Evaluation of Sunday Parking Management

December 10, 2013

Executive Summary

On January 6, 2013, the SFMTA began operating parking meters throughout the city from 12-6pm on Sundays with four-hour time limits. The SFMTA gathered data to evaluate how well this change in parking management achieves the following goals:

- Make it easier to find a parking space in commercial areas on Sundays (and thereby improve access, driver convenience, and economic vitality).
- Reduce double parking and circling, which supports goals for reducing delays for Muni, greenhouse gas emissions, and congestion, and improving safety for pedestrians, cyclists, and other drivers.
- Off-set the costs of operating Muni.

This evaluation shows that as a result of operating meters on Sundays, we have seen:

1. **It is now easier to find parking spaces in commercial and mixed use areas on Sundays**. Prior to operating meters on Sundays, it was hard to find parking in almost every commercial area in the city. Now parking availability is much higher, so it is easier for drivers—many of whom are likely customers of neighborhood businesses—to access commercial areas. Between 2012 and 2013, the average parking availability on Sunday doubled during metered hours, increasing from 15% to 31%.

2. **More people can park because there is more turnover**. Prior to operating meters on Sundays, some drivers would park in metered spaces on Saturday evening or Sunday morning and not move their car until Monday morning, reducing turnover and the parking availability in commercial areas on Sundays. We now see less of this behavior: the number of cars that parked in each space per day increased by at least 20% from 0.5 per hour to 0.6 per hour during Sunday afternoons, and the percentage of spaces occupied on Saturday night through Sunday afternoon decreased by two thirds, from 6% to 2%. Prior to metering on Sundays, half of all cars parked for less than three hours, while half stayed for three or more hours. After metering on Sundays, 76% of cars stayed for up to three hours (with 50% staying for less than one hour), and less than one quarter of all cars parked stayed for three or more hours.

3. **More people park in SFMTA parking garages, opening up more on-street spaces**. Sunday meters both made it easier to find an on-street space and encouraged more drivers to go directly to a garage rather than circle for free on-street parking: garage occupancy on Sundays from 12pm to 6pm increased by 13%. Getting more drivers off the road and into garages quickly opens up on-street parking spaces for others, effectively increasing the usable parking supply. It also improves the utilization of these important city resources.

4. **People have to spend less time circling to find a parking space**. Prior to metering on Sundays, data indicate that drivers would circle for an average of over four minutes to find a parking space. After metering on Sundays, the average search time in the same areas is now

under two minutes. This reduction improves the experience of driving to visit these areas, and also reduces both congestion and greenhouse gas emissions. And the variability of parking search time, or how consistent or predictable the parking experience is, also improved. The amount of time a driver reasonably should budget to find a parking space (measured by the 95th percentile) decreased from about 14 minutes in 2012 to about four minutes in 2013.

5. **Increased net revenue to help pay for Muni**. Parking provides one source of SFMTA's revenue, helping to pay for the services SFMTA provides, such as Muni service on Sundays. After taking account of ongoing costs, operating meters on Sundays generated $3,143,000 in FY2013 (January 1 through June 30) and $1,869,000 in the first three months of FY2014 (July 1 through September 30).

Introduction

The SFMTA uses parking meters to manage parking demand at approximately 28,900[1] spaces in San Francisco. The purpose of these meters is to create parking availability (or open parking spaces) in commercial and mixed use areas so drivers can more easily find a parking space, especially when businesses are open.

Better parking availability also helps the city's transportation system function more smoothly for everyone and supports economic vitality. While the majority of customers in many San Francisco neighborhood commercial districts do not arrive by car[2], parking meters help those who do drive find a parking space quickly. This helps reduce congestion caused by circling and double parking, which helps those who walk, bike, or take transit.

For many years, parking meters in San Francisco were enforced Monday through Saturday from 9am to 6pm. Most businesses were closed on Sundays when parking meters were first installed in San Francisco in 1947, but that has changed significantly over the last 60 years. According to a survey of 32 neighborhood commercial districts, 72% of San Francisco businesses are open on Sunday.[3]

To help open up parking spaces for these businesses that are open on Sundays, on January 6, 2013 the SFMTA began operating parking meters on Sundays from 12pm to 6pm with four-hour time limits. This policy was designed to open up parking spaces for business, but it also aims to meet the needs of the broader community. After extensive conversations between the SFMTA and various community groups, the policy changed to meet as many of these needs as possible; metering hours start at noon instead of at 9am, as they do on Saturday. Customers who park before noon are able to pre-pay for parking so they do not have to return to the meter in the middle of their day. For the first three weeks after the policy went into effect, SFMTA staff issued informational flyers instead of parking citations on Sundays. This report, which provides a data-driven analysis of the policy and its goals, also is a result of these discussions.

This report evaluates how well metering on Sundays achieved the following goals:

- Make it easier to find a parking space in commercial areas on Sundays (and thereby improve access, driver convenience, and economic vitality).
- Reduce double parking and circling, which supports goals for reducing delays for Muni, greenhouse gas emissions, and congestion, and improving safety for pedestrians, cyclists, and other drivers.
- Off-set the costs of operating Muni.

For this evaluation, the SFMTA used the following data sources:

- Parking occupancy data

[1] This does not include the 1,300 meters under the jurisdiction of the Port of San Francisco.
[2] Please see appendix A for a summary.
[3] Please see appendix B for a summary.

- Parking turnover and length of stay surveys
- Parking search time surveys
- Revenue and expense data related to SFMTA parking meters and garages
- Feedback from the city's 311 service

Results and Analysis

Parking Availability

Parking availability, or the percent of parking spaces on a block that are not occupied and therefore available at a given time, is the core measure of how effectively parking policies manage parking demand. Parking availability is measured by parking occupancy data, or the percentage of parking spaces on a block that are occupied by a parked vehicle at a given time. This is the inverse of parking availability, so a block of 20 spaces with 18 cars has 90% occupancy and 10% availability.

