

Equity in Motion: Bikeshare in Low-Income Communities

Analyzing barriers & setting targets for Capital Bikeshare ridership in Washington, DC's low-income communities
 Client: District Department of Transportation (DDOT) | Faculty Advisor: Professor Brian Taylor (UCLA)

AYSHA COHEN
 UCLA Masters of Urban & Regional Planning '16
 aysha@ucla.edu

INTRODUCTION

"It's only typically a couple times in any given century that a city gets to introduce a **new form of public transportation**.

It's very important that you do it in a way that creates as much **opportunity** as possible for as many citizens as possible." - Andrew Stober, Philadelphia's former Chief of Staff

In Washington DC, however, a 2013 Member Survey of its public bicycle sharing program, Capital Bikeshare, showed that 80% of members were white, **80% had an income of \$50K or more**, and 95% had at least a 4 year college education. Additionally, Capital Bikeshare has found their **tires slashed, their docks vandalized** and their bicycles seldom used in disadvantaged communities.

AIM

As Washington, DC embarks on an ambitious three year plan **to expand to 454 bikeshare stations** and begins new partnerships with community **health clinics**, the District Department of Transportation (DDOT) has asked me to analyze current and predicted Capital Bikeshare ridership in low income communities.

THESIS

Capital Bikeshare has great potential to bring benefits to low-income people, from **reducing ownership costs** to expanding **transport options**. However, **structural, financial and cultural barriers** prevent bikeshare's widespread adoption in low-income communities, namely through a lack of:

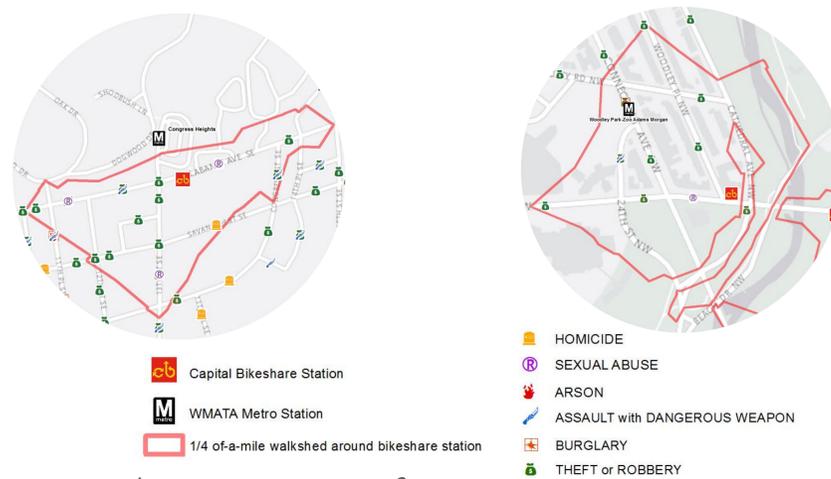
- (1) Convenient, reliable **accessibility**
- (2) A perception of **safety**
- (3) Membership **affordability** and
- (4) A **diversity** in age and ethnic groups

