UTC Spotlight

University Transportation Centers Program

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Bike Sharing Popularity Grows as System Matures

Cycling is rapidly rising as a popular transportation mode in North America, especially in urban areas where people are using bicycles to bridge the home-to-transit and transit-to-work gaps—the “first” and “last” miles. The Mineta Transportation Institute (MTI), the lead UTC for the Mineta National Transit Research Center (MNTRC), anticipated this trend some time ago and funded several research reports on cycling.

One particularly popular report addresses the rapidly growing acceptance of shared-use bicycles by investigating the various related programs in North America, including strategies, methods, challenges, and solutions. [Public Bikes in North America: Early Operator and User Understanding](#) (June 2012) aggregates valuable insights for communities considering ways to leverage this mode as it becomes economically and socially feasible.

Previous incarnations of this service were unsuccessful. When bike sharing was first initiated, some communities distributed public bikes for use via the honor system—riders were expected to pick up the bikes where they found them on the street, and then to leave them for others to use. There were no fees and no tracking methods. With no accountability in place, these bikes simply disappeared.



C4Cycling Association

Bike sharing station for the City of Denver. The concept of bike sharing was first tested with city employees before opening to the public.

MTI Funded Cycling Reports

Downloaded more than 100,000 times from the MTI website, some recent reports include: [Measuring Walking and Cycling Using the PABS \(Pedestrian and Bicycling Survey\) Approach: A Low-Cost Survey Method for Local Communities](#) (December 2010), [Bicycling Access and Egress to Transit: Informing the Possibilities](#) (April 2011), [Promoting Bicycle Commuter Safety](#) (February 2012), and [Low-Stress Bicycling and Network Connectivity](#) (May 2012).

Gradually, as information technology (IT) improved, the shared-use system began to implement GPS locaters, credit card swiping, or online reservation systems. Some organizations sprang up to offer memberships, while other systems offered the bikes on an *ad hoc* basis.

These IT-based systems added an accountability factor that made the service less vulnerable to theft, loss, or destruction. In turn, bike-sharing enterprises came on board, installing pick-up stations in urban areas and launching a rapidly expanding option for first- and last-mile support for public transportation.

The report found that, as of January 2012, 15 IT-based, public bike-sharing systems were operating in the United States, with a total of 172,070 users and 5,238 bicycles. Four IT-based programs in Canada had a total of 44,352 users and 6,235 bicycles.

MTI principal investigator Susan Shaheen, Ph.D., and her team interviewed public officials, industry experts, and government agencies in both countries. Responses from several bike-sharing insurance experts also were included in the report.

“Notable developments during this period include the emergence of a close partnership among vendor and operator and technological advances,” said Shaheen. “These include mobile bike-docking stations that can be

moved to different locations and real-time bike/station tracking to facilitate system rebalancing and provide user information.”

The team also completed a user survey of 10,661 people to obtain information on four early IT-based systems – BIXI in Montreal; BIXI in Toronto; Capital Bikeshare in Washington, D.C.; and Nice Ride Minnesota in the Twin Cities (Minneapolis and St. Paul). The survey found that, rather than recreational use, commuting to work or school is the most common trip purpose for bike sharing.

Survey results showed that nobody increased their driving as a result of bike sharing in these cities, but an average of 40 percent decreased it. Increases and decreases in transit use varied according to a variety of specific factors in each city.

Convenience, improved access, health benefits, increased mobility, positive environmental impacts, low cost, and space efficiency were cited as the greatest bike-sharing benefits.

“Experts reported that daily system rebalancing is one of the leading challenges,” said Shaheen. “They noted that some of the greatest inconveniences occur when bicycles are unavailable for check-out or when docking stations are full at check-in. It also will be beneficial to increase public-transit linkages, as well as to improve bicycling infrastructure and safety.”

The report notes that public bike-sharing insurance is also an important issue, and policies vary considerably across the industry. In general, insurance premiums are influenced by geographic location, limits and deductibles, and system usage.

“In general, these results indicate that in all cities evaluated, public bike sharing reduces driving and auto emissions,” Shaheen stated. “In larger cities, bike sharing appears to draw from public transit use, opening up capacity and perhaps serving as a faster connection to intra-urban locations than bus and rail systems had previously provided.”

At the same time, she said, evidence shows that public bike sharing is improving urban travel connectivity, reducing driving and thus lowering vehicle emissions.

About This Project

The research for Public Bikesharing in North America: Early Operator and User Understanding was led by principal investigator Susan Shaheen, Ph.D. The research team included Elliott W. Martin, Ph.D., Adam P. Cohen, M.S., and Rachel S. Finson, M.S. All are from the University of California, Berkeley. Drs. Shaheen and Martin are certified as MTI Research Associates who come from a variety of national and international universities, and who receive grants from MTI for approved research projects. The full report is available at <http://transweb.sjsu.edu/project/1029.html> Donna R. Maurillo, M.S.T.M., who provided this story, is Director of Communications at the Mineta Transportation Institute, San Jose (Calif.) State University. The executive director of the Mineta National Transit Center is Rod Diridon (rod.diridon@sjsu.edu).

This newsletter highlights some recent accomplishments and products from one University Transportation Center (UTC). The views presented are those of the authors and not necessarily the views of the Research and Innovative Technology Administration or the U.S. Department of Transportation, which administers the UTC program.