The SFMTA aims to see parking availability that is neither too low nor too high; when it is too low, drivers have difficulty finding a parking space, and they must circle to find a space or are tempted to double park. They may even give up and have to drive somewhere else and then choose to avoid visiting that neighborhood in the future. When parking availability is too high, the street space is being underutilized. The SFMTA's goal is to have an average parking occupancy between 60% and 80% on any given block, so that parking is well-utilized but drivers can find a space easily and quickly.

In 2009, the SFMTA conducted parking occupancy surveys across the city. Manual surveys from 32 neighborhood commercial areas demonstrated that it is hard to find open parking spaces when meters are not operating. On Sundays, parking occupancy was higher than 85% overall in 30 out of 32 areas (see Figure 1).

Figure 1: Sunday parking occupancy in commercial districts, 2009

Neighborhood	Street	From	To	9:30 to 11:30 a.m.	11:30 a.m. to 3:30 p.m.	3:30 to 5:30 p.m.	Overall
Bayview	3rd St.	Thomas	McKinnon	< 85%	< 85%	< 85%	< 85%
Castro	Castro St.	Market St.	19th St.	**≥ 100%**	**≥ 100%**	**≥ 100%**	**≥ 100%**
Chinatown	Grant	Bush	Jackson	**≥ 100%**	**≥ 100%**	**≥ 100%**	**≥ 100%**
Cow Hollow	Union	Steiner	Van Ness	85% to 100%	85% to 100%	85% to 100%	85% to 100%
Downtown	Sutter	Kearny	Stockton	**≥ 100%**	**≥ 100%**	**≥ 100%**	**≥ 100%**
Excelsior	Mission St.	Geneva	Silver	< 85%	85% to 100%	85% to 100%	85% to 100%
Fillmore	Fillmore	Jackson	Post	**≥ 100%**	**≥ 100%**	**≥ 100%**	**≥ 100%**
Financial District	Kearny	Geary	Sutter	**≥ 100%**	**≥ 100%**	**≥ 100%**	**≥ 100%**
	Jackson	Grant	Montgomery	**≥ 100%**	**≥ 100%**	**≥ 100%**	**≥ 100%**
	Battery	Jackson	California	**≥ 100%**	**≥ 100%**	**≥ 100%**	**≥ 100%**
	Sansome	California	Pacific	**≥ 100%**	**≥ 100%**	85% to 100%	85% to 100%
Fisherman's Wharf	Beach	Hyde	Polk	< 85%	85% to 100%	**≥ 100%**	85% to 100%
Japantown	Post	Fillmore	Laguna	**≥ 100%**	**≥ 100%**	**≥ 100%**	**≥ 100%**
Lower Pacific Heights	Divisadero	Geary	California	**≥ 100%**	85% to 100%	< 85%	85% to 100%
Mission	Mission St.	26th St.	19th St.	85% to 100%	**≥ 100%**	85% to 100%	85% to 100%
	Valencia St.	19th St.	Duboce	85% to 100%	**≥ 100%**	**≥ 100%**	**≥ 100%**
Noe Valley	24th St.	Castro	Chattanooga	**≥ 100%**	**≥ 100%**	**≥ 100%**	**≥ 100%**
North Beach	Columbus	Pacific	Greenwich	**≥ 100%**	**≥ 100%**	**≥ 100%**	**≥ 100%**
Parkside	Taraval	29th Ave.	14th Ave.	< 85%	85% to 100%	85% to 100%	85% to 100%
Portola	San Bruno Ave.	Silver St.	Wayland	**≥ 100%**	**≥ 100%**	**≥ 100%**	**≥ 100%**
Richmond	Clement	Arguello	Funston	**≥ 100%**	**≥ 100%**	85% to 100%	**≥ 100%**
	Geary	14th Ave.	28th Ave.	**≥ 100%**	**≥ 100%**	**≥ 100%**	**≥ 100%**
SoMa	Folsom	5th St.	Fremont St.	85% to 100%	**≥ 100%**	85% to 100%	**≥ 100%**
	Howard	Fremont	3rd St.	< 85%	85% to 100%	< 85%	< 85%
Sunset	Irving	15th Ave.	27th Ave.	**≥ 100%**	**≥ 100%**	**≥ 100%**	**≥ 100%**
	Irving	7th Ave.	12th Ave.	**≥ 100%**	**≥ 100%**	**≥ 100%**	**≥ 100%**
Union Square	Stockton	Sutter	Geary	**≥ 100%**	**≥ 100%**	**≥ 100%**	**≥ 100%**
	Geary	Stockton	Van Ness	**≥ 100%**	**≥ 100%**	**≥ 100%**	**≥ 100%**
Upper Haight	Haight	Stanyan	Masonic	85% to 100%	**≥ 100%**	85% to 100%	85% to 100%
Upper Market	Market St.	Duboce	Castro St.	< 85%	85% to 100%	**≥ 100%**	85% to 100%
West Portal	West Portal Ave.	Ulloa	15th Ave	85% to 100%	85% to 100%	85% to 100%	85% to 100%
Western Addition	Divisadero	Fell	McAllister	< 85%	85% to 100%	**≥ 100%**	85% to 100%

Note: Occupancies can exceed 100% if cars are parked illegally.

To evaluate how effectively meters help to achieve a minimum level of parking availability on Sundays, the SFMTA gathered and analyzed additional parking occupancy data in sample neighborhoods.

