Data Analysis and Conclusion

# Citi Bike Analytics

Since 2013, the Citi Bike Program has implemented a robust infrastructure for collecting data on the program’s utilization. The purpose of this analysis was to examine bicycle usage by members of the Baby Boomer generation (people born from 1946-1964) during a pandemic year.

Given the provided data, some conclusions we could draw are:

1. The top 10 most popular stations by both departures and arrivals are located in midtown Manhattan. This would make sense because these stations are near the residential areas of Manhattan, and are located near Central Park. There is also significant overlap between the most popular stations for checking out a bike and checking it back in, and we would surmise that most of the trips taken by retired Baby Boomers were a casual ride through Central Park and back.
2. Peak usage happened in the month of September between the hours of roughly 2:00 p.m. and 6:00 p.m. There is most likely a strong correlation between these times and desirable weather conditions. Not surprisingly, April and May were the slowest months due to heightening transmission rates of COVID-19 in the New York City area.
3. While roughly three quarters of all riders are male, females across all ages have slightly higher average trip duration times. Customers (not subscribers) of all genders represent just under 3% of all trips. Some of these are people visiting New York City, but a deeper dive into customer engagement to transition local customers into subscribers may be prudent and worthwhile.
4. Of the top 10 most popular starting and ending stations, the longest ride by distance is from 1st Ave & E 68th Street to West Street & Chambers Street. This is approximately 4.367 miles and takes on average 38.33 minutes for an average speed of roughly 6.8 mph. Alternatively, the longest ride by average time is from 12th Ave & W 40th Street to University Place & E 14th Street. This ride on average takes 55.04 minutes, and is 1.884 miles for an average speed of 2.1 mph. Clearly this ride is through more congested areas with more intermittent stopping along the way.
5. We ranked the top 25 individual bicycles by total usage in 2020. Bike ID #34996 was checked out for a total of 55,878 minutes, or just over 931 hours. On the low end of these rankings, Bike ID #32063 was checked out for a total of 19,627 minutes, or just over 327 hours. The bicycles on the high end of these numbers should be serviced and/or replaced prior to 2021.

While we were able to form some conclusions through our analysis, this dataset does have its limitations. If we had additional data on the customers and subscribers, further analyses could be conducted to drive marketing efforts resulting in higher revenues and potential company growth. In sum, this dataset provides insight to high level logistical metrics to assist in station placement and/or bicycle maintenance concerns.