Tableau Challenge:

Time period: 2020

Visualizations created:

* Most popular zip codes by start/end station ID
* Trip counts by start/end stations
* Average trip length by start/end stations
* Total trip length by start/end stations
* Mapping of trip count by start/end stations
* Mapping of total trip length by start/end stations.

Questions answered and analysis:

How many trips have been recorded total during the chosen period?

19506857

Today, what are the top 10 stations in the city for starting a journey?

Station IDs:

* 3141
* 435
* 426
* 514
* 499
* 497
* 358
* 3711
* 3256
* 402

Analysis:

We can see from the map that these locations are all in the lower to middle part of the city. We can hypothesize that the majority of trips taken are from train stations down to the financial districts, and then the return trips.

Today, what are the top 10 stations in the city for ending a journey?

Station IDs:

* 426
* 3141
* 435
* 514
* 497
* 499
* 358
* 3711
* 402
* 3687

Analysis:

We can see that there are some repeat stations in both the start and ending of the trips. This reinforces the hypothesis that there are common routes for travellers between train stations and their final locations.

What are the most popular stations by total distance travelled?

* 514
* 426
* 499
* 2006
* 3141
* 3256
* 3423
* 358
* 3374
* 497
* 3906

Analysis:

Once again we can see repeating stations. The repeating stations are more proof that there are common travel routes that create the longest distance travelled over the period of time. It is worth noting that 514 and 426 have the longest total distance so it can be assumed that they are part of the most common routes taken. Total distance travelled would be a combination of distance travelled time regularity of travel, which creates a scene that some of the new stations are perhaps less popular but longer travel times, and the longest total distance travelled aren’t the most popular but are longer than the more popular routes.

What are the stations with the highest average distance travelled?

* 4169
* 4180
* 4144
* 3968
* 4128
* 4162

What we see here is the highest average trips are not on popular stations that are shown in the previous visualizations. The stations with long trips also have low trip counts, meaning that the citi bike trip containing long trips are both less popular and less likely to be used. There is the possibility of some faked data from the length of the trip, however in all likelihood it is when the trips are taken from Manhattan island to either Brooklyn or Queens that the trips increase in length.

Map Analysis:

What we see in the maps by creating heat maps of both the total length travelled and the most common start and end locations is that it is most common to start a trip on the southern half of Manhattan and use the bike to either do a short trip down to the financial district and return or to cross one of the bridges off the island. This is most likely due to the bikes being a legitimate alternative to trains once waiting time and cost is factored into the trip. We see that longer trips and where there is less foot traffic the stations become less popular, in the more residential districts of the Upper East side of Manhattan and in Brooklyn and Queens once the stations are further away from the bridges.

Final thoughts:

The improvement of the system is going to require investing into the most popular locations and transport paths. Creating more stations in those areas are the best way to drive up involvement. The suggestions would be in the key financial district in the south of Manhattan Island, and more closer to Times Square towards the middle/lower section of Manhattan island. Upgrading access to bikes in this area would likely lead to more people using the bikes as a legitimate alternative to trains more often.