

BACKGROUND

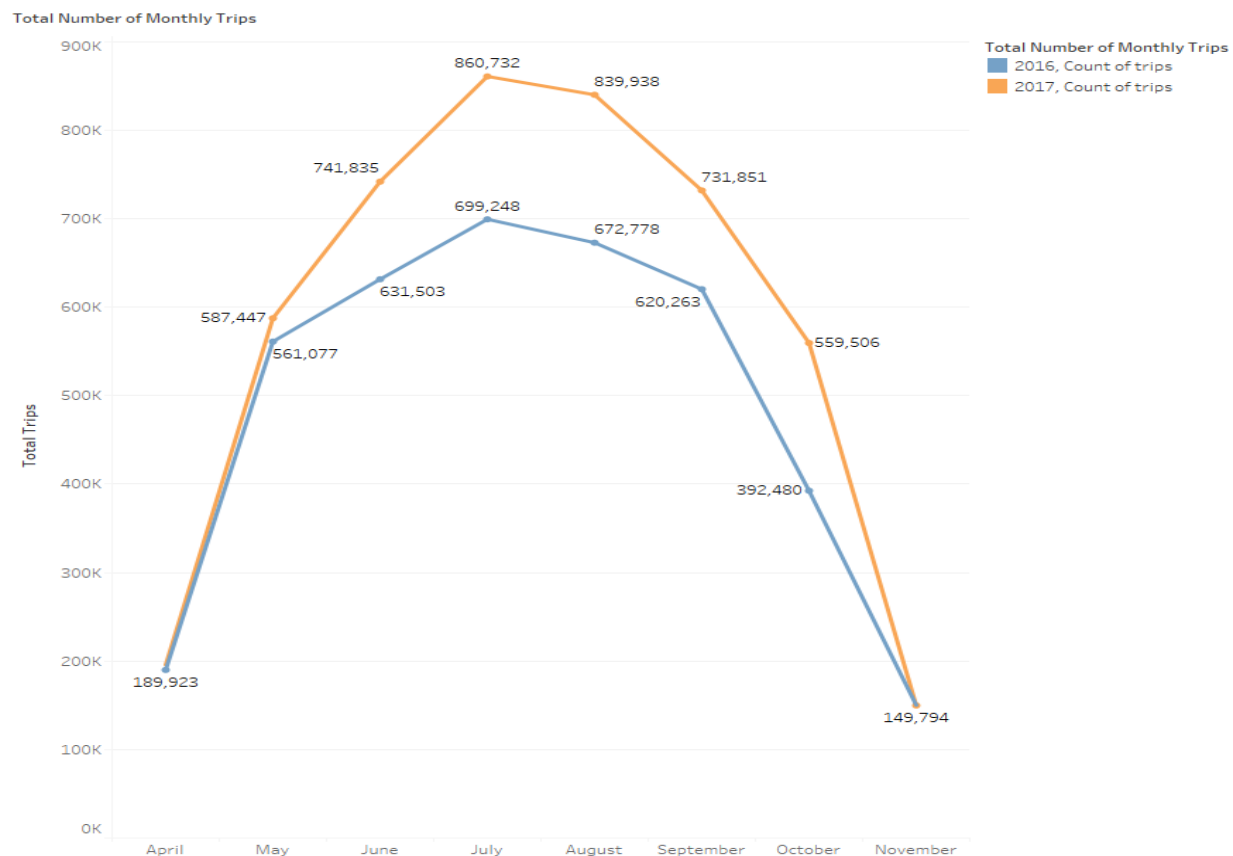
The usage of eco-friendly transportation increases every year, both locally and internationally. On this occasion, we were provided with data in connection to Bixi, a company that offers public bike rental services in the metropolitan city of Montreal and that has become a reliable public transportation option for both Montrealers and tourists.

The focus of our study will be on determining how often people use the Bixi services, what factors influence the volume of usage, the most popular stations by round trips, and Bixi's overall business growth. The following visualizations will offer a detailed analysis of the above-mentioned questions, and an evaluation of the Bixi data received.

