

Data Memo

Group 2

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Audience

MUNI, the public transportation system in San Francisco, uses parking meter revenues to help fund and lower deficits for public transportation. Our audience is the board of directors for the San Francisco Municipal Transportation Agency (SFMTA) and the purpose of this analysis is to bring to their attention the impact of COVID-19 on the parking meter revenues for San Francisco.

We will report the analysis of the various aspects of parking meter revenue over the past three years in hopes of helping MUNI understand the landscape and generating solutions to help reduce the deficit.

Background

Before the COVID-19 pandemic, the SFMTA collected about \$5,000,000 in revenue for the city from parking meters alone. Before the state government issued a lockdown in

April 2020 the rate (price per hour) for parking meters across San Francisco differed according to demand and usage, with the average rate \$2.50/hour.

In April 2020, SFMTA essentially disabled parking meters for the lockdown. Then, in July 2020, once the lockdowns were lifted, meters were set back to \$0.50 below the pre-COVID rate.

With the increasing trend of work from home, and some notwithstanding restrictions in San Francisco, it is expected that recovery is not quite 100% but everyone wants to get back to normal. There is a steady increase starting in July 2020 and this is maintained for the rest of the data.

Sharp decline in parking meter revenue amidst COVID-19 in San Francisco

In an attempt to help the MUNI of San Francisco to understand the impact of COVID-19 on the Parking Meter Revenues, we analyzed and interpreted three years of parking meter data. Our main objective is to help MUNI understand the impact that COVID-19 had on parking meter revenue and also suggest solutions to help reduce the deficit.

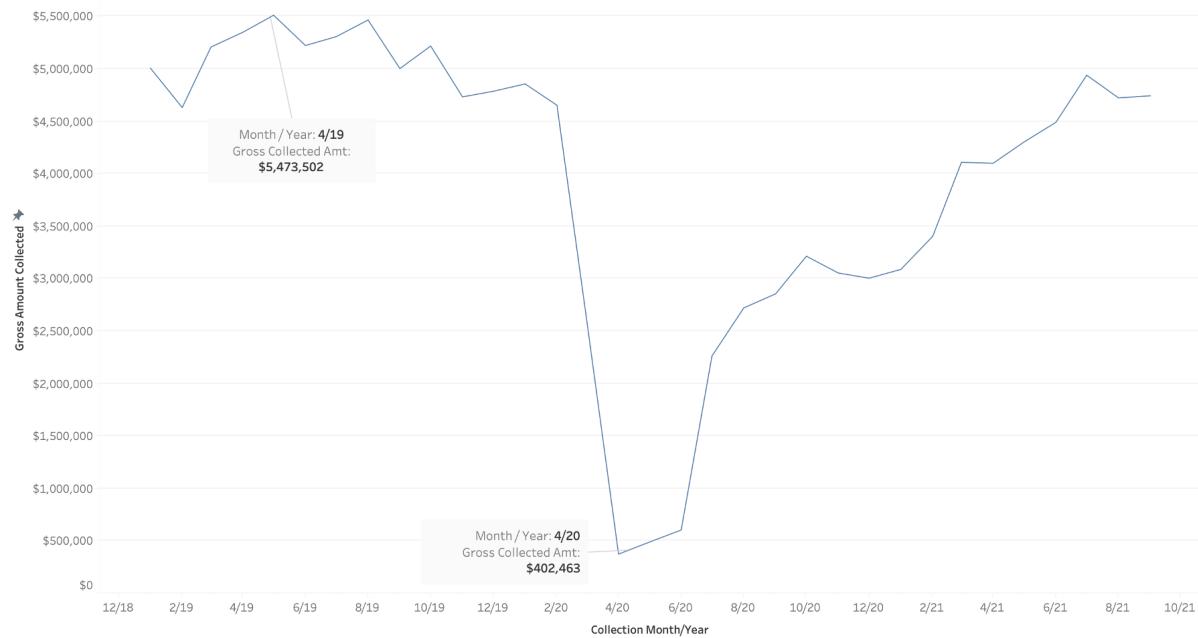
The analyzed data are from the SFMTA database and contain different types of information related to parking meter revenue, such as gross paid amount, street block, date, time, and payment type. The period analyzed covers the years 2019 to September 2021.

