

## **2 Unexpected Phenomena:**

### **1 – Differential Use of Citi Bikes by User Type**

Visualizations: User Type x No. of Records (2019) & User Type x No. of Records (2020) + User Type x Trip Duration (2019) & User Type x Trip Duration (2020)

For both 2019 and 2020, we see that, on average, customers have significantly higher trip durations than subscribers. Customers describe users who have either a 24-hour or 3-day pass, while subscribers have a yearly membership. This trend could be explained by the assumption that subscribers have a specific route or commute they use Citi Bikes for, while customers rent bikes for bike rides or leisurely rides that take longer amounts of time. On average, customers use the bikes for a duration of 1,700 seconds or longer (almost 30 minutes), while subscribers average a bit above 400 seconds (almost 7 minutes).

In 2019, we had 19,315 customers and 908,668 subscribers. In 2020, the number of subscribers dropped to 868,381, a loss of 4.4%, but the number of customers more than doubled to 59,602, an increase of 208%. It would be interesting to look at coming years and see if this trend in popularity of user type continues.

### **2 – Differential Use of Citi Bikes by Age**

Visualizations: Birth Year x No. of Records + Trip Duration x Birth Year (2019) & Trip Duration x Birth Year (2020)

For 2019, we see a huge uptick (above 40k customers) in Citi Bike users born in the year 1980, and between 1985 and 1991. For 2020, we see a similar uptick, but for the year 1969, and between the years 1986 to 1989. We can easily observe that most Citi Bike users were born within 1980 and 1990, and that popularity of Citi Bikes drops off before 1980 and after 1990, meaning that most users are between the ages of 30 and 40.

In analyzing trip duration by birth year, we are able to piece apart trends in how Citi Bike's users make use of the bikes depending on their age. For both 2019 and 2020 data, we see a consistent uptick in users born in 1969, where users born of this year average trips at over 900 seconds, or 15 minutes. We observe a similar trend in bike trip duration for users born between 1998 to 2001, though the effect is more pronounced in the 2019 data. Most other users' average trips below 900 seconds (15 minutes). This may be speaking to the functionality users see in Citi Bikes, whether users are capitalizing on them to make quick errands, or using them for leisure and fun. This view in functionality may in turn be influenced by the users' age.

## **Analysis on City Official Requested Maps:**

Visualizations: Start Station Popularity (2019) & (2020) + End Station Popularity (2019) & (2020)

Across all four visualizations, we see that “Grove St. PATH” is the most popular start and end station in New Jersey, clearly noted by its dark green color. This is likely due to the fact that the ‘PATH’ subway station links New Jersey to Manhattan, making it a popular station to dock city bikes as part of one’s daily commute. “Sip Ave” station follows behind “Grove St. PATH” as one of the more popular stations. “Sip Ave” is the stop right before “Grove St. PATH,” on the subway, again, likely a popular start and end station due to its proximity to Manhattan. There are very minor differences in station popularity between years, and even between whether a station is more popular as a ‘start’ versus ‘end’ station. This is probably because users tend to stick to similar routes and habitual routines, having adopted Citi Bikes as part of their everyday lives and commutes.