Between 2012 and 2013, the average parking availability on Sunday in the sample neighborhoods[4] doubled during metered hours, going from 15% to 31%. This increase is likely the direct result of Sunday metering, as parking availability on other days of the week increased only slightly over the same time period. Additionally, the change between 2012 and 2013 was not part of a historical trend, as availability remained constant from 2011 to 2012. While parking availability increased the most during metered hours, the availability before and after metering hours also increased, indicating that the six hours of metering also opened up some spaces during the morning and evening on Sundays.

From 2012 to 2013, garage occupancy on Sundays from noon until 6pm increased by 13%. This indicates that the policy change did not deter people from visiting the neighborhoods surveyed. Rather, it

[4] Mission, Marina, Union Street, Hayes Valley, Civic Center, Fillmore, and Richmond.

encouraged more drivers to go directly to a garage rather than circling for free on-street parking, thereby opening more parking spaces on-street for other drivers.

The following sections outline the data collection and detailed findings.

DATA COLLECTION

The SFMTA analyzed data from parking sensors in six areas covering approximately 4,530 metered parking spaces (or 16% of the city's total metered spaces) in the following neighborhoods: Mission, Marina, Union Street, Hayes Valley, Civic Center, Fillmore, and Richmond. The data are from the months of April and September in 2012 and 2013.[5]

The SFMTA also gathered occupancy data from 12 city-owned garages[6]: 16th and Hoff Garage, Civic Center Garage, Ellis O'Farrell Garage, Fifth and Mission Garage, Golden Gateway Garage, Japan Center Garage, Lombard Street Garage, Mission Bartlett Garage, Moscone Center Garage, St. Mary's Square Garage, Sutter Stockton Garage, and Union Square Garage. The data are from the months of April and September in 2012 and 2013.

FINDINGS

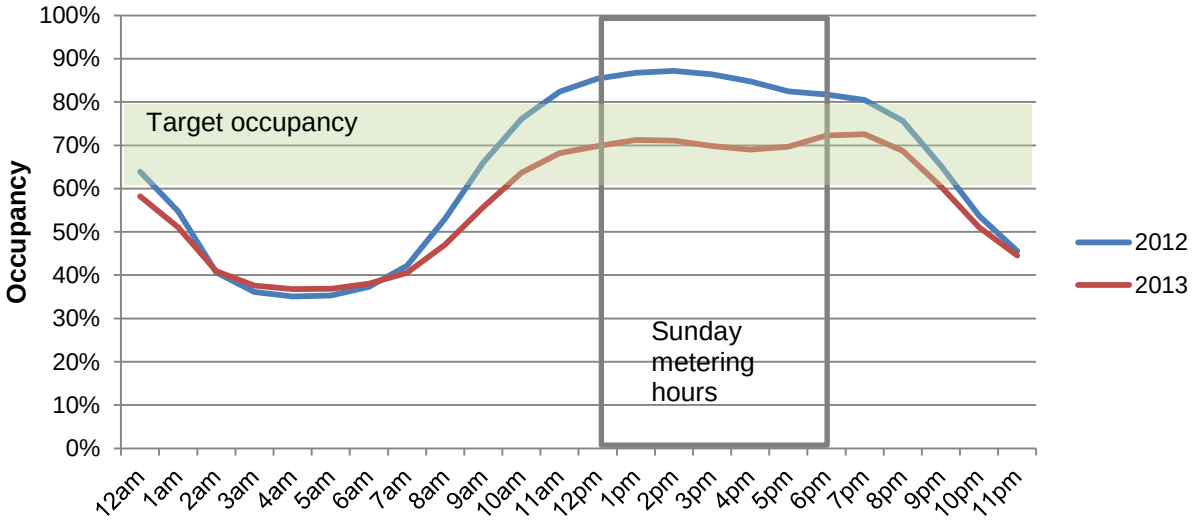
On-street parking availability results

Between 2012 and 2013, parking availability on Sundays increased as a result of Sunday metering, making parking easier to find.

In 2012, available on-street parking spaces were scarce during the day on Sunday but were more available in the early morning hours and late at night. In 2013, parking spaces were more likely to be available during the day on Sunday, both during metered hours as well as in the morning. Parking demand peaked during the afternoon and evening, but the highest occupancies remained within the target occupancy range, shown in the horizontal green band in Figure 2 below. The graph shows the average parking occupancy at each hour across Sundays in the sample months in 2012 and 2013.

[5] Sensor occupancy data in Richmond and Union was not available beyond July 31, 2013, so the 2013 data from these areas is from April and July.
[6] Garage data does not include the Performing Arts Garage, which is not typically open on the weekends (it opens only for some special events).

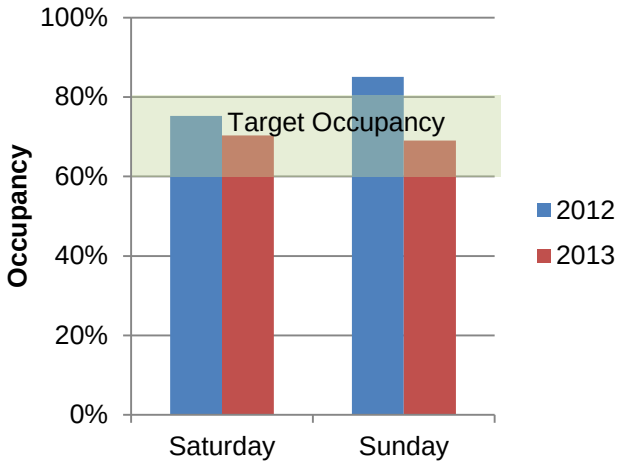
Figure 2: On-street occupancy across hours on Sunday, 2012 and 2013



Analysis of the average occupancy from 12pm to 6pm across the week showed a slight decrease in occupancy across all days of the week. However, occupancy decreased more on Sundays than on any other day of the week. The decrease in occupancy between noon and 6pm on Sundays was 19%, versus 7% on Saturday and during the week. This decrease in occupancy on Sunday brought the average occupancy during metered hours from 85% to just under 70%, which is within the target occupancy range and consistent with other days of the week (see Figure 3).