[According to the SFMTA](#), "most meters are enforced from 9 a.m. to 6 p.m. Monday through Saturday. Hours and rates vary". The agency also says that "meters operate every day except for Thanksgiving Day, Christmas Day, and New Year's Day".

But, due to COVID-19, [as reported by the San Francisco Chronicle at the time](#), the city changed meter rates and time limits between March and June, which can be clearly seen in the graphics that will be presented below.

Revenue of parking meter transactions in San Francisco

Impact of Covid on San Francisco Parking Meter Revenue



The trend of sum of Gross Paid Amt for Session Start Dt Month. The data is filtered on Session Start Dt Month, which excludes October 2021.

The first chart that helps us to have an overview of the situation of parking meters in San Francisco is related to the revenue acquired in the period evaluated.

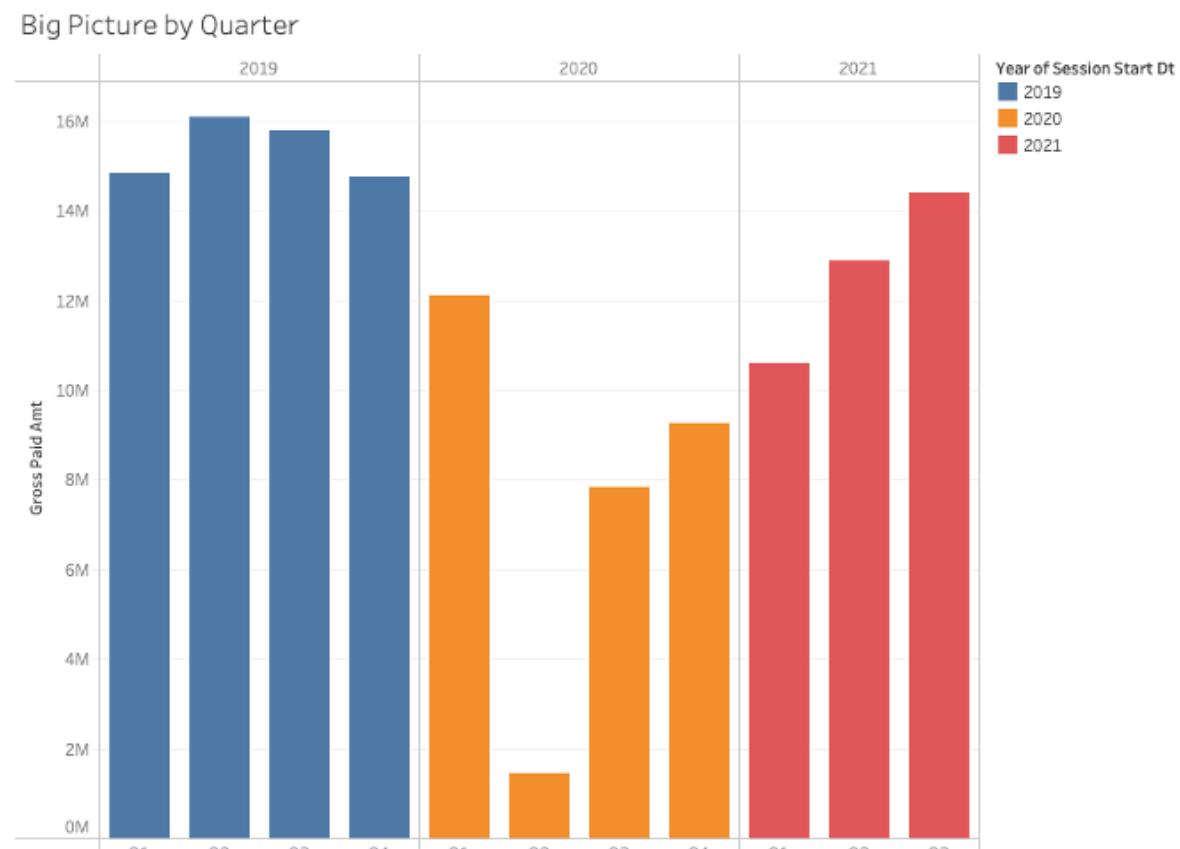
The first cases of COVID-19 in the United States were reported in January 2020, [as reported by The Washington Post](#). Before it, in a month to month comparison, the revenue of parking meters did not show much fluctuation. The apex happened in April 2019, with a gross collected amount of \$5,473,502.

