// Bike Share Ridership Modeling + System Planning //

NABSA Annual Meeting, 2015

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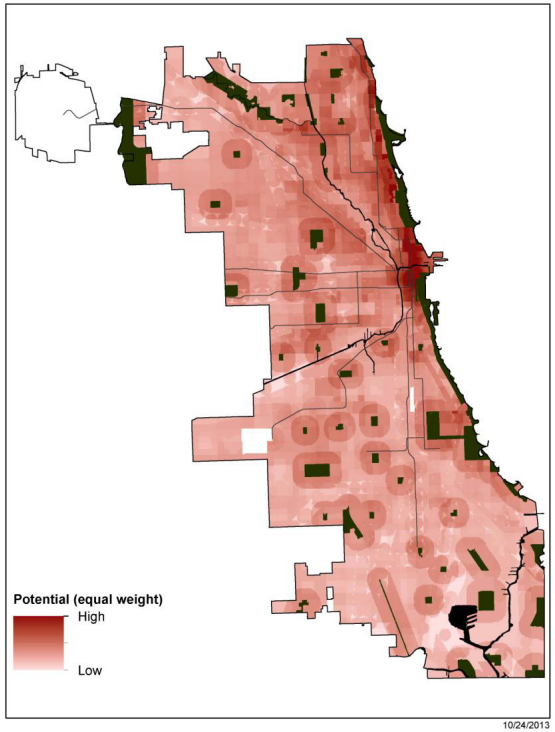
// Bike Share System Planning

Planning Principles

a. System Goals
    i. Guides decision making and helps to balance competing interests
b. Connectivity
    i. Contiguous system
    ii. No fingers, no islands, no rough edges
c. Station density
    i. Set a minimum, average, and maximum density
d. Station Sizing
    i. Adjust as you go

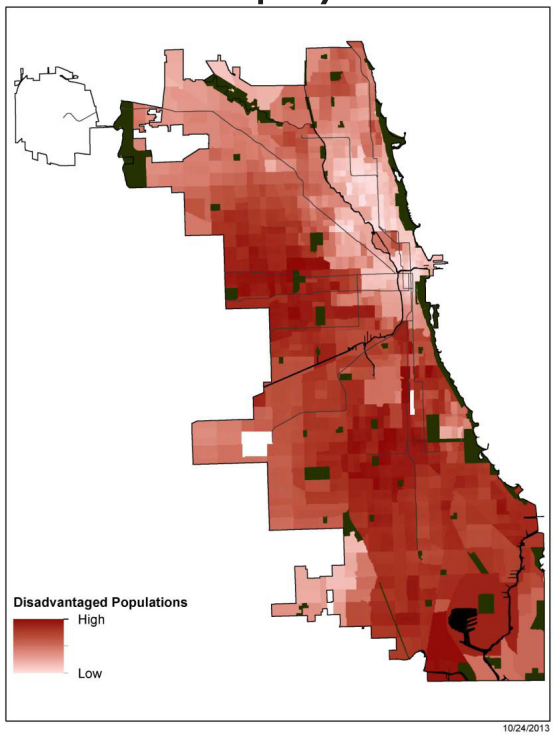
// Heat Mapping

"Potential"



x

"Equity"



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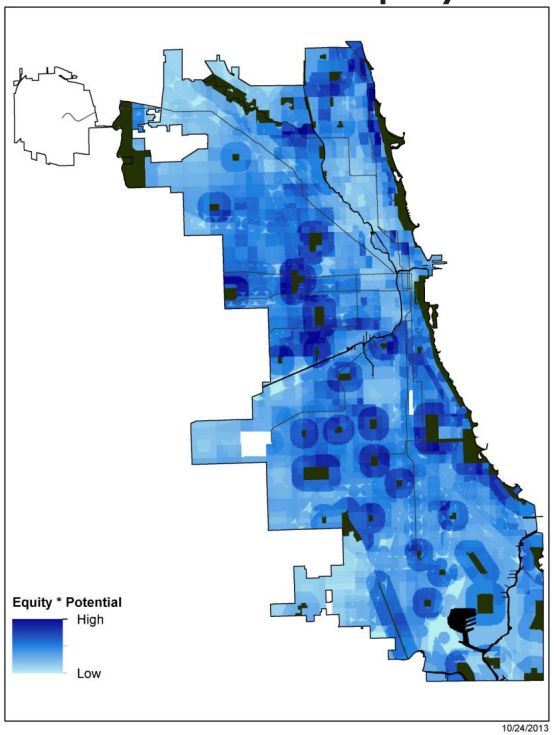
"Potential x Equity"