Figure 3: Average percent on-street occupancy from 12pm – 6pm by day of week

Day of week	Percent occupancy 12pm - 6pm		Percent change
	2012	2013	
Monday	70	65	6%
Tuesday	74	68	7%
Wednesday	74	69	7%
Thursday	75	68	8%
Friday	75	70	7%
Saturday	75	70	7%
Sunday	**85**	**69**	**19%**

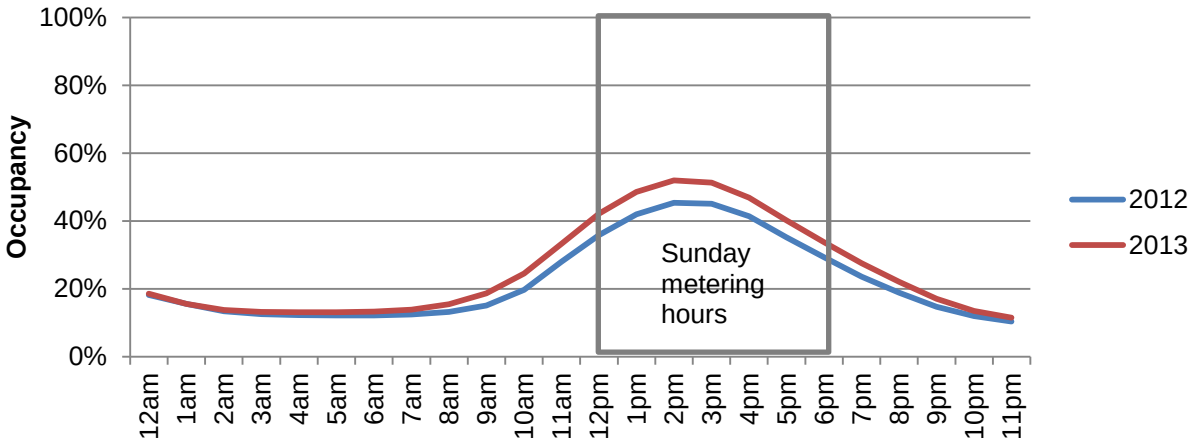


Finally, this change in occupancy on Sunday is not simply a historic trend; parking occupancy on Sundays from 12pm to 6pm was the same in 2011 as 2012.

Off-street parking availability results

Operating parking meters on Sundays appears to have contributed to increase in parking occupancy at SFMTA parking garages. Occupancy increased particularly during the hours when meters were operating on Sundays, but also before meters began operating at noon. Figure 4 shows how occupancy changed over the course of the day on Sundays. The lines show the average at each hour across Sundays in the sample months in 2012 and 2013.

Figure 4: Garage occupancy across hours on Sunday, 2012 and 2013



In general, parking occupancy increased between 2012 and 2013 at the city-owned garages considered in this evaluation. However, from 2012 to 2013, Sunday occupancy increased by 15%, versus 4% on Saturday and an average of 4% on the weekdays (See Figure 5). This indicates that Sunday metering prompted many drivers to go directly to a garage and park rather than circling for free parking on the street.

Figure 5: Average garage occupancy from 12pm – 6pm by day of week

Day of week	Percent occupancy 12pm - 6pm		Percent change
	2012	2013	
Monday	54	57	5%
Tuesday	63	67	6%
Wednesday	65	67	4%
Thursday	66	67	1%
Friday	61	62	2%
Saturday	59	61	4%
Sunday	**41**	**47**	**15%**

Parking Search Time

One goal of metering on Sundays is to shorten the amount of time it takes to find a parking space on Sundays. This makes driving more convenient, improves the driving experience, and also reduces congestion related to circling and therefore should help to make Muni, bicycling, and walking safer and more efficient.

In addition to reducing the amount of time that people spend looking for parking, operating meters on Sundays is intended to make the amount of time that it takes to find parking more predictable. For the people who drive in order to get to a particular neighborhood, having a shorter and more predictable parking search is an incentive to come to the neighborhood to shop or eat, because they do not have to budget as much time to find parking.

The SFMTA conducted parking search time surveys to evaluate the experience of finding a parking space on Sunday. Between 2012 and 2013, the average parking search time during metered hours on Sundays decreased by 61% from over four minutes to 1.6 minutes. Other days of the week did not experience the same decrease, and the change on Sundays between 2012 and 2013 was much greater than the gradual decrease in the previous year. While the search times decreased the most during metered hours, the search times before and after metering hours also decreased, indicating that the six hours of metering made it easier to find parking spaces all day.

The variability of parking search time during metered hours also decreased between 2012 and 2013. In 2012, it was reasonable to expect to find a parking spot in 14 minutes in 2012. In 2013, it was reasonable to expect to find a parking spot within four minutes. These improvements in parking search time and predictability were evident in April and May of 2013, after only a few months of Sunday metering.

The following sections outline the data collection and detailed findings.

DATA COLLECTION

Using set routes in Civic Center, Fillmore, Marina, Mission, Richmond, and Union Street commercial districts, the SFMTA measured parking search time in April and May of 2012 and April and May of 2013. The parking search time surveys were conducted over the course of the day, starting at 8am, noon, 4pm, and 8pm. In the parking search time survey, a surveyor followed a set route in each commercial district and recorded the time it took to find a parking space.[7] The SFMTA conducted more than 4,800 parking search runs in 2012 and 2013, with 1,600 on Sundays. The SFMTA also has the same historical data from Spring 2011.