The numbers show that the revenue from parking meters fell brutally from February 2020 onwards, which matches the spread of the disease and the loosening of the SFMTA in terms of rates and limits.

In April 2020, coincidentally one year after the highest record for the period under review, there was the highest low, with \$402,463 of gross collected amount. From \$5,473,502 in April 2019 to \$402,463 in April 2020 there is a significant difference that affected MUNI's revenue and budget, since the money collected with the parking meter is used to fund several projects and programs.

But, in July 2020, the data show another change. In this case, a positive one. The graph points to an increase in terms of revenue. In August 2021, the situation appeared to have normalized, taking into account the data from the pre-pandemic period.

Steady recovery by quarter post lockdown



Sum of Gross Paid Amt for each Session Start Dt Quarter broken down by Session Start Dt Year. Color shows details about Session Start Dt Year. The view is filtered on Exclusions (QUARTER(Session Start Dt),YEAR(Session Start Dt)), which keeps 11 members.

Analyzing the sum of gross paid per quarter is another way we found to show the impact of the pandemic on MUNI's revenue. It is a change in perspective that allows us to see the relationship between COVID-19 and parking meter data.

The graph clearly shows the drop in the gross sum paid during the second quarter of 2020. It is evident. But not only that. We can also see the beginning of the recovery phase that we talked about a moment ago, and the subsequent period of stabilization, reaching numbers similar to 2019.

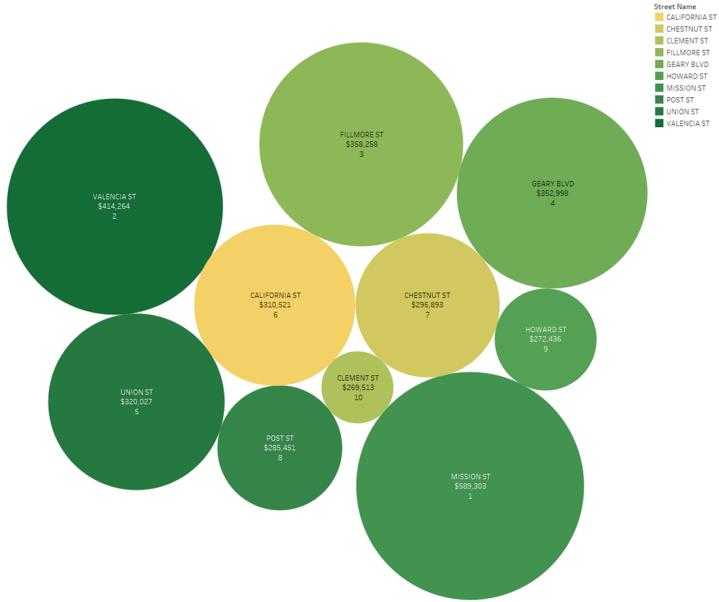
Street popularity measured in parking meter revenue

To better understand the effect the pandemic had on the MUNI revenue we went deeper and analyzed the gross amount related to the top 10 streets from July to September.

In 2019, for example, the top three streets were Mission Street (\$589,303), Valencia Street (\$414,264) and Fillmore Street (\$358,258), totaling \$1,361,825 in gross.

