



Citi Bike is the largest public bike sharing program in the U.S, providing bicycles for shared use to individuals on a very short term basis. Since a majority of all trips (54%) made in New York city are less than two miles, bike share gives New Yorkers a cheap, easy, efficient option to get around the city. It's also a green transportation that helps reducing emissions, road wear, collisions, road and transit congestion, and improving public health.

Data

Since its first public in May 2013, the program has collected a lot of information regarding to the people who use the bikes, the time and date when they ride, the location where they go and how far they have been going. In order to visualize these information, I has collected and processed **1GB cycling data** for the whole year 2014, including **8,081,216** cycling activities of more than **6,000** bicycles across **344** bike stations around various neighborhoods in Manhattan and Brooklyn.

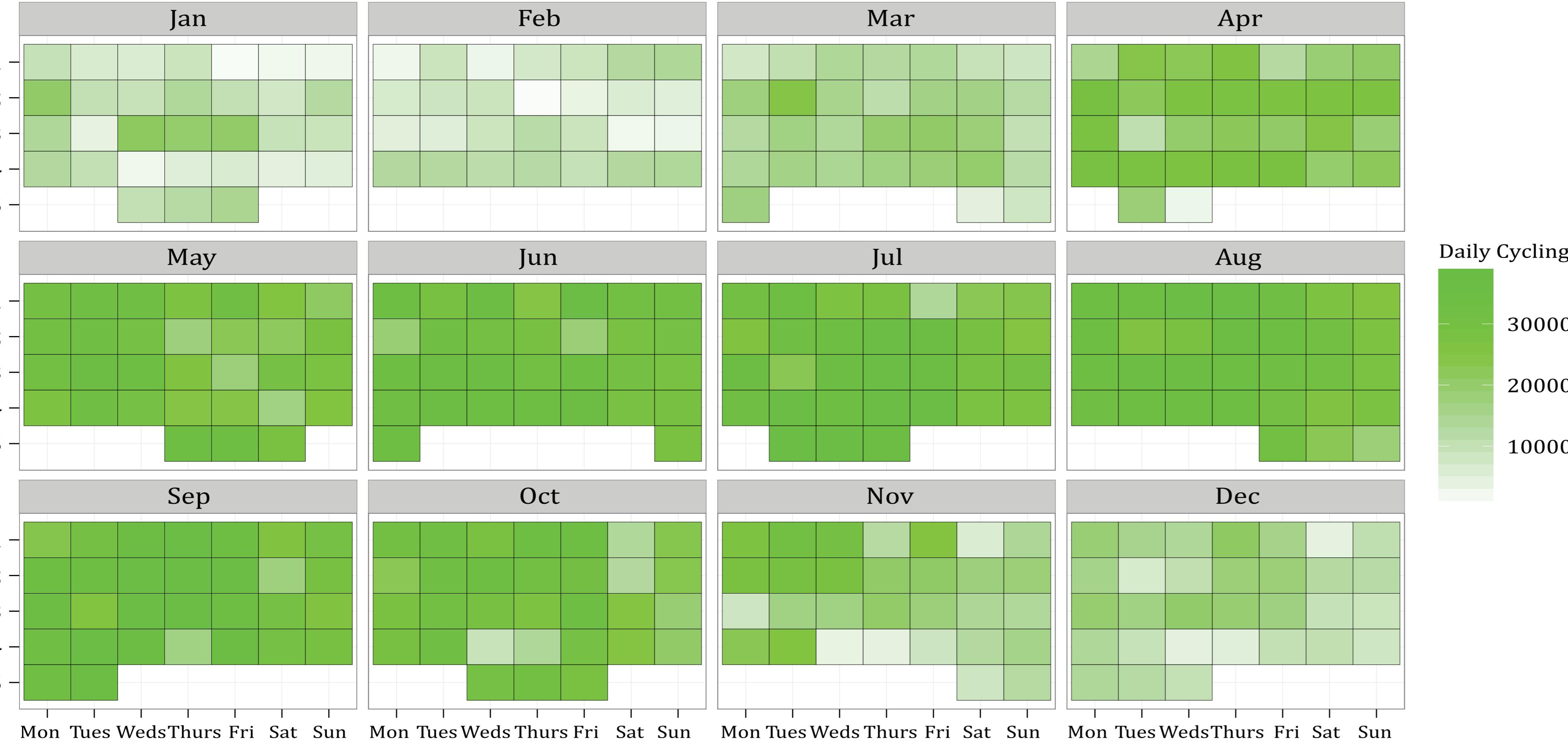
Audience

Researchers can see from this visualization riders' demographics and behavior when they use the bikes. Policymakers, engineers and developers can determine the effectiveness of the program in order to plan infrastructure to engage more users and improve rider experience.