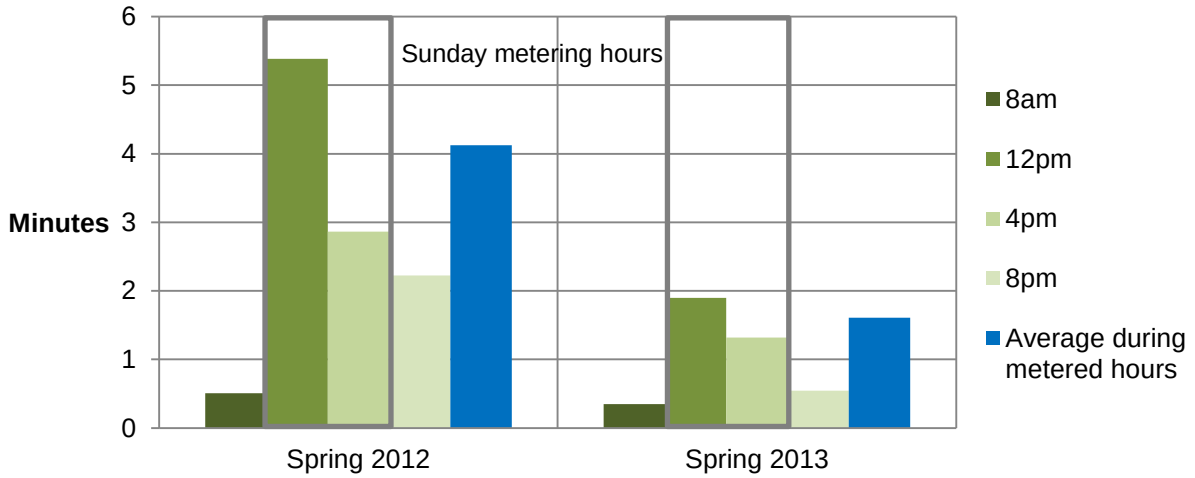
FINDINGS

Change in parking search time

[7] The full parking search time survey methodology is in Appendix C.

In 2012, surveys from 8am through 8pm show that the longest parking search times tend to be at 12pm and 4pm, which are both within Sunday metering hours (12pm until 6pm). Between 2012 and 2013, the average parking search time decreased by 61% during Sunday metering hours from more than four minutes in 2012 to 1.6 minutes in 2013. In 2012, it took an average of more than 5.4 minutes to find a parking space at noon on Sundays. In 2013, this decreased by 65% to under two minutes. Similarly, finding a space at 4pm decreased 54% from almost three minutes in 2012 to 1.3 minutes in 2013 (see Figure 6).

Figure 6: Average parking search time on Sundays, 2012 and 2013



Metering from 12pm to 6pm also appears to have affected parking search time outside of metering hours. Including searches at 8am and 8pm, the average search decreased by more than 60%, from an average of more 2.7 minutes in 2012 to about one minute in 2013: at 8am, the search time decreased from 30 to 21 seconds, and the search time at 8pm decreased 76% from over two minutes to just 30 seconds. By discouraging people from parking overnight and storing cars on-street in commercial areas for part of the weekend, data suggest that metering on Sundays affected parking search times throughout the day, including outside of metered hours.

This decrease in parking search time across the entire day did not occur during other days of the week; search times decreased more on Sunday than they did on any other day. Across all times, parking search time on weekdays decreased by 34% between 2012 and 2013, and they increased by 46% on Saturdays. On Sundays, parking search time decreased by more than 53% (See Figure 7).

Figure 7: Percent change in parking search time from 2012-2013 by Weekdays, Saturday, and Sunday
Rows in gray are during Sunday metering hours.

Time of day	Weekdays	Saturday	Sunday
8am	2%	16%	-44%
12pm	9%	26%	-70%
4pm	-45%	26%	-47%
8pm	-70%	33%	-66%
All times	**-34%**	**46%**	**-53%**

Finally, historic data suggests that the decrease in parking search time on Sundays between 2012 and 2013 was not part of a trend for the past few years. Between spring 2011 and spring 2012, overall parking search time decreased by 6%. The 51% decrease from 2012 to 2013 is likely a direct result of implementing metering on Sundays.

Variability of parking search time

One of the challenges of parking in San Francisco is that the time it takes to find parking varies greatly, and budgeting time to find a parking space is difficult because it is unpredictable. One goal of metering on Sundays was to make the amount of time it takes to find a parking space more predictable, or less variable, so people can budget less time for the parking part of their trip.

One measure of variability is the 95th percentile, or the amount of time that a surveyor was able to find a parking space 95% of the time. This value is a reasonable estimate for the longest that a driver would need to budget to find a parking space. In 2012, between 12pm and 6pm on Sundays, surveyors had a 95% chance of finding a parking space within 14 minutes. In 2013, surveyors had a 95% chance of finding a parking space in less than four minutes between during the same period. This decrease means that drivers experience less uncertainty and can plan accordingly, making parking more predictable and convenient.

Parking Length of Stay and Turnover

One factor that lowers parking availability on Sundays is cars that are stored for long periods of time in commercial areas. This includes cars parked all day Sunday as well as cars parked on Saturday evening and stored through business hours on Sunday. Length of stay and parking turnover, or how many cars park in one space over time, are related measures of how parking spaces are used.

Drivers left their cars parked for shorter periods of time in 2013 than they did in 2012. In 2012, 50% of cars were parked for three or more hours. In 2013, only 24% cars parked for three or more hours, while

76% parked for less than three hours. There was also a decrease in the number of spaces that were occupied by the same car from Saturday evening and into Sunday afternoon; this figure decreased from 6% in 2012 to 2% in 2013.