ANALYSIS

Based on the given data for the years 2016 and 2017, we have 8,584,166 total trips, of which 3,917,401 are for 2016, and 4,666,765 are for 2017. For a better understanding, we have broken down the number of trips by month for both years. In this report we will study the number of trips for both years, the percentage of trips by month, the usage difference between members and non-members, the relation between round trips to members/ non-members, and the pattern of usage throughout the city. In addition, we also created the requested case in relation to the revenue Bixi generates from non-member trips and a breakdown of usage based on time and day.

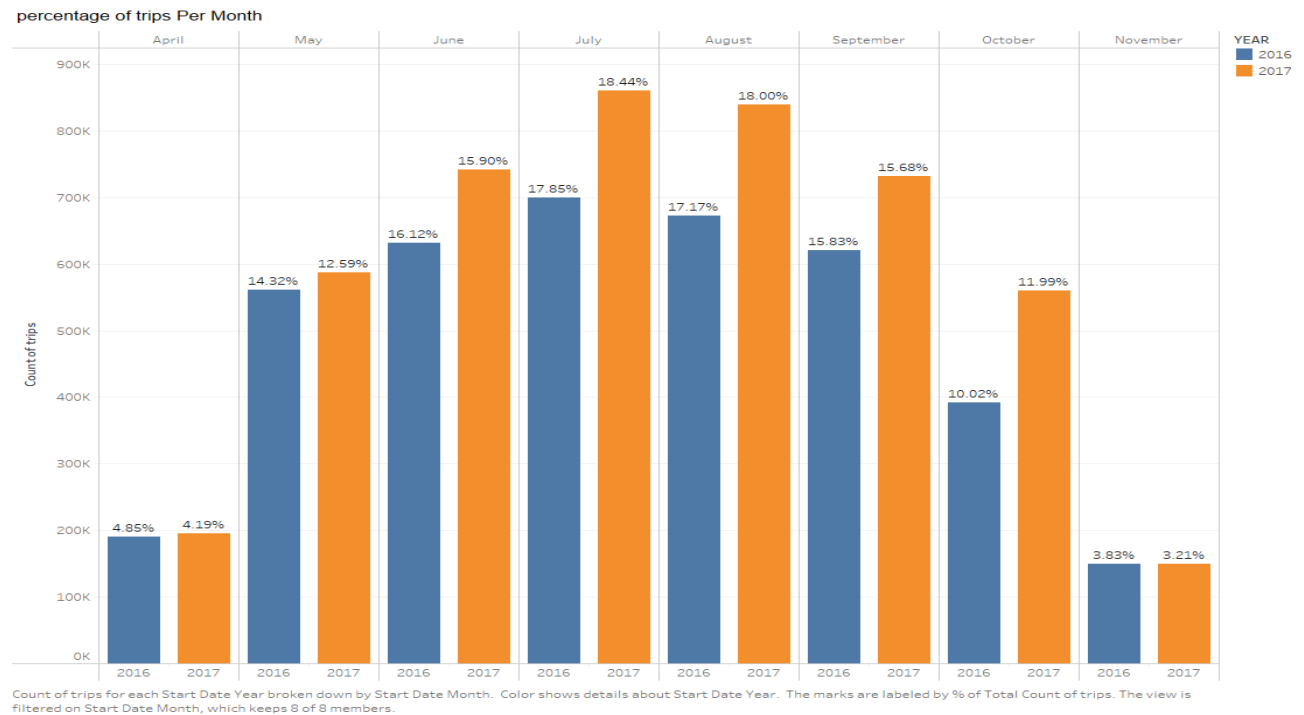
After comparing the usage of Bixi trips for both years we can see the usage of Bixi in 2017 has increased exponentially.