STATION LEVEL VISUALIZATIONS

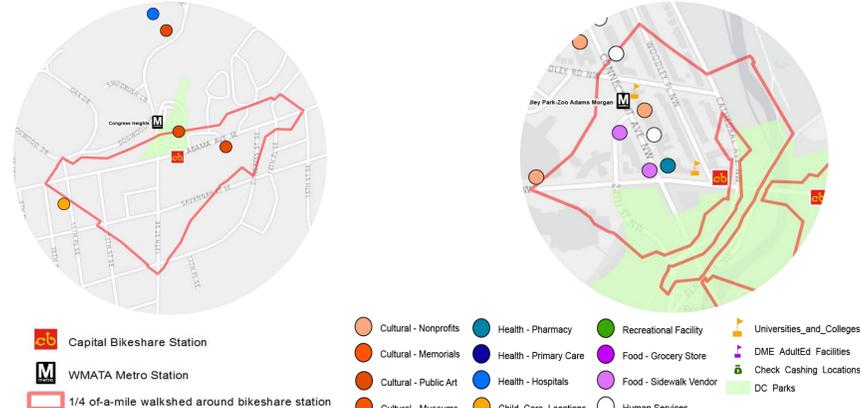
Example 1: Employment & Housing Entropy



Example 2: Violent Crime



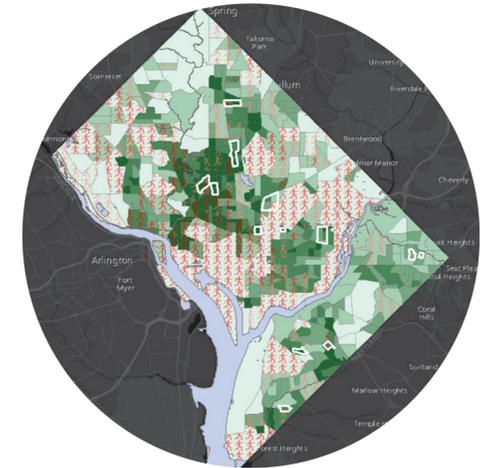
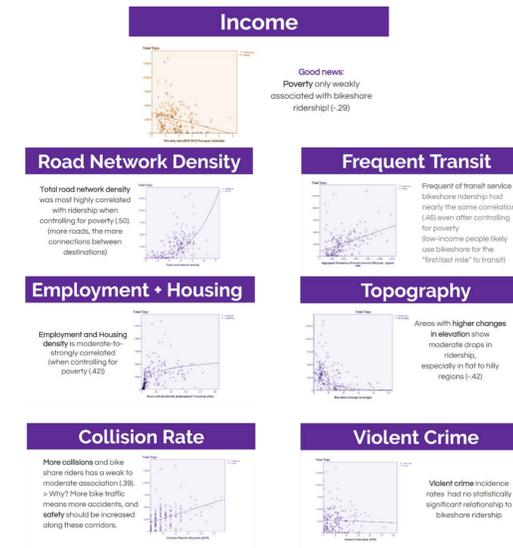
Example 3: Points of Interest



NEXT STEPS

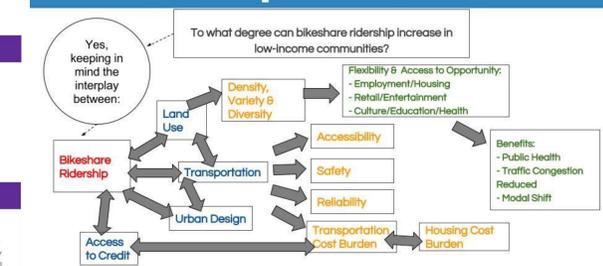
I aggregated **73 independent variables** around the themes of affordability, accessibility, safety and diversity for each of the 200+ Capital Bikeshare stations.

HOW DO these variables correlate with **bikeshare ridership (2.7 million rides in 2014)**? Poverty and crime rates are **not destiny** when it comes to bikeshare's future in disadvantaged communities:



On the map: Low and medium wage workers' jobs (in red) cluster in areas of low residential density (in light green) which may correlate with barriers to riding bikeshare.

Conceptual Model



POLICY research suggests that **addressing three or more barriers** has the potential to increase ridership in low-income areas:

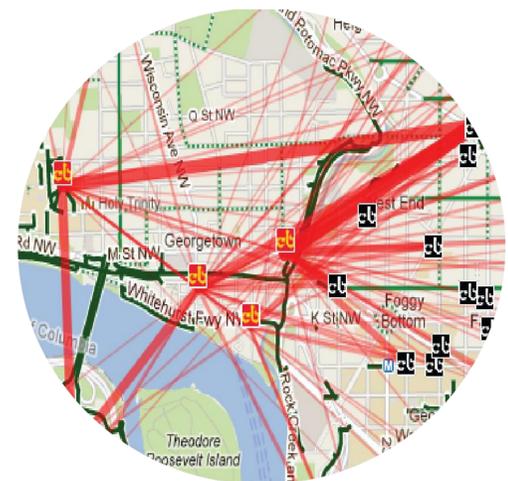
The most promising systems address at least three barriers.

Program	Location	Barriers Addressed				
		Siting	Logistical Access	Cost of Service	Unbanked	Outreach
Hubway (Bike-share)	Boston, MA	X	X	X		X
Citibike (Bike-share)	New York City, NY	X	X	X	X	X
Capital Bikeshare	Washington D.C.	X		X	X	X
Buffalo Carshare	Buffalo, NYC	X		X	X	X
eGo Carshare	Denver, CO	X	X	X		
City Carshare	San Francisco, CA	X	X	X		X
Heritage Community Transport Microbus (Ride-share)	Pittsburgh, PA	X	X	X	X	X
King County Vanpool (Ride-share)	King County, WA	X	X	X	X	
LA Metro Vanpool (Ride-share)	LA County, CA	X		X		X

Kodrinsky, M., & Lewenstein, G., 2014

ACKNOWLEDGEMENTS

This research was made possible with guidance from UCLA, Foursquare ITP, the District Department of Transportation and Slow Streets. My travel was generously supported by the UCLA Lewis Center.



Mobility Lab (2013) visualizing travel patterns