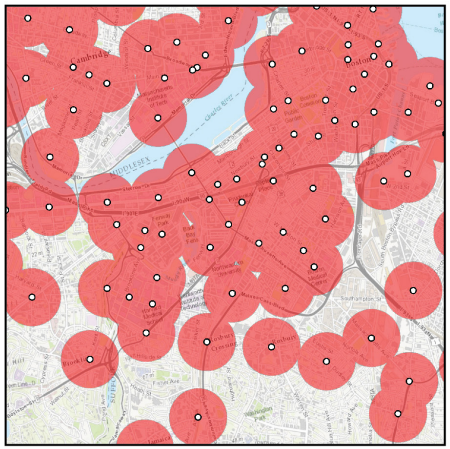
Used to help define service area in accordance with system goals

This is not ridership modeling!

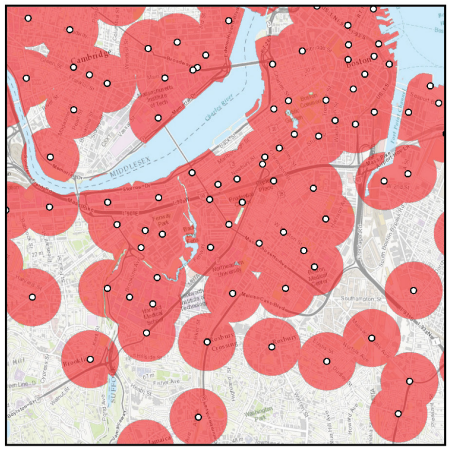
// Modeling Systemwide Ridership

1. Boston
2. Chicago
3. Columbus
4. Denver
5. Minneapolis
6. Toronto
7. Washington DC

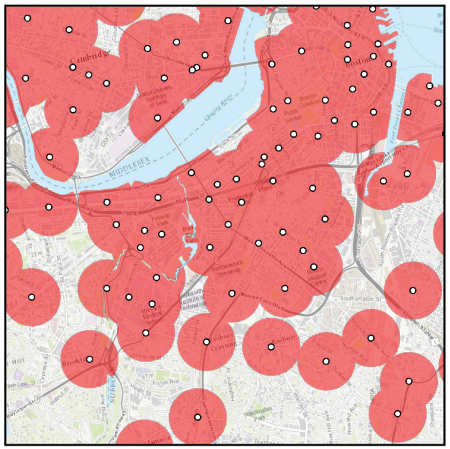
(8. New York City)