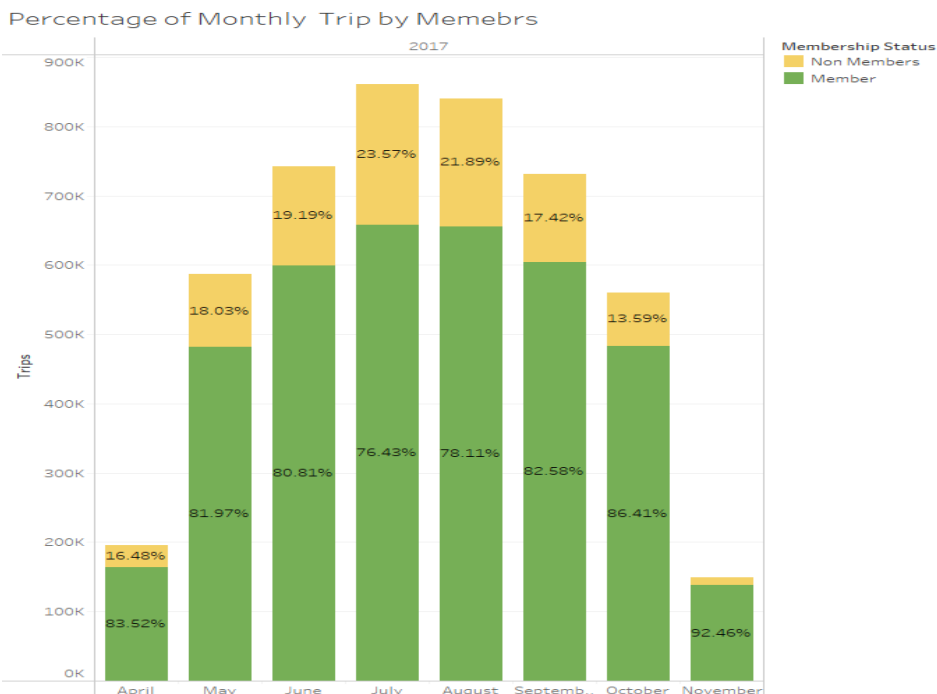
The trend of count of trips for Start Date Month. Color shows details about Start Date Year and count of trips. The marks are labeled by count of trips. The view is filtered on Start Date Month, which keeps 8 of 8 members.

As we can see in the above Graph. the increased usage in 2017 is obvious, especially from the month of June until October.

Below I have created a graph that can show the percentage of usage per year broken down by month.