Top 10 streets by gross in 2019

Top 10 Streets by Gross Paid Amount
(Jul-Sept 2019)



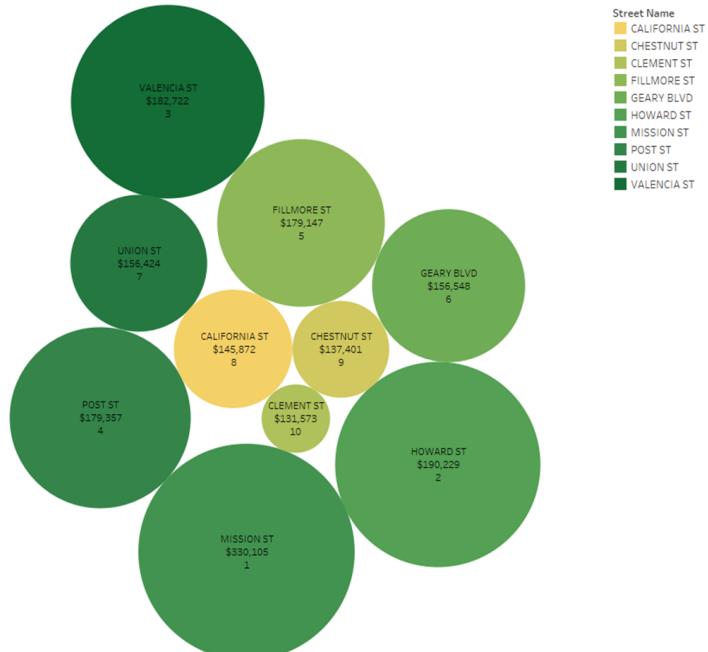
Street Name, sum of Gross Paid Amt and Rank (label). Color shows details about Street Name. Size shows Rank (size). The marks are labeled by Street Name, sum of Gross Paid Amt and Rank (label). The data is filtered on Session Start Dt Year and Session Start Dt Month. The Session Start Dt Year filter keeps 2019. The Session Start Dt Month filter keeps July, August and September. The view is filtered on Street Name, which keeps 10 of 354 members.

In 2020, Mission Street (\$330,105) remained at the top, but with a reduction of \$259,198 in gross amount. Howard Street (\$190,229) took second place, and Valencia Street (\$182,722) moved to third place, with a loss of \$231,542.

The total gross amount for the top three streets was \$751,876 in that year, against \$1,361,825 a year earlier. Comparing only the three main streets cases in 2019 and 2020, the total loss was around \$750,000, a very significant amount.

Top 10 streets by gross in 2020

Top 10 Streets by Gross Paid Amount
(Jul-Sept 2020)



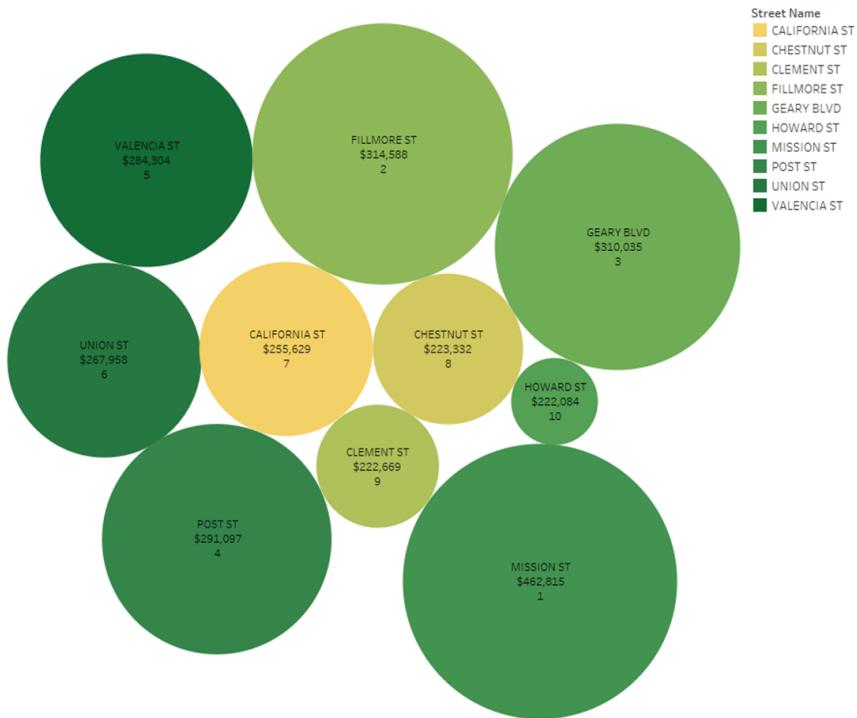
Street Name, sum of Gross Paid Amt and Rank (label). Color shows details about Street Name. Size shows Rank (size). The marks are labeled by Street Name, sum of Gross Paid Amt and Rank (label). The data is filtered on Session Start Dt Year and Session Start Dt Month. The Session Start Dt Year filter keeps 2020. The Session Start Dt Month filter keeps July, August and September. The view is filtered on Street Name, which has multiple members selected.