A shorter length of stay means that more cars have access to each parking space. Between 2012 and 2013, parking turnover on Sunday increased from an average of 0.5 cars per hour to 0.6 cars per hour, increasing the number of cars that could use a space by 20%.

The following sections outline the data collection and detailed findings.

DATA COLLECTION

The SFMTA conducted parking turnover surveys before and after the implementation of Sunday metering. These surveys included license plate data from the preceding Saturday evening to determine what percentage of cars are stored in commercial areas from Saturday evening through Sunday. The survey was conducted across 85 blocks in the following areas: Mission, Marina, Hayes Valley, Richmond, and Fillmore. Surveyors visited each route on at least two Sundays every hour between 12pm and 5pm, as well as at 6pm and 9pm on the preceding Saturday.[8] Data was gathered in the fall of 2012 and 2013.

FINDINGS

Length of stay

In 2012, cars tended to remain parked for longer than they did in 2013. In 2012, 50% of cars parked for less than three hours, and 50% parked for three or more hours. In 2013, 76% cars stayed for less than three hours (see Figure 8); 50% stayed for less than one hour, and 26% stayed for two hours. Less than one quarter of all cars parked stayed for three or more hours in 2013.

[8] The full turnover and length of stay survey methodology is in Appendix D.

Figure 8: Percent of cars staying two hours or less versus three or more hours by year

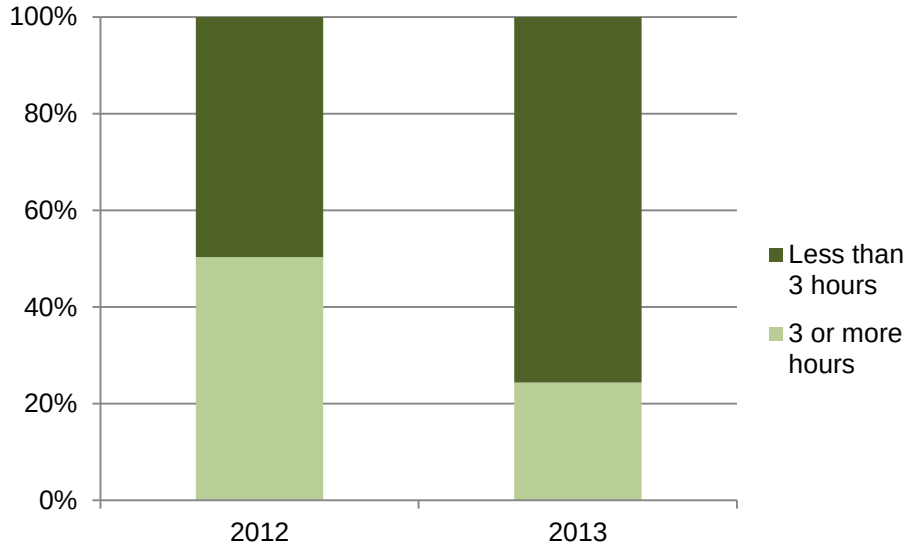


Figure 9 summarizes the shift in percent of cars staying for one, two, three, four, and five or more hours. Between 2012 and 2013, the percent of vehicles staying for up to one hour increased by 20%, while the percent of vehicles staying for five hours or more decreased by 20%.

Figure 9: Percent of cars by length of stay of time, 2012 and 2013

Sunday length of stay	2012	2013	Difference
1 hour	30%	50%	+20%
2 hours	20%	26%	+6%
3 hours	13%	11%	-2%
4 hours	10%	6%	-4%
5 or more hours	28%	8%	-20%

The data suggest that cars stayed longer in parking spaces on Sundays in 2012 and were also more likely to have been parked there since Saturday evening. In 2012, 6% of the spaces surveyed had the same car parked on Saturday evening at 9pm and Sunday at 12pm. In 2013, only 2% of the spaces surveyed were occupied by the same car on Saturday evening and Sunday at noon.

Turnover

The decrease in length of stay allows for 20% more cars to access each space. Turnover, or the number of cars that are parked in a space over a period of time, increased in the surveyed areas between 2012 and 2013. In 2012, there was an average of 2.5 cars parked in every legal, publicly-available parking space on Sunday afternoon (from 12pm until 5pm), or 0.5 cars per hour. In 2013, there was an average of

3 cars per parking space across Sunday afternoon, or 0.6 cars per hour (See Figure 10). In other words, a 15-block neighborhood with 150 parking spaces could accommodate up to 450 cars over a six-hour span from noon until 6pm in 2012, and the same 150 spaces could accommodate up to 540 cars during that time in 2013.

Figure 10: Sunday parking turnover, 2012 and 2013[9]

Average cars per space	2012	2013
Afternoon (12pm-5pm)	2.5	3
Hourly	0.5	0.6

Operating Costs

Operating and enforcing parking meters on Sundays has generated additional revenue and costs (both initial and ongoing) for the SFMTA. The SFMTA budgeted $900,000 for fiscal year (FY) 2013 and $1,900,000 for FY2014 for Sunday metering. For FY2013 (January 1 through June 30), the net revenue for Sunday metering was $3,143,000. For the first three months of FY2014 (July 1 through September 30), the net revenue was $1,869,000. The revenue and expenses associated with Sunday metering are outlined below and detailed in Appendix E. In all calculations below, FY2014 includes July 1 through September 29.

EXPENSES

The SFMTA incurred one-time, initial startup costs to implement metering on Sundays. These one-time start-up costs are outlined below.