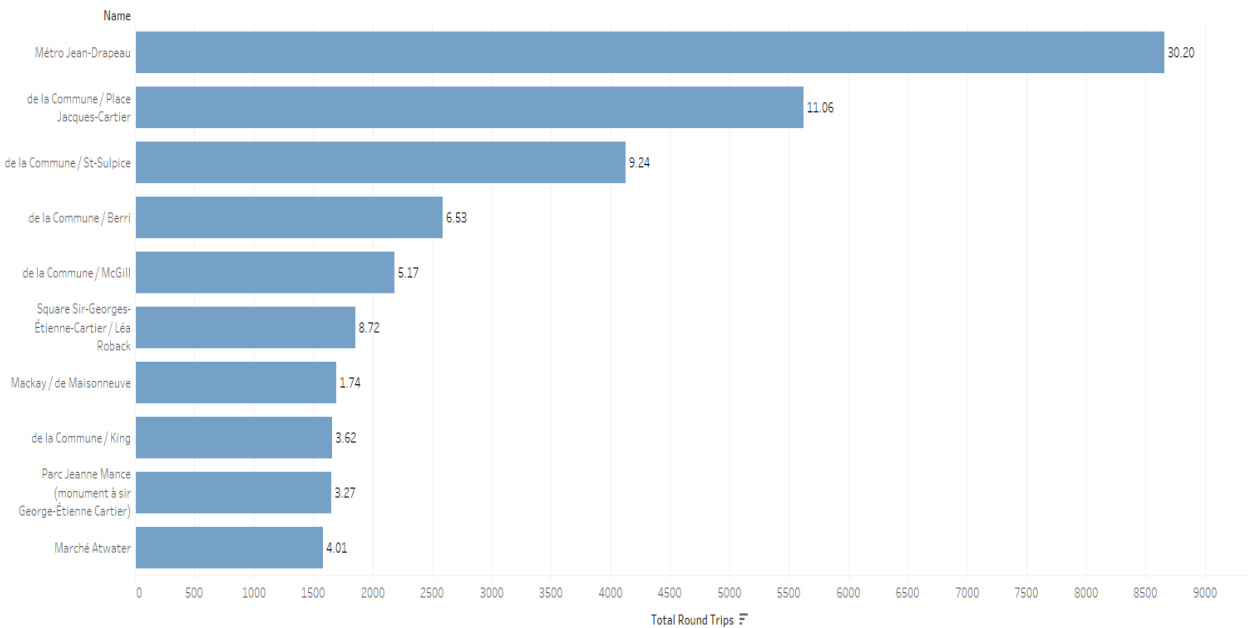


I have even taken the analysis further and calculated the percentage of the trips that members took in 2017 per Month. I have also included the below graph to better understand this analysis.



While we were studying the behavior of trips for members, I also analyzed which stations are more popular for round trips, and I came across very interesting results.

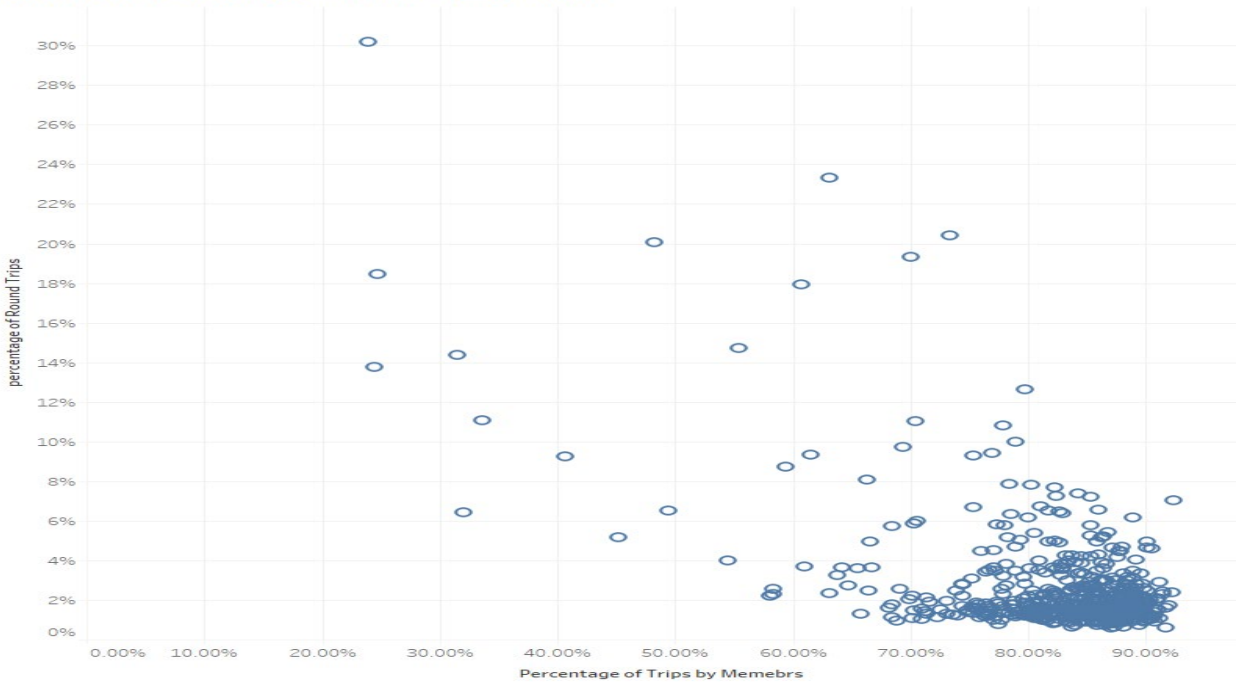
top 10 stations by the percentage of round trips.



Count of Round Trips for each Name. The marks are labeled by percentage of round trips. The view is filtered on Name, which keeps 10 of 540 members.