The good news is that data from 2021 shows a recovery start. The top three streets now are Mission Street (\$462,815), Fillmore (\$314,588) and Geary Boulevard (\$310,035) totaling about \$1,087,438.

This value represents about \$250,000 more than in 2020 and \$300,000 less than in 2019. But, as the year is not over, the recovery is likely to be complete, which means that the revenue from parking meters will probably reach 2019 values.

Top 10 streets by gross in 2021

Top 10 Streets by Gross Paid Amount
(Jul-Sept 2021)

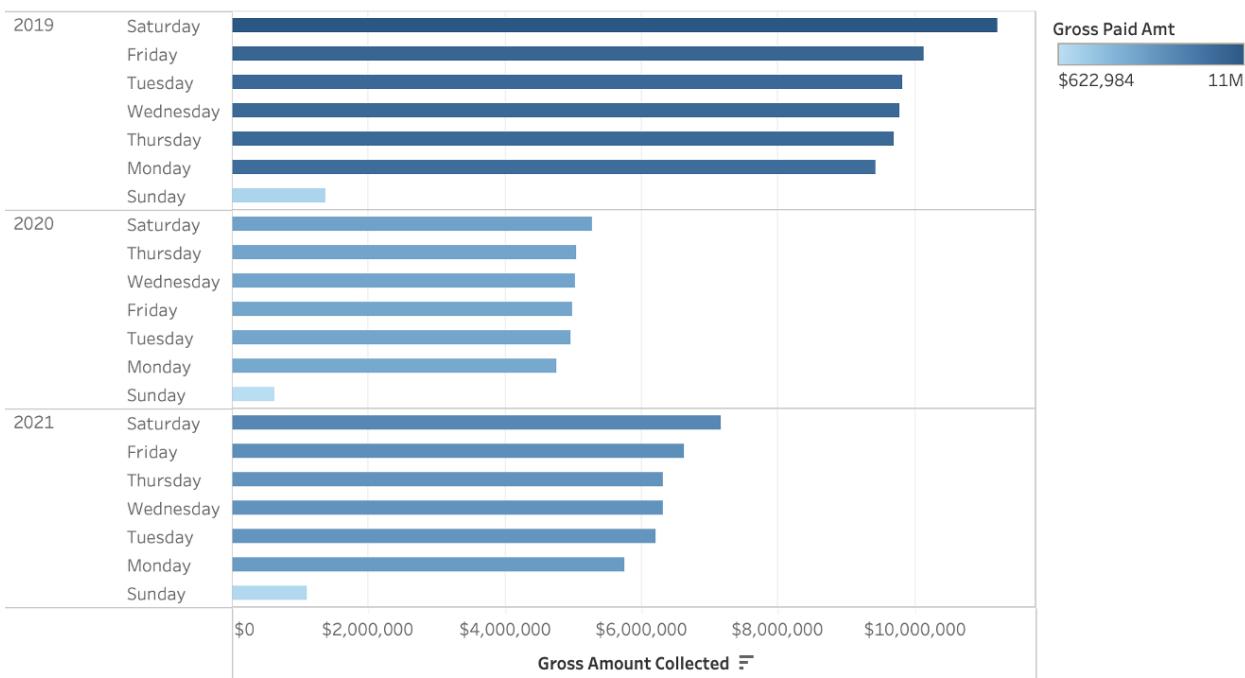


Saturdays are the highest grossing days for San Francisco parking meters

Another interesting way we found to confirm the reduction in revenue from parking meters in the city was analyzing the data regarding the days of the week. When looking at the charts, it is easy to see and understand the decline in 2020 and the respective recovery in 2021.

