

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

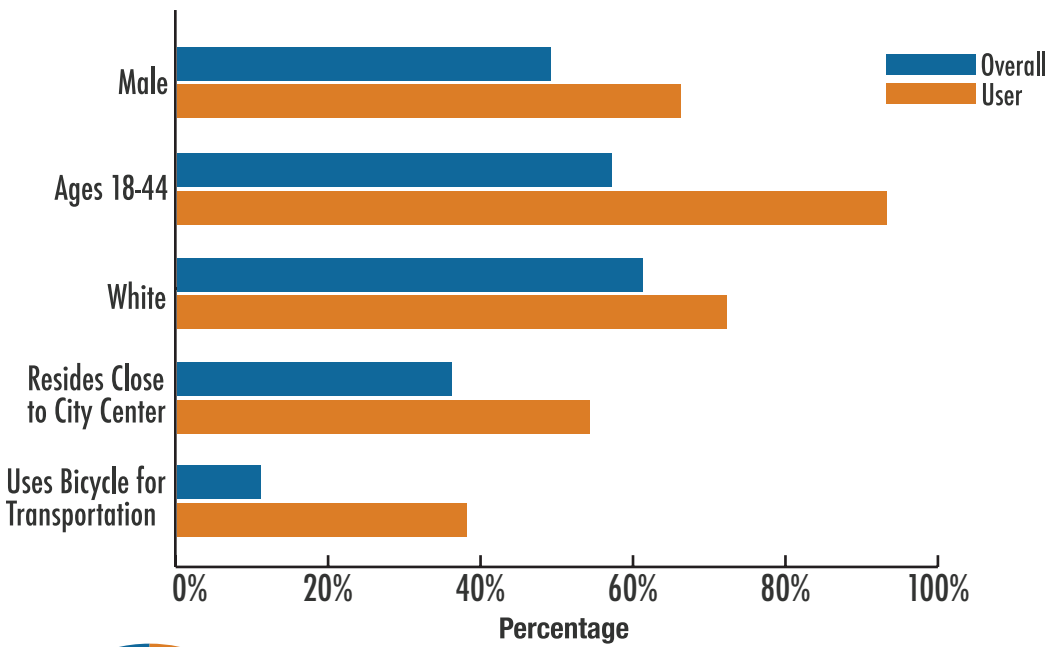
In July 2017, the city of Seattle, Washington became the first city in the U.S. to have free-floating bike share when they permitted three companies to operate (LimeBike, Spin, and Ofo). We examined equity issues in the first six months of these systems. Partially driven by data from the initial pilot, 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.

Within 6 months of launching:

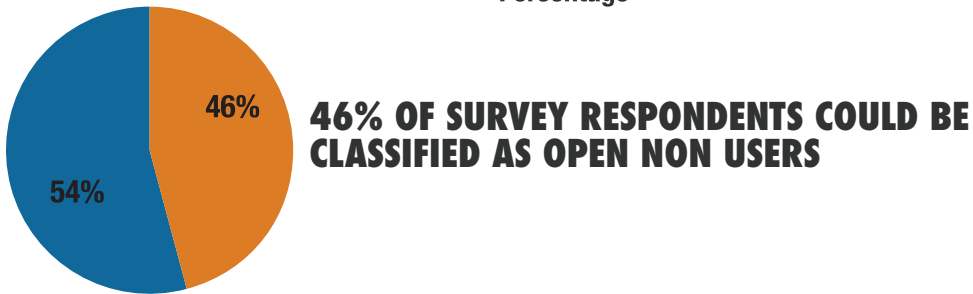


**RESPONDENTS WHO DID NOT REPORT WHITE OR ASIAN RACE WERE MORE LIKELY TO IDENTIFY GEOGRAPHIC ACCESS, BICYCLE SIZE, OR COST AS BARRIERS.**

### WHO IS USING FREE-FLOATING BIKE SHARE



**74% HAD FAVORABLE OPINIONS OF FREE-FLOATING BIKE SHARE**



Of the 67% who did not use bike share in the previous 6 months, just under half (46%) could be classified as open non-users. *Open non-users are defined as individuals who did not try the free-floating bike share but said they would be open to trying in the future.* Compared to the closed non-users, open non-users were younger and female. They had greater access to a working bicycle, higher rates of bicycling in Seattle, and higher rates of riding any bicycle in the previous 6 months.

### HOW DOES FREE-FLOATING BIKE SHARE WORK?

Bike sharing has changed rapidly since the first program was launched in 1965. Free-floating bike share is defined by bikes that do not require bikes be returned to a set location. These systems are sometimes also called “dockless” or “flexible.” Free-floating bike share allows users to locate bikes using Global Positioning Systems (GPS), and then lock bikes in place at the user’s destination. Some “hybrid” systems allow riders to pick up or drop off bikes at either a station or a non-station location.

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### 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

### BIKE REBALANCING

Bikes are moved within the city in two main ways: rides by users and rebalancing by companies. Our examination of whether companies were rebalancing to areas of higher need found that, in general, operators placed bikes where they would be used. (figure 2).

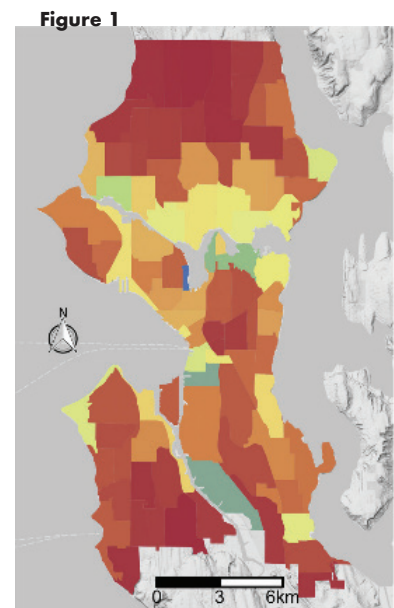
### BARRIERS REPORTED:

- Safety
- Social
- Spatial Access
- Physical Size
- Operation
- Technology
- Cost

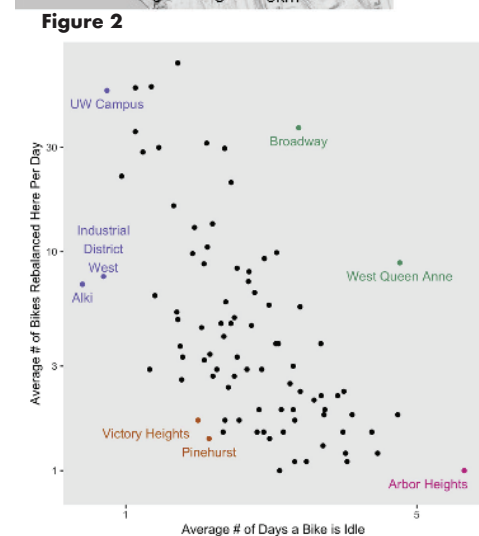
### ADDRESSING BARRIERS

To address these issues, cities have used permitting to require implementation of:

- low-income payment plans
- payment systems for the unbanked
- non-smartphone options.



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



**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.