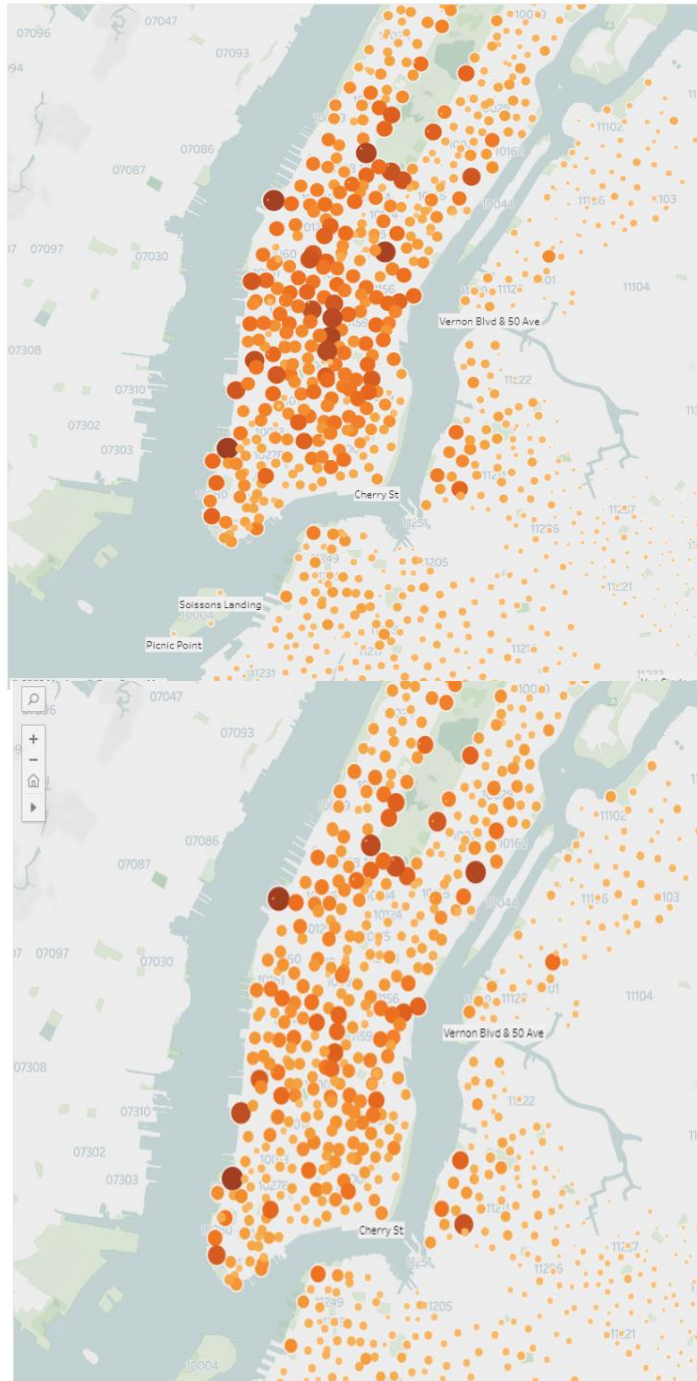


# Citi Bike Analysis of Phenomena

This is an analysis of the trends seen using the intervals of April – May 2019, and April – May 2020. This interval was chosen to see how the effects COVID-19 has affected the usage of the Citi Bike system, and what customers find essential during these times. Each analysis will be accompanied by the phenomena from the Tableau Public story.

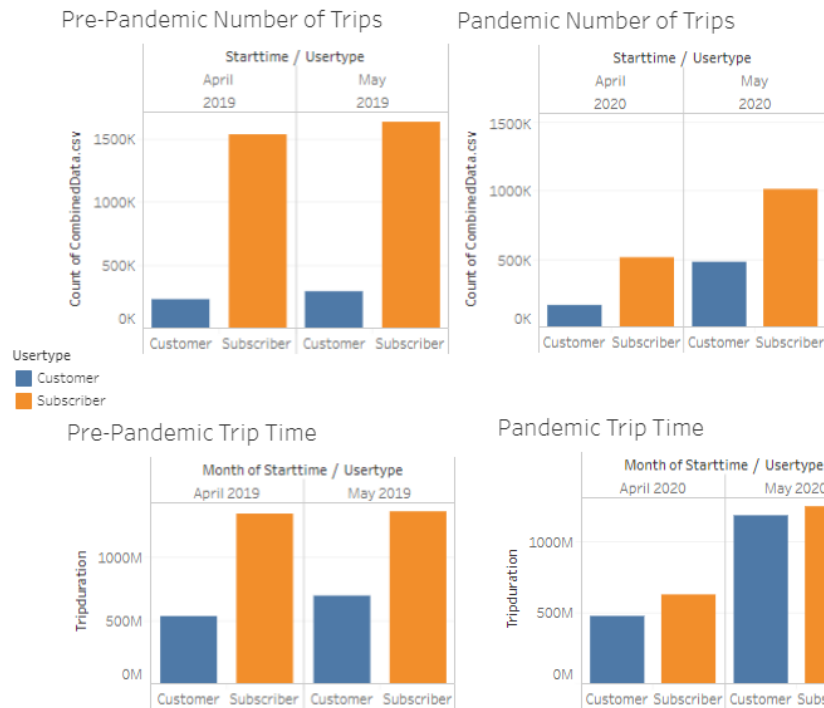
## Standard City Map



The standard city map contains each point as a Citi Bike Station, and the circle gets bigger and darker the more people have used it. From this data, we can see that the darker circles seem to come from the middle of New York, and less so from the surrounding areas. The biggest example of this is the lack of use the stations get next to Cherry St and Vernon Blvd & 50 Ave. The circles are not only small here, but also to the south of the map. It can be stated that people probably not in the heart of the city do not have a great need for Citi Bike, as they probably have cars to drive in the more rural areas.