(1) buffer each station 1/4-mile



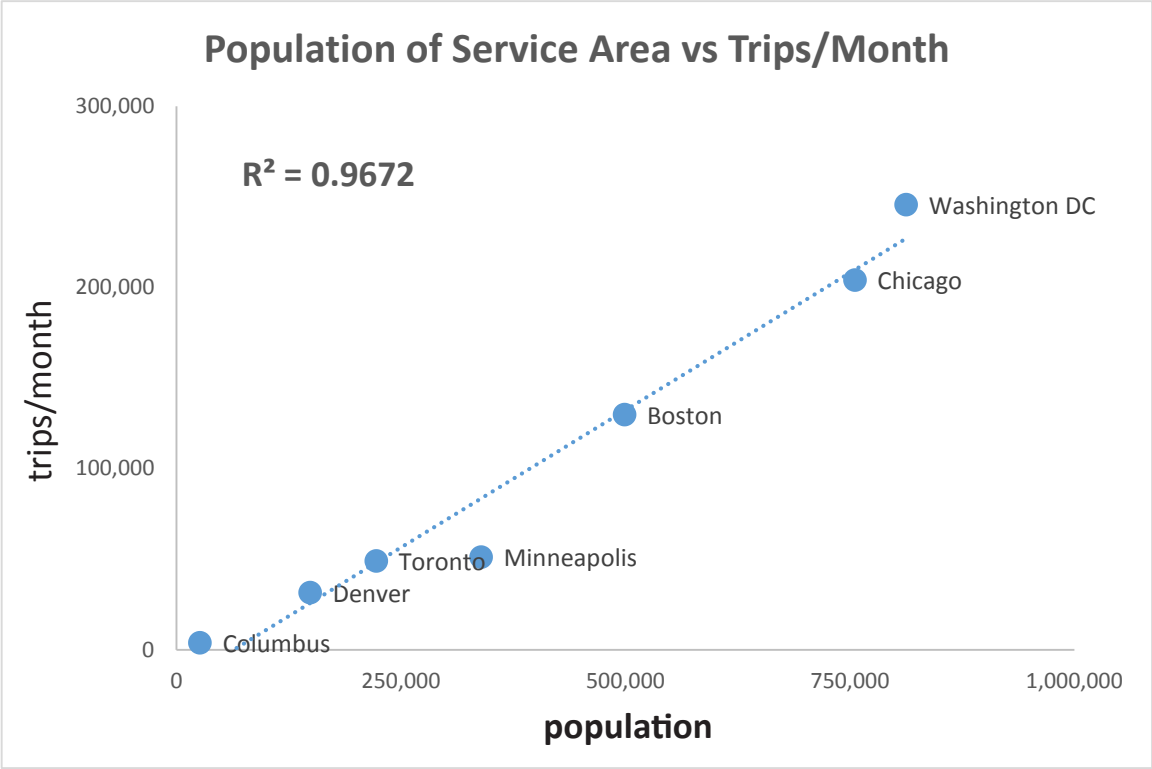
(2) remove waterways



(3) remove gaps

// Modeling Systemwide Ridership

1. **Population**
2. Employment
3. Stations



// Modeling Systemwide Ridership

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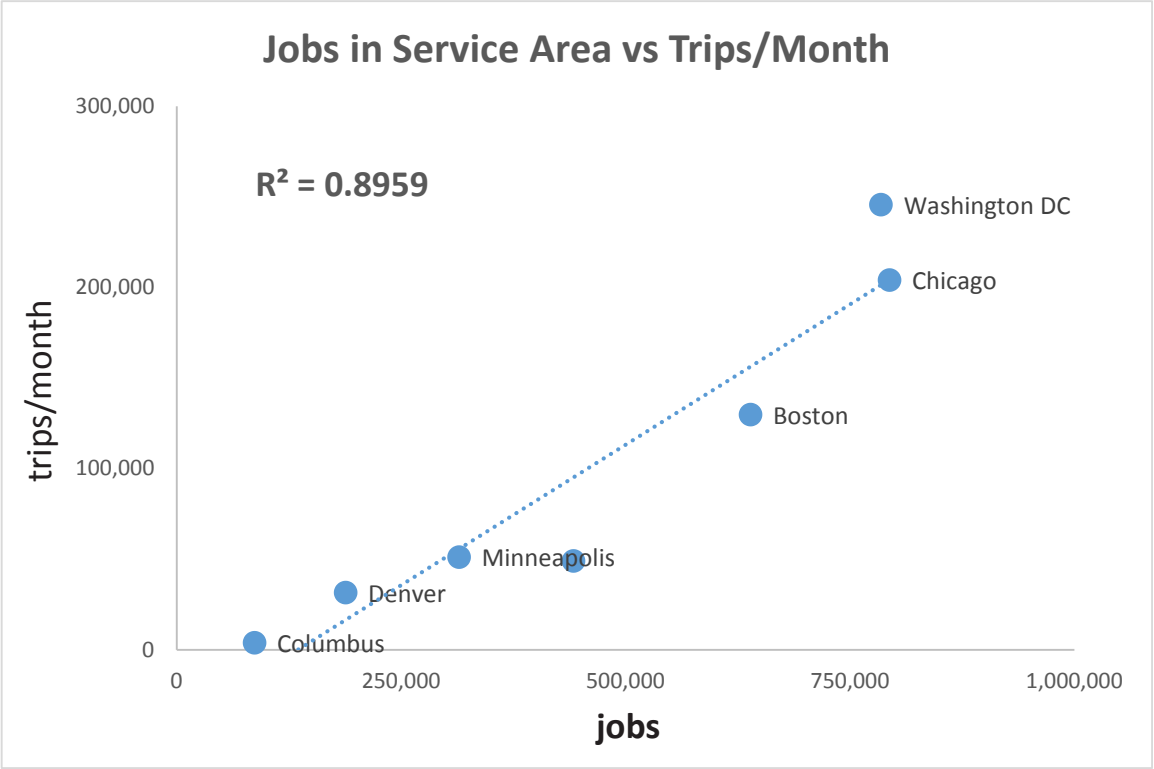
3. Stations