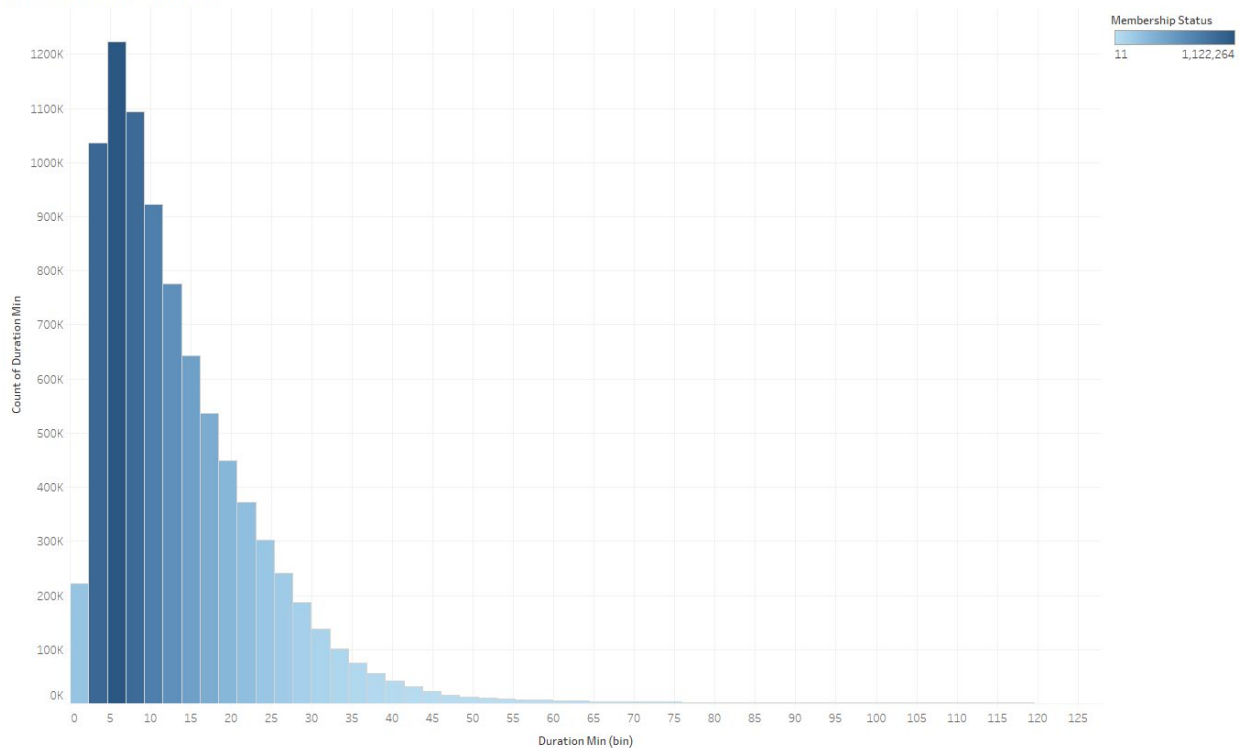
The station that has higher round trips surprisingly has fewer members taking trips there. The majority of round trips happen in stations that are in parks and tourist areas like Metro Jean-Drapeau, which is near a very big park and gets many visits during summer.