This is the same map filtered to only show 2020 data, the year in which people were quarantined. And we can see those outskirts continued to follow the same trends, but the middle of New York decluttered, and there is not a lot of usage in the middle of the city. What we learn here is that the stations next to bodies of water continue to be active. This is something worth looking into, as there is something to these stations next to water that people continue to use even during a state in which most venues are closed. There might be a need for more stations here if the traffic continues even during the pandemic.

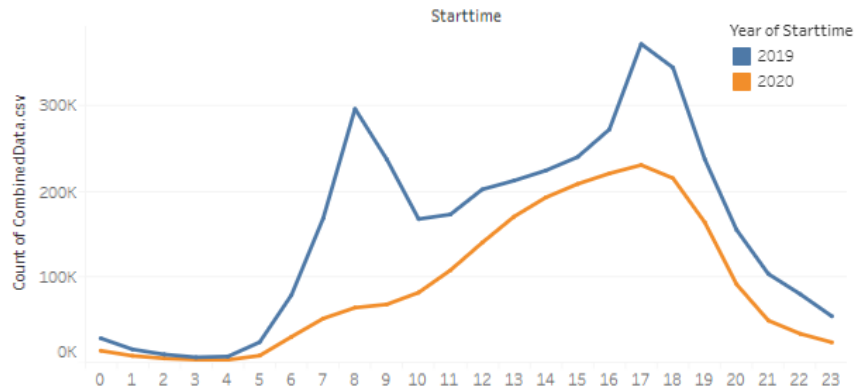
## Count of Trips by User type



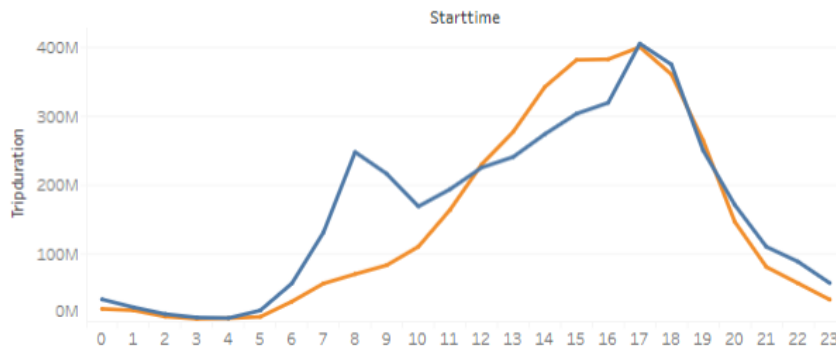
This phenomenon is charted by Pre and During Pandemic, plotting the number of Customers and Subscribers by number of trips and trip time. The reason subscriber and customer were separated was to see if there were any discrepancies or trends with people who pay for essentially a 1 time use or a frequent user. Based on the number of trips, while April did bring down the number of subscribers using the stations significantly, which is expected due to the pandemic, the number of customers stayed only a little behind. This is the same trend in the bottom chart, when looking at the trip time. April 2020 contained some hard lockdowns, which make sense of why numbers are unusually low. The surprise here is looking at May 2020's data, which sees a higher number of subscribers now compared to April 2020, but the number of uses by customers almost double compared to the respective year in May 2019. The trip time is another indicator that more customers used Citi Bike stations in May 2020 than in May 2019. The possible context here is that there could be a natural growth in the number of users, but there is also the fact of the pandemic making people quarantine. So, people who may not be subscribers or users of Citi Bike may be more inclined to use it for transportation compared to taxis or ride share services that could be either shut down or disregarded during the pandemic. This is also indicated by how much longer customers used bikes in May 2020, possibly to make essential trips. Either way, the number of trips a customer takes should be taken seriously as even during the pandemic where subscriber numbers went down, customers show a need for transportation that is other than a taxi or ride share.

## Peak Hours of Use

Peak Hours for use



Peak Hours by triptime



The first line graph above shows that during 2019's data, there were a peak in station use at around 8am and another one at around 5pm. This is indicated by the line in blue. This is to be expected considering people may use Citi Bike to and from work or use it before and after work. During months of the pandemic in 2020, in orange, the 8am peak is replaced by a slow-moving linear usage. The loss of the 8am spike is probably due to people not going to work in the morning, as most areas are shut down. The 5pm peak does preserve a bit. This may be because people used Citi Bike to go out to see others, go to the store, or for more leisure activities after 5, so even when people aren't using bikes in the morning in 2020, people will use them for leisure just the same in 2019. This means that people may rely more on Citi Bike in the evening more so in the morning, and so people may look at Citi Bike for an option outside of work.

The second line graph plots the hours now by trip time, and we can see that in 2020, the trip times start to get higher than in 2019 at around the afternoon. This may explain again the fact that many people were out of work or were working from home, so people may have used Citi Bike for leisure or to get things from the store. The peak however remained the same as in 2019, so people continue to use Citi Bike in the same manner. This may tell us about when to make sure bikes are available, maybe doing maintenance for bikes in the morning rather than leaving them closed in the evening or in the afternoon.