Parking meter revenue by day of the week

Revenue Breakdown by Day of the Week



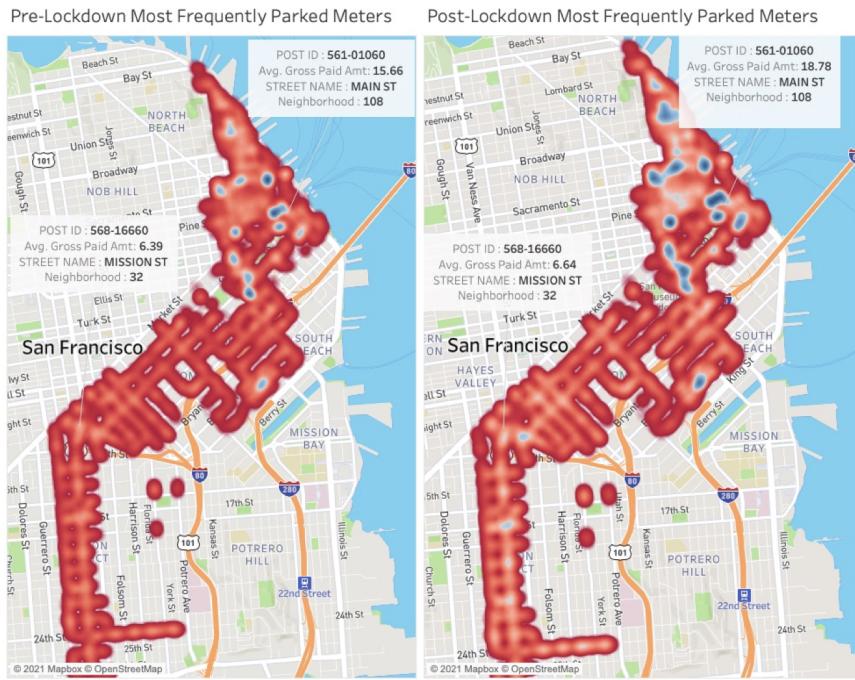
Sum of Gross Paid Amt for each Session Start Dt Weekday broken down by Session Start Dt Year. Color shows sum of Gross Paid Amt.

In reviewing the data collected from the parking meters in San Francisco from 2019-2021, we were able to identify that Saturdays are the highest parking meter revenue day of the week.

In looking further into why Sundays are so much lower across the three years we identified that meters are only active in touristy areas of the city on Sundays.

Overall the COVID-19 lockdown impacted the total revenue, but didn't impact the ratios of meter revenue by day of the week. This is important information that can be used to help us develop strategies to recover some of the losses.