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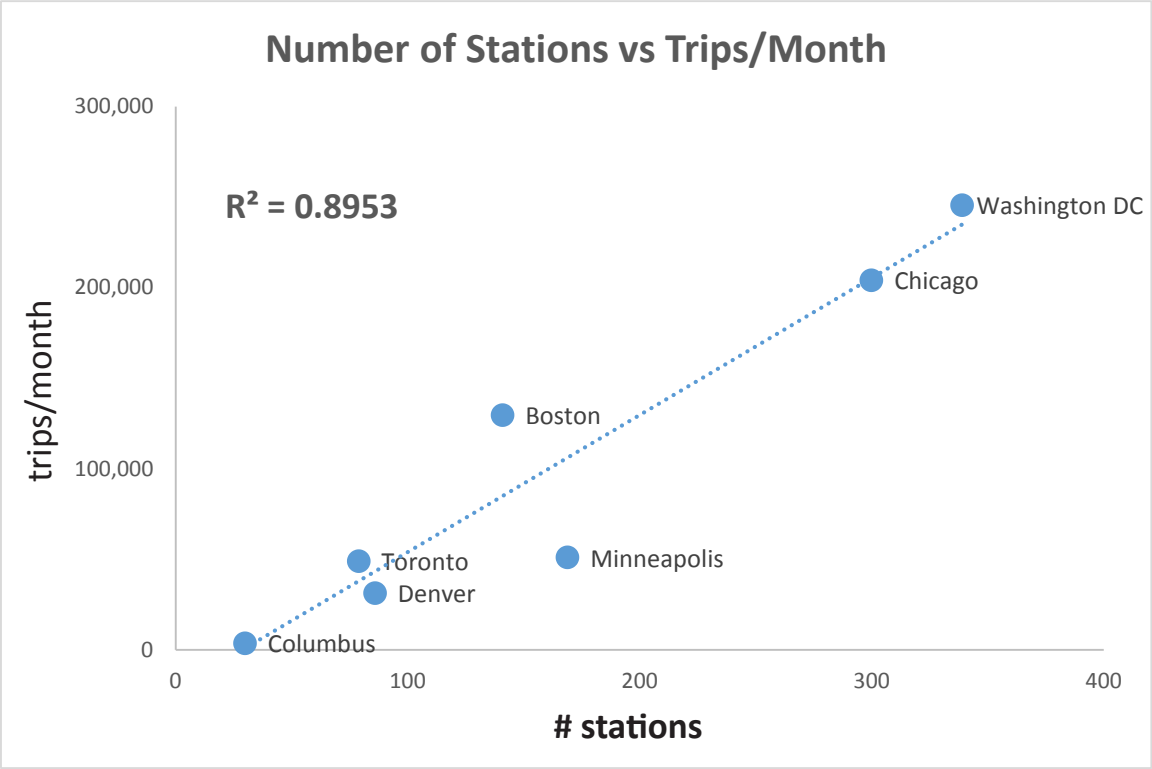
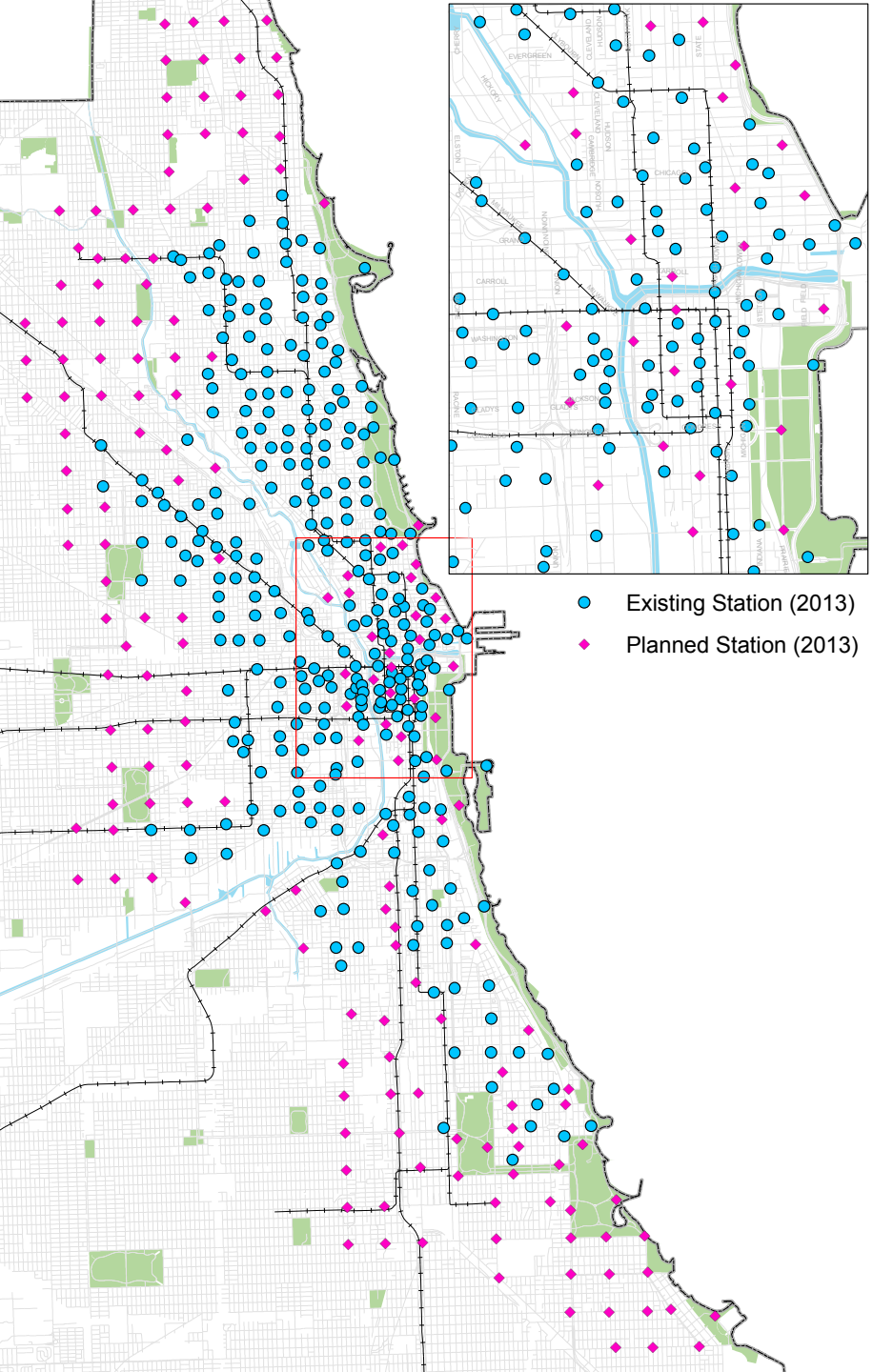
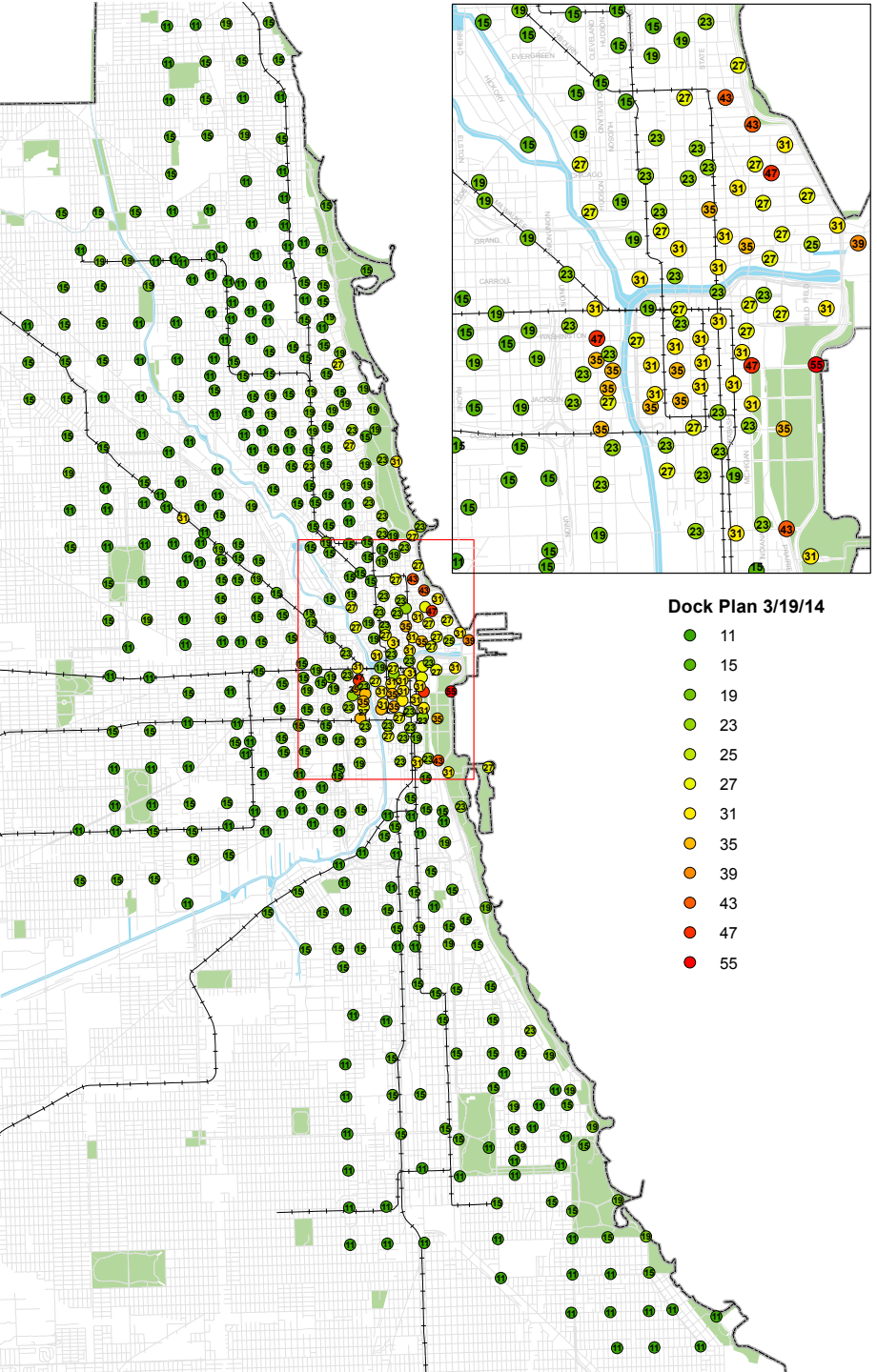




// Modeling Station-Level Ridership

Dependent variable = weekday trips
Used quarter-mile walkshed

	Demographic
1	Population
2	Employment
3	Ped/bike commuter (%)
4	Cars available to the household (%)
	Geographic
5	Proximity to the Lake Trail
6	Proximity to CBD
7	Colleges
8	Number of storefront businesses (retail, food, drink)
9	Hotel rooms
10	Tourist attractions
11	Bus activity (average weekday boarding)
12	Rail activity (El and Metra, average weekday)
	System
13	Station count



// Modeling Station-Level Ridership

Used model output to help determine station size

	Demographic
1	**Population**
2	**Employment**
3	Ped/bike commuter (%)
4	Cars available to the household (%)
	Geographic
5	**Proximity to the Lake Trail**
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8	Number of storefront businesses (retail, food, drink)
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	System
13	**Station count**

// Lessons Learned

1. Heat mapping vs. modeling
2. Need a range of explanatory factors
3. Factors
    a. Connectivity
    b. Systemwide: pop, jobs, stations
    c. Station-Level: stations, pop, jobs, Lake Trail
    d. Other factors have a local effect
4. We can use ridership forecasting to help make informed decisions about the effects of planning choices

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