Question

- Demographics and cycling habit of users who use the Citi Bike program ?
- Cycling activities during days, months and years?
- Where did riders pick up and drop off their bikes ?

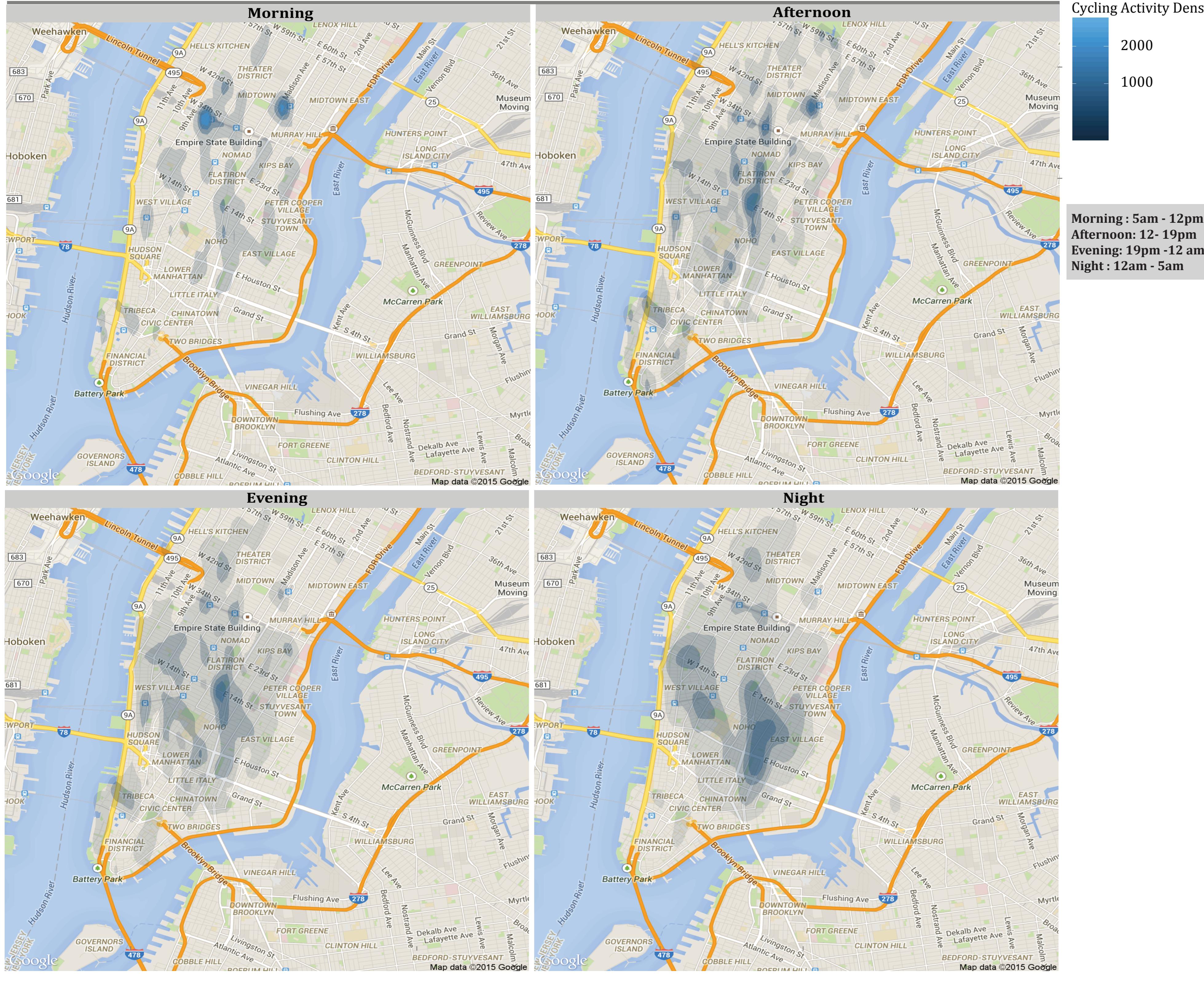
CALENDAR HEAT MAP IN 2014



People enjoy cycling in beautiful weather

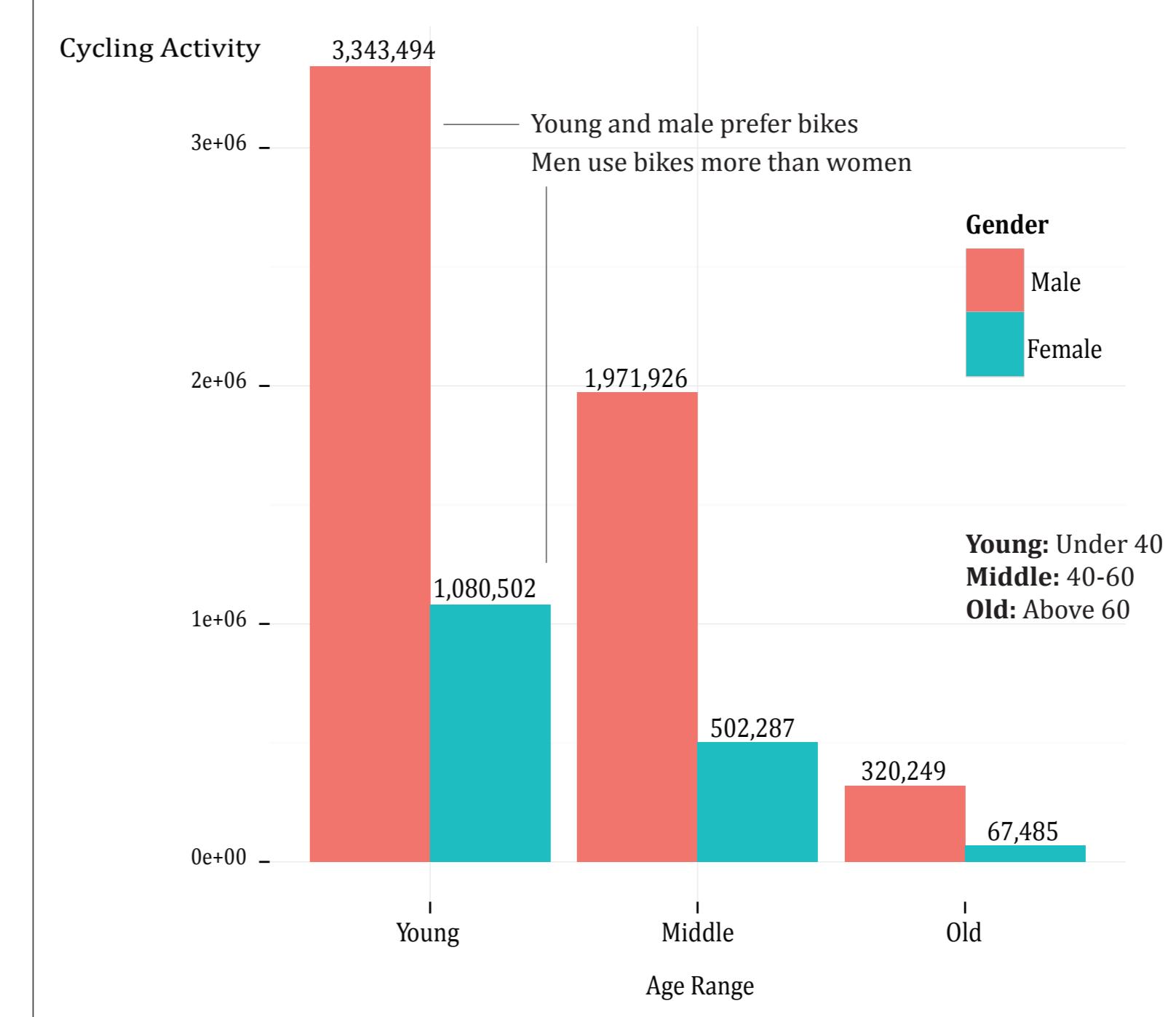
There are more cycling activities in specific months, from May to September. These months are the best time of the year, with bright sun and comfortable temperature, allowing riders to enjoy various outdoor activities in the city. Winter season from December to February, with snow, storms and low temperatures, is the worst time for riding. During this time, people prefer use other transportations (trains, bus, cars,...) for their commute.