Round trips and percentage of member trips by station



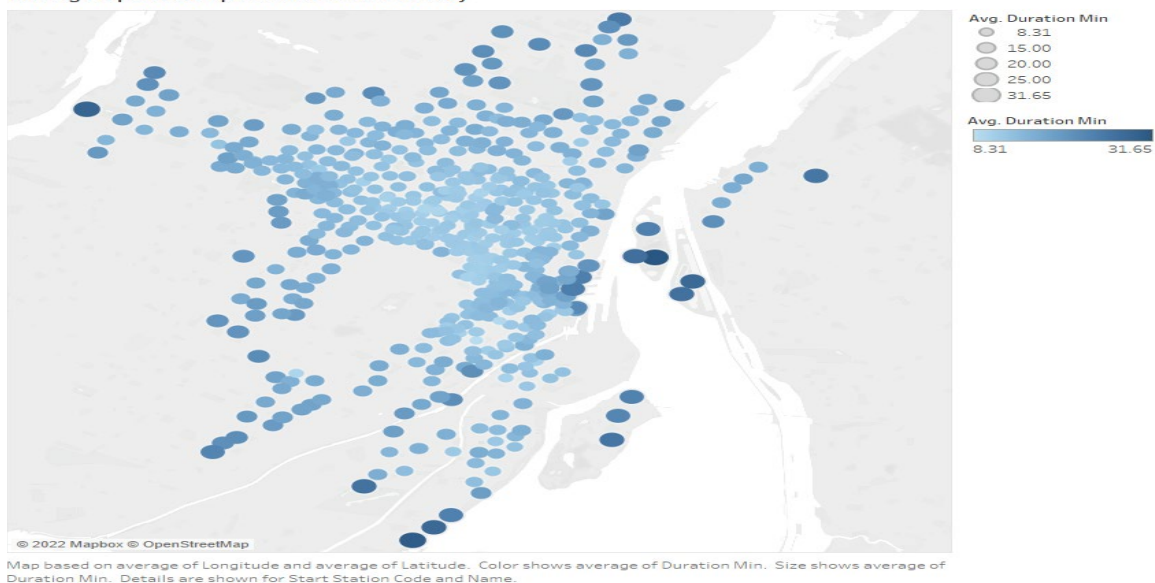
We also studied the behavior of members and non-members regarding the length of trips they take. Below the Histogram clearly shows the length of trips for members is shorter, and on the other hand, non-members the longest trips.

Distribution of all trips by duration