- **Equipment purchases**
  - Metering on Sundays required the purchase of 27 handheld electronic enforcement units, which cost $3,930 each and amortize over a six-month period. The total cost for these handheld units was $106,110 in FY2013 and $53,055 in FY2014.
  - Enforcement also required the purchase of 33 enforcement vehicles, which cost $34,503 each and amortize over three years. The total cost of the enforcement vehicles was $189,767 in FY2013 and $94,883 in FY2014.
- **Signage purchases.** The meters needed three different updated signs or decals to reflect the new operating schedule. The SFMTA purchased 25,000[10] of each:

[9] The actual number of cars parked per space is likely slightly higher than these figures. Surveyors recorded vehicles parked every hour, so any car that came and went between surveys would not be captured in these numbers.
[10] Of the SFMTA's 28,900 metered spaces, some spaces in Fisherman's Wharf and in metered lots already had Sunday metering hours. Additionally, only spaces with single-space meters (rather than multi-space meters) needed new signage.

- D-plates, or the metal plate in the city's older single space parking meters that indicates the rates and days of operations, cost $2 each;
- Enforcement hours plates, or the small plates on the back of the meter with enforcement hours, cost $1.25 each; and
- Decals with operating hours and days of operation on smart meters cost $2.00 each.

The total cost for all of these signs was $142,734 in FY2013. The SFMTA also purchased 4,500 L-bracket overhead signs, costing $25.00 per sign plus sales tax (8.75%), totaling $122,344 in FY2013.

- **Installation labor.** The installation of these new signs required 5,470 hours of labor across five different employee classes. The total labor costs were $363,376 in FY2013.
- **Database administrator (DBA) engineer.** Preparing the SFMTA's parking management system for Sunday metering required 80 hours of DBA engineer labor, with a total cost of $16,505 in FY2013 and $4,126 in FY2014 for evaluation.
- **Community outreach and communications.** The SFMTA conducted a broad outreach and communications effort for this policy change. The communications program included administrative, web design, graphic design, media relations, and translation labor, totaling 373 hours at a cost of $40,419 in FY2013. The SFMTA also spent $13,375 in FY2013 to print flyers, posters, Muni vehicle advertisements, and advertisements in 16 different local newspapers.
- **Implementation oversight.** Implementing the Sunday metering policy required labor from seven SFMTA employees and contractors. The cost of oversight and management labor to implement Sunday metering was $69,393 in FY2013. These costs for evaluation were $24,336 in FY2014.

The Sunday metering operation also has several ongoing labor costs, outlined below.

- **Meter maintenance labor.** Operating meters on Sunday requires the SFMTA to staff a skeleton meter maintenance crew to address maintenance needs that arise on the weekend. This crew consists of one supervisor and two employees. The incremental cost for this team, including the costs for benefits and overhead (such as radios, uniforms, etc.), was $47,617 in FY2013 and $23,809 in FY2014.
- **Enforcement labor.** Enforcing meters on Sundays requires an additional two supervisors and 30 parking control officers (PCOs). The cost for these additional employees, including the costs for benefits and overhead (such as printers, radios, uniforms, etc.), was $405,192 in FY2013 and $202,596 in FY2014. Enforcement began on January 27th, 2013, and PCOs worked on the first three Sundays in January to hand out flyers explaining the policy change rather than issuing citations.

- **Coin collections and counting labor.** With another day of coin revenue, Sunday metering requires additional coin collection labor for single space meters.[11] The total cost of this additional labor was $24,004 in FY2013 and $20,210 in FY2014.
- **Ongoing oversight.** Sunday metering requires ongoing labor costs of eight SFMTA employees and contractors. The cost of this labor, including benefits and overhead, was $28,104 in FY2013 and $14,052 in FY2014.

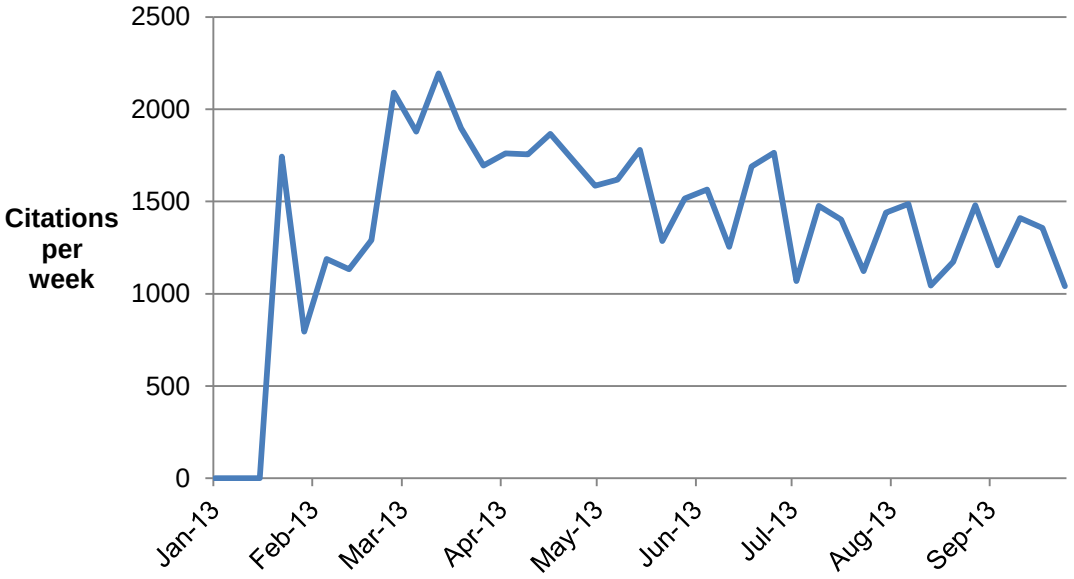
REVENUE

- **Meter payment revenue.** Parking meters at the city's 28,900 metered spaces began operating on Sundays on January 6, 2013, but there was a broadly-advertised, three-week grace period before meter payment was enforced on January 27, 2013.[12] The meters generated $2,404,000 in FY2013 and $1,238,000 in FY2014 in payment revenue on Sundays.[13] This is the total amount collected in coin, phone, credit card, and parking card payments minus fees the SFMTA pays for credit card transactions.
- **Citation revenue.** The SFMTA began enforcing Sunday metering on January 27th.[14] The SFMTA issues citations for vehicles that park at a meter without paying. The SFMTA issued 37,000 parking citations on Sundays in FY2013, generating a net $2,292,000 and 17,000 citations on Sundays in FY2014, generating a net $1,065,000. These revenue estimates reflect the face value of citations issued (rather than citations actually paid) minus the processing fee per citation.

