

FREEDOM FROM THE STATION: SPATIAL EQUITY IN ACCESS TO DOCKLESS BIKE SHARE

## **FREE-FLOATING BIKE SHARE SYSTEMS MAY IMPROVE ACCESS TO DISADVANTAGED NEIGHBORHOODS.**

Bike sharing may have numerous urban health, sustainability, and mobility benefits. Bike sharing systems that do not require stations, often called “dockless” or “free-floating”, launched in North America in 2017. Free-floating bike share may create better access and use of bike share to more diverse populations.

One of the barriers to equity in access to bike share has been geographic coverage. Unequal access to station locations may increase inequalities within a city. New free-floating technology allows riders to take & leave bikes from any location and may therefore allow users from disadvantaged neighborhoods increased access. Free-floating systems also do not have the additional cost of installing docking stations, which might allow greater access to a larger portion of the city.

**In an assessment of 35 bike share systems across the US, 53% of docking stations were located in the top quintile of economically advantaged census block groups**

The City of Seattle, Washington’s Department of Transportation (SDOT) launched a pilot program to permit free-floating bike share companies to operate in the city. Three operators launched programs (LimeBike, Spin, and Ofo) in July 2017, making Seattle the first city in the U.S. with these systems.

**“Free-floating bike share systems can increase access to neighborhoods that station-based systems may have previously missed,” said Jana Hirsch, Assistant Research Professor at the Urban Health Collaborative, Drexel University.**



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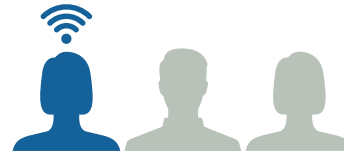
Within 6 months of launching:



**10,000 BIKES WERE AVAILABLE**



**450,000 TRIPS HAD BEEN TAKEN**



**1/3 OF ADULTS WITH INTERNET ACCESS IN THE CITY REPORTED TAKING AT LEAST ONE RIDE.**

**BIKE AVAILABILITY**

While bike availability varied greatly between the 93 neighborhoods, no neighborhood was consistently denied access to bike share bikes during the trial period (figure 1). There were trends towards bike availability being in socioeconomically advantaged neighborhoods. Neighborhoods above the mean bike availability level had:



**HIGHER MEDIAN INCOMES**



**MORE COLLEGE EDUCATED RESIDENTS**

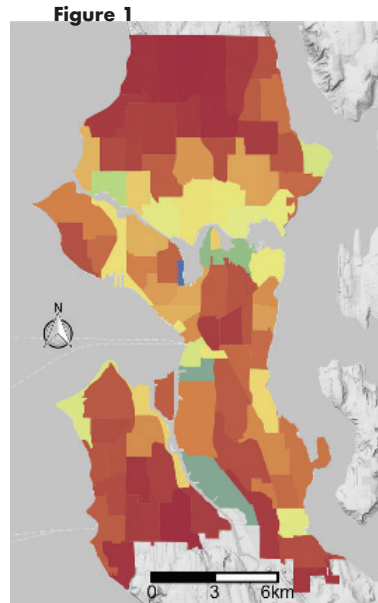


Figure 1 shows availability of bike share bikes by daily population for each neighborhood in Seattle in fall 2017.

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**BIKE REBALANCING**

Bikes are moved within the city in two main ways:

- rides by users
- rebalancing by companies

To see if companies were rebalancing to areas of higher need, we examined patterns of rebalancing. In general, operators placed bikes where they would be used. (figure 2).

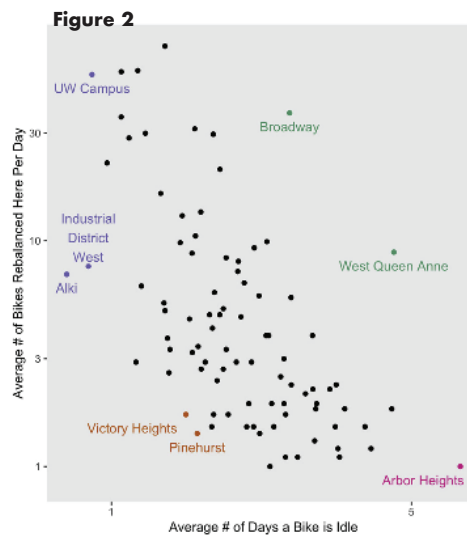


Figure 2 shows distribution of bikes rebalanced to a neighborhood as compared to average days bikes idle in that neighborhood (on the log scale), with selected neighborhoods highlighted for illustrative purposes.

**CONCLUSIONS**

Free-floating bike share programs are novel in the fast-changing small-scale mobility industry, and a timely area for equity research. All neighborhoods were served by bikes and operators moved bikes to high use areas. These results are encouraging for policymakers considering free-floating bike share systems in their communities. Partially driven by data from the initial pilot, for the second permit year, SDOT created a focus around equity and determined areas of the city in which vendors should deploy at least 10% of their fleet.

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For more information and a complete list of references, as well as additional resources on this topic and information on the Drexel Urban Health Collaborative, please visit us online at: [drexel.edu/uhc/resources/briefs](http://drexel.edu/uhc/resources/briefs)

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