Mostly frequently parked meters



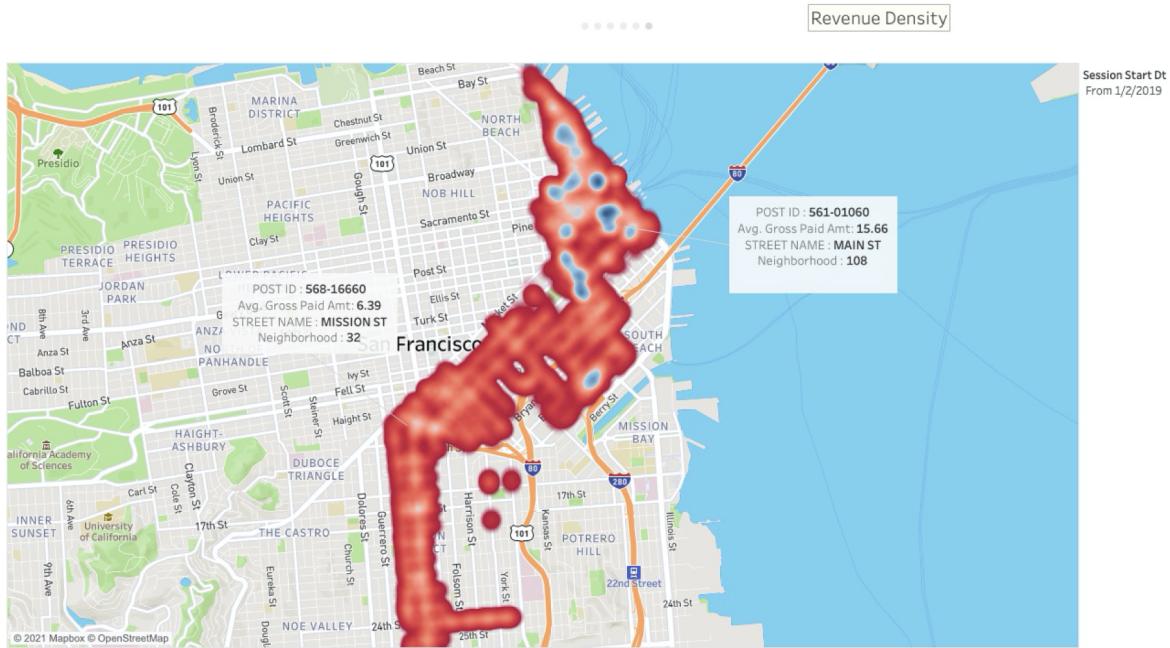
We also analyzed the average number of transactions per meter, with the intention of identifying the busiest regions of the city. With this in mind, the busiest places are marked with blue color in the heat maps.

In fact, as we can see, there is no significant change. The busiest places, which are located in or close to downtown, remained the same in the pre and post COVID-19. But this is useful information that helps us identify strategic locations that can be used in campaigns to recover some of the lost revenue.

We do note that while the same locations were the busiest both pre and post lockdown, there was a decrease in the total amount of activity and revenue in the post lockdown period as we continue to recover.

Parking meter revenue density

Covid Impact to SF Parking Meter Revenue



From January 2019 to October 2021 the heat map for revenue closely aligns with the heat maps for parking frequencies pre and post lockdowns. Here it is noted that the highest grossing areas overall are the portions of San Francisco where tourist attractions are.

This should give hope to the SFMTA that people will continue to visit San Francisco's attractions and be generating revenue from parking meters as time goes on. Recovery from the lockdowns has steadily increased since mandates were lifted and continues to increase. The areas for generating the most revenue continue to be the areas where outdoor activities occur, such as the various activities offered around the wharfs.

Takeaways and recommendations

San Francisco Parking generates a huge amount of revenue each month, especially in the heated areas shown in Tableau map. Below are the 3 actionable takeaways that the board of directors for the SFMTA can reflect upon to combat the growing deficit in public transportation:

1. Increase the parking fees

People always complain about the difficulty of finding parking in San Francisco and there is always a huge demand for parking. The simplest solution is to increase the parking fees, so there will be less people that are willing to park in the area.

By doing so, we can encourage more people to take public transportation to go to work, it also helps reduce the carbon dioxide emissions in the city as well as increase revenue for MUNI overall.

2. When parking demand is high, we can increase supply

MUNI can use the revenue to build more parking meters around the area and collaborate with some of the private garages. Many private parking garages are actually empty during the busy hours, we can use data to create a system where private parking spots can be shared.

3. Start charging where parking is free

There are many free parking areas around the most heated areas on the density map. For example, Beale and Folsom streets, which are 5 minutes walking distance from the Salesforce Tower on Mission street, are the hardest areas to find a parking space.

If there is a need for people to park in these areas, we can charge them by eliminating those free parking areas and building the parking meters on those streets. As prices increase from free parking, it will lower the demand and more people will be able to find parking spaces as long as they are willing to pay the meters.