As I mentioned earlier, we studied the geographic patterns of trips throughout the city. We present below a map visualization we created confirming that the further from the city we get the length of trips increases and the usage of members decreases.

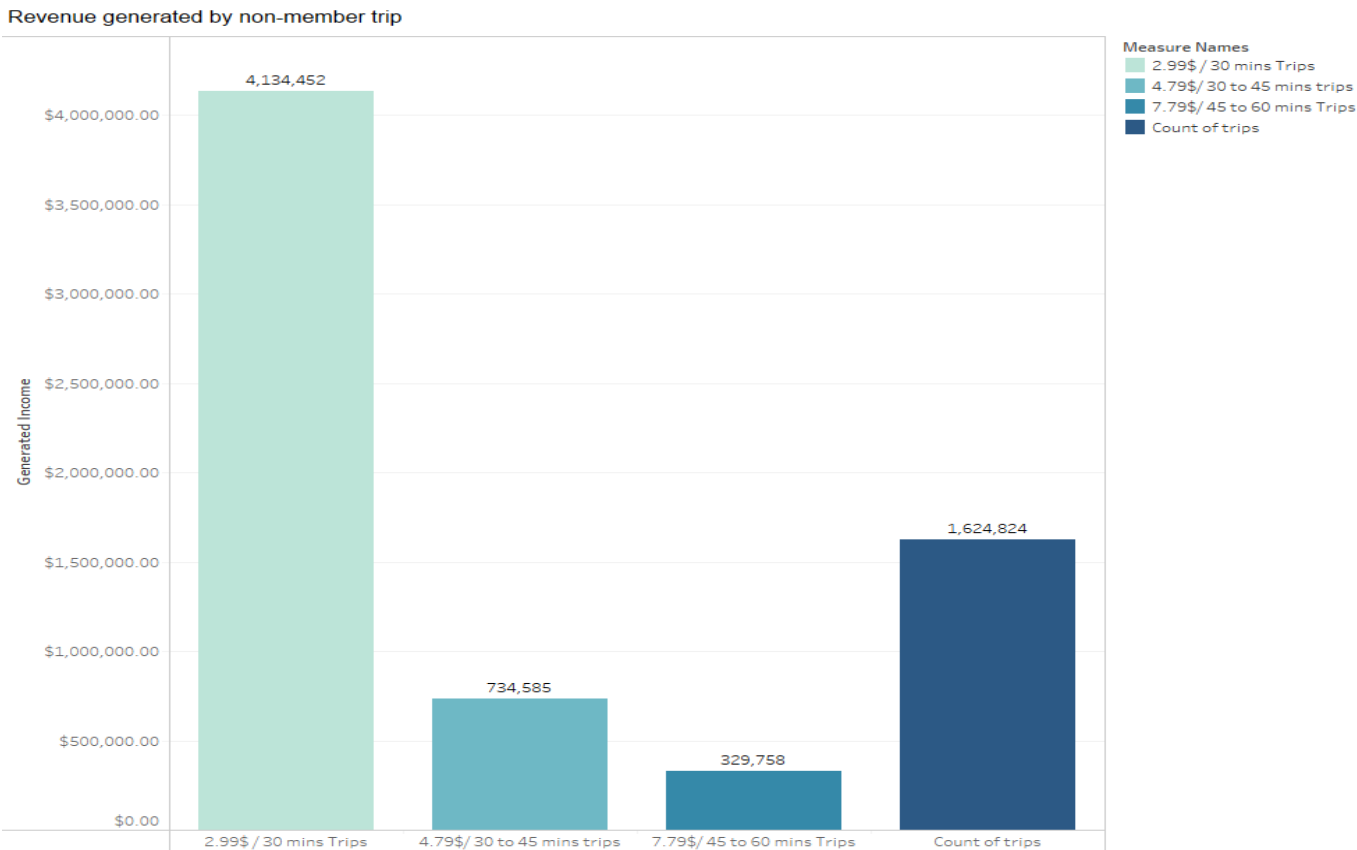
Average trip duration per station across the city