DAILY CYCLING ACTIVITIES IN AUGUST 2014

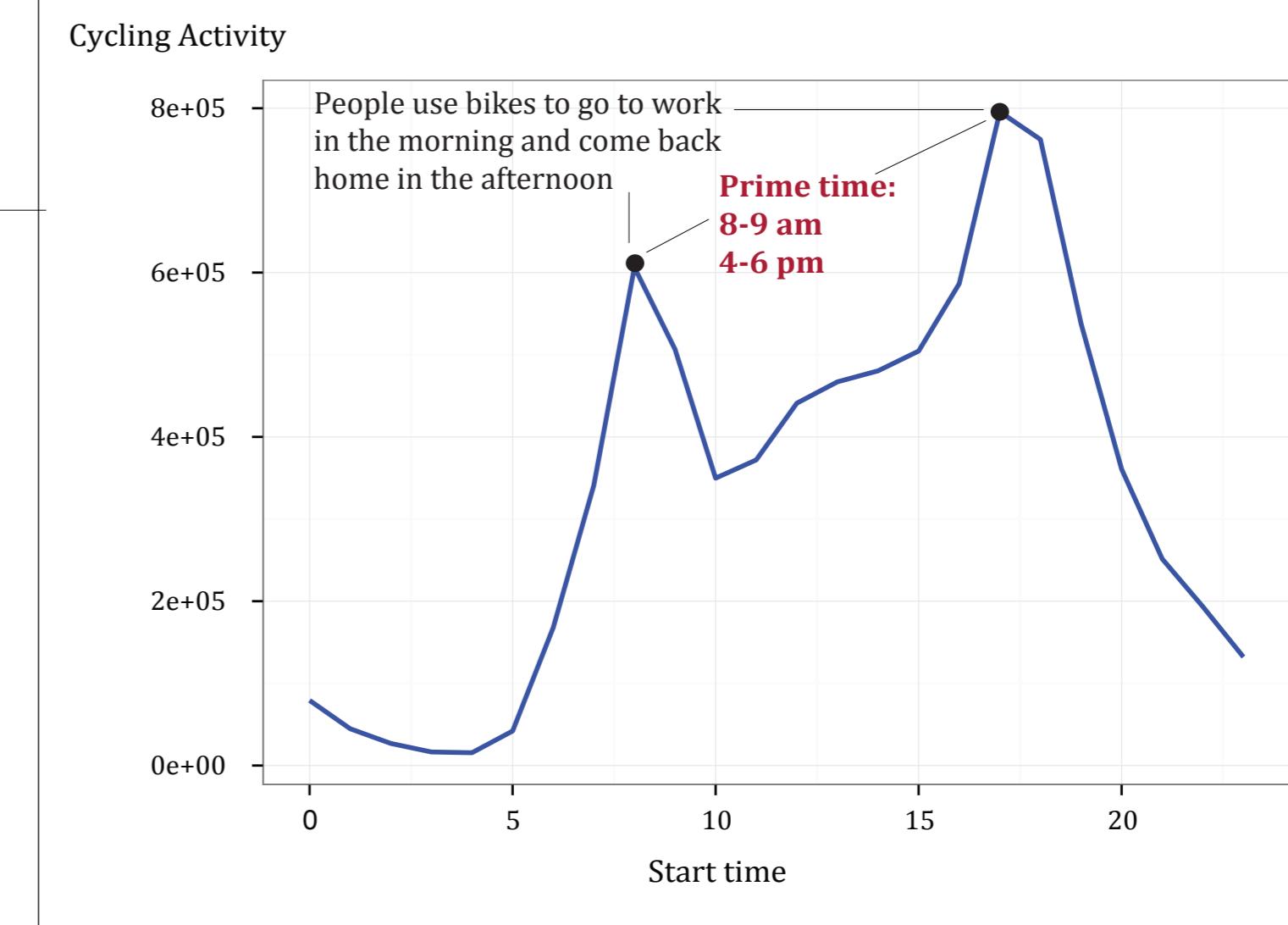


Visualization Process

People who ride



Time when they ride

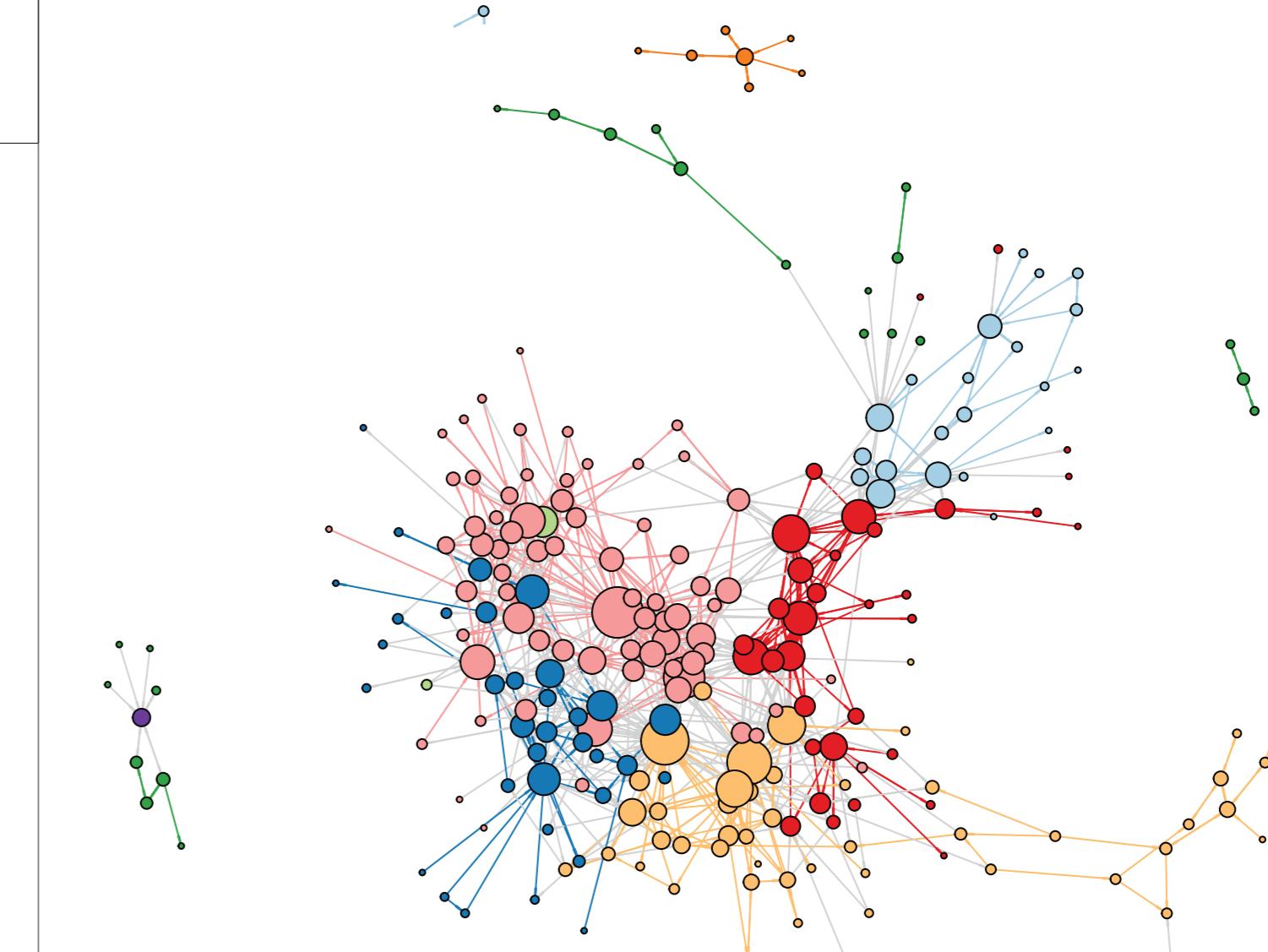


Location where they go

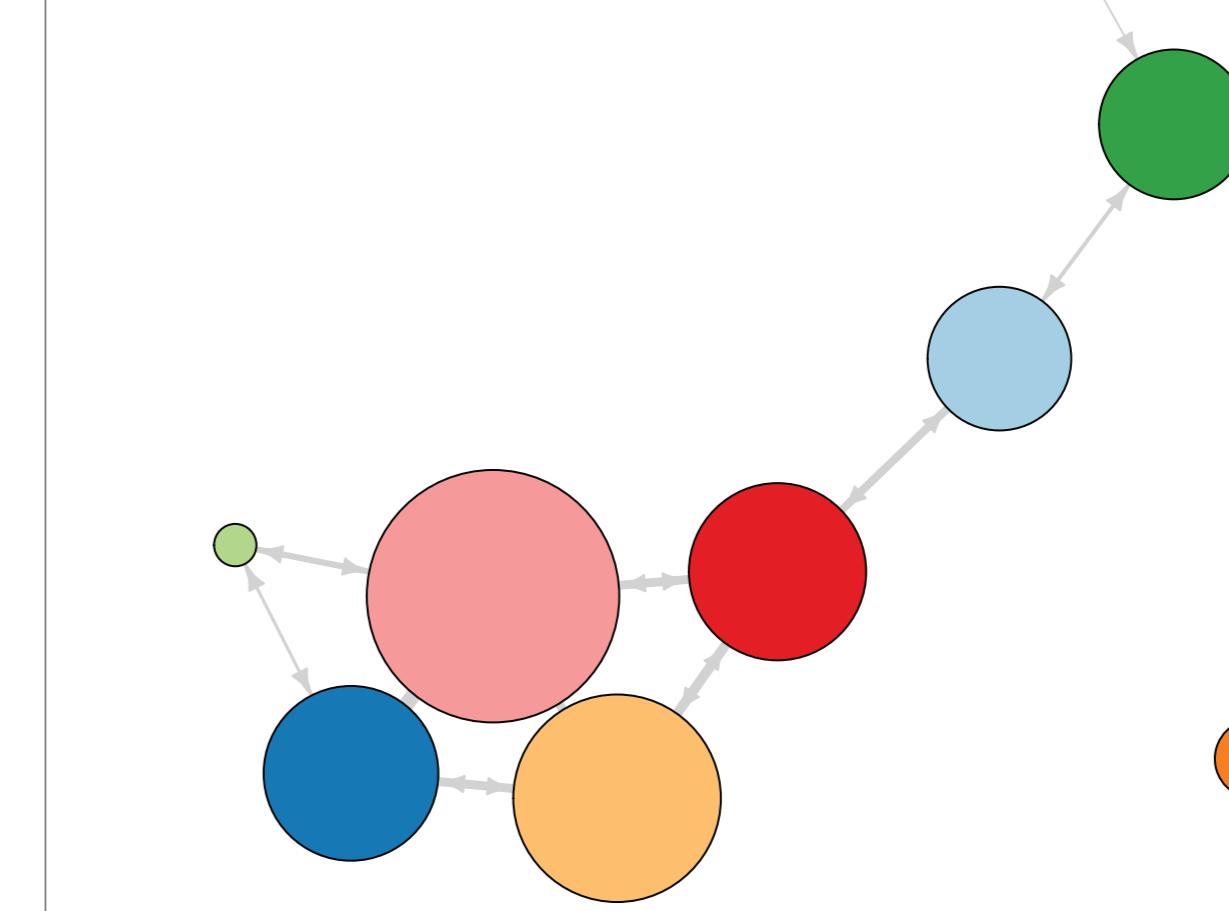
Top 10 Pickup | Dropoff bike location

Pick Up Station	Drop off Station
8 Ave & W 31 St	E 17 St & Broadway
Lafayette St & E 8 St	Lafayette St & E 8 St
E 17 St & Broadway	8 Ave & W 31 St
W 21 St & 6 Ave	W 21 St & 6 Ave
Broadway & E 14 St	Broadway & E 14 St
West St & Chambers St	University Pl & E 14 St
Broadway & E 22 St	West St & Chambers St
Cleveland Pl & Spring St	Broadway & E 22 St
University Pl & E 14 St	Cleveland Pl & Spring St
8 Ave & W 33 St	Greenwich Ave & 8 Ave

Bike station network



Neighborhood network



There were more than **100,000** frequent connections between 344 bike stations in 2014. I visualized only **top 1% most frequent connections** (stations have more than 677 connections), including **247** bike stations and **1100** bike connections. Most riding activities were happened within specific neighborhoods: Chelsea and Clinton, Greenwich Village and Soho, Lower East Side(Manhattan), and Northwest Brooklyn.

Cycling activities in the morning are near trains and bus stations. When people commute from their home to transit, they use citi bikes for their first mile/ last mile transportation. In the afternoon, cycling activities spread out to attractions in Downtown Manhattan. Cycling activities in the evening and night concentrate on lower east side of Manhattan, a safe popular neighborhood for late night destination.