As requested, we have created a pricing model based on non-member single trips.

- \$2.99 flat rate for each trip that is 30 minutes or less.
- \$4.79 (\$2.99 + \$1.80) for trips greater than 30 minutes, up to 45 minutes in length.
- \$7.79 (\$2.99 + \$1.80 + \$3) for trips greater than 45 minutes, up to 60 minutes.

According to our model, a flat rate generates the most revenue with a total of 4,134,452\$, trips from 30 minutes to 45 minutes with 734,585 revenue, and trips longer than 45 minutes with 329,758 revenue. I have included the graph and charts detailing this further. The additional chart shows the difference between the revenue generated by members and non-members as well.

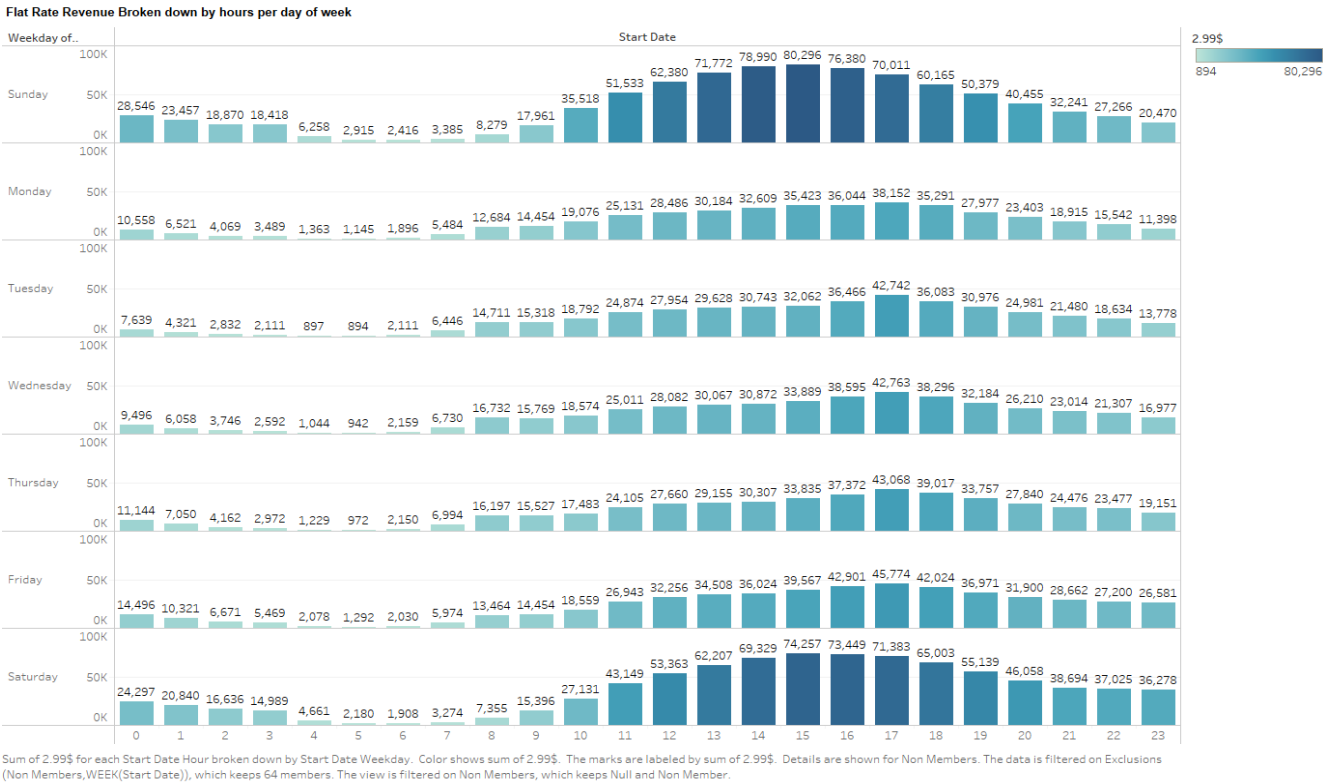


2.99\$ / 30 mins Trips, 4.79\$ / 30 to 45 mins trips, 7.79\$ / 45 to 60 mins Trips and count of trips for each Non Members. Color shows details about 2.99\$ / 30 mins Trips, 4.79\$ / 30 to 45 mins trips, 7.79\$ / 45 to 60 mins Trips and count of trips. The marks are labeled by 2.99\$ / 30 mins Trips, 4.79\$ / 30 to 45 mins trips, 7.79\$ / 45 to 60 mins Trips and count of trips. The view is filtered on Non Members, which keeps Non Member.

Revenue generated by member / non-member trip

% of Total 2.99\$ along Non Members	82.74%	17.26%	<div>Is Member</div> <div><div></div></div> <div>06,959,342</div>
% of Total 4.79\$ along Non Members	65.85%	34.15%	
% of Total 7.79\$ along Non Members	39.15%	60.85%	
2.99\$ / 30 mins Trips	19,813,477	4,134,452	
4.79\$ / 30 to 45 mins trips	1,416,456	734,585	
7.79\$ / 45 to 60 mins Trips	212,161	329,758	
Count of trips	6,959,342	1,624,824	

Since our flat rate has created the most revenue among our rates, we have analyzed the flat-rate trips more in detail. We have broken our analysis down to days of the week by hour. Let us look at our below insights.



As we can perceive in the above graph, non-members have the most trips on Saturday and Sunday however usage of the Bixi is almost alike across the days of the week, with peak hours starting from 11 AM and gradually picking up till 9 PM.

RECOMMENDATIONS

Based on the data provided and our analysis, we can easily conclude that the popularity of the Bixi bike is increasing year by year.

Our study has also shown the usage of Bixi on weekends is twice more (last graph) compared to weekdays.

According to the detailed analysis provided, our recommendation is to run a weekday promotion to motivate non-members to take more trips with Bixi, we can say the same thing for low consumption hours.

With respect to the seasonal recommendations, a Summer promotion should be advertised, considering that this season, in particular the month of July, is the most popular of the whole year. If we offer a sale for both locals and tourists, as early as May, that could include packages for students, families, and groups, we can guarantee the usage to increase and of course, non-members to become official members of Bixi.