  The pattern of citations issued on each Sunday from January through September shows that the number of citations issued appeared to stabilize in July (see Figure 11).

[11] There are no extra shifts required for multi-space meter collection or coin counting.
[12] Some meter payments were made starting January 6th, 2013, which are included in this analysis.
[13] The SFMTA can extract the exact amount of revenue generated on Sundays for the city's smart meters, which manage almost 29% of the city's metered spaces. Appendix F outlines how the revenue was estimated for the remaining 71% of the metered spaces.
[14] Although enforcement officially began at the end of January, the full deployment of PCOs was not in effect until April 2013.

Figure 11: Number of meter-related citations on Sundays in 2013



Additional data: 311 calls and emails

The city offers 311 service, which is a 24-hour customer-service call center. From December 1, 2012 (one month before the Sunday metering went into effect) to mid-September, 2013, 311 has a record of 41 calls and emails related to Sunday metering.

Twenty-three of these calls, or 56%, were complaints about the policy. The remaining calls covered a variety of topics: eight calls requesting enforcement, five questions about the policy, four prepay issues regarding an isolated glitch in the system that was resolved in January, and one compliment.

While there was a limited feedback via 311, the SFMTA is aware that there continue to be concerns about the policy of metering on Sundays.

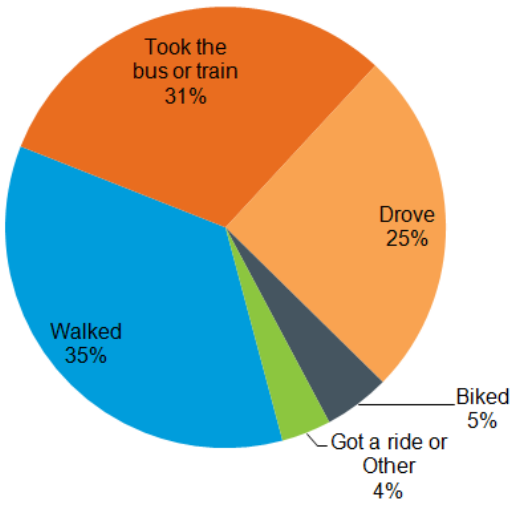
Appendix A: Arrivals to commercial districts by mode
Excerpt from SFMTA "Extended Meter Hours Study"
March 5, 2009

Intercept Survey

We conducted intercept surveys asking San Francisco residents about their traveling habits and whether they would support extending the hours of operations of the parking meters into the evenings and on Sundays. We qualified the support questions by explaining that revenues from extending the hours would go towards better Muni service and pedestrian and bicycle improvements, and that there would be no time limits after 6 p.m. and on Sundays. We surveyed 165 residents one Wednesday evening on August 5 between 6 p.m. and 8 p.m. in the commercial areas of the Castro, Inner Sunset, Mission, and Marina. Please see Appendix C for the survey form.

We asked residents what mode of transportation they had used to get to their destination in the neighborhood on the day of the survey (Figure 7). Of the 25 percent of respondents who drove that day, 90 percent found on-street parking. The average time reported to find a parking space was 5.5 minutes.

Figure 7. Mode Split of Travel on Day of Survey



Of those who did not drive that day, we asked whether they ever drive and how often, qualifying it with "never," "rarely," "sometimes," or "at least once/week." We grouped responses from the people who never drive and the ones who drive only rarely and compared them to those drove that day and those who drive regularly.

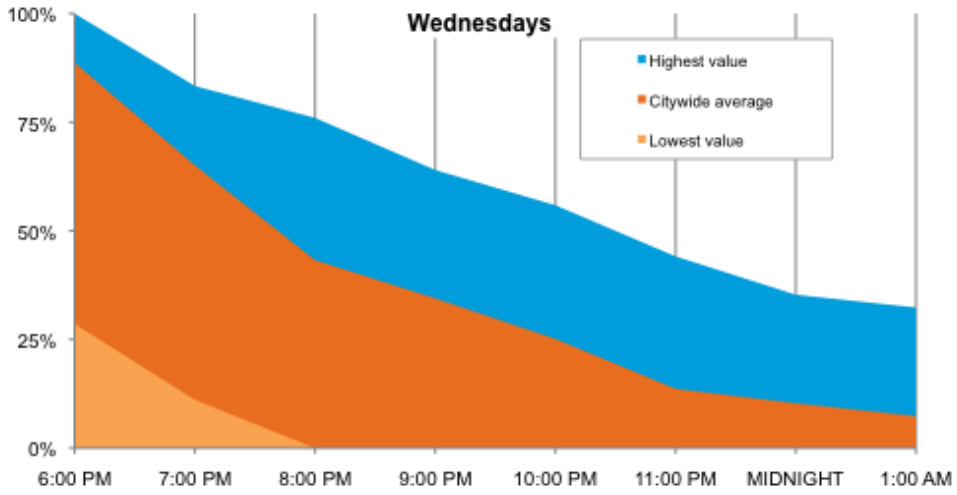
Appendix B: Business hours
Excerpt from SFMTA "Extended Meter Hours Study"
March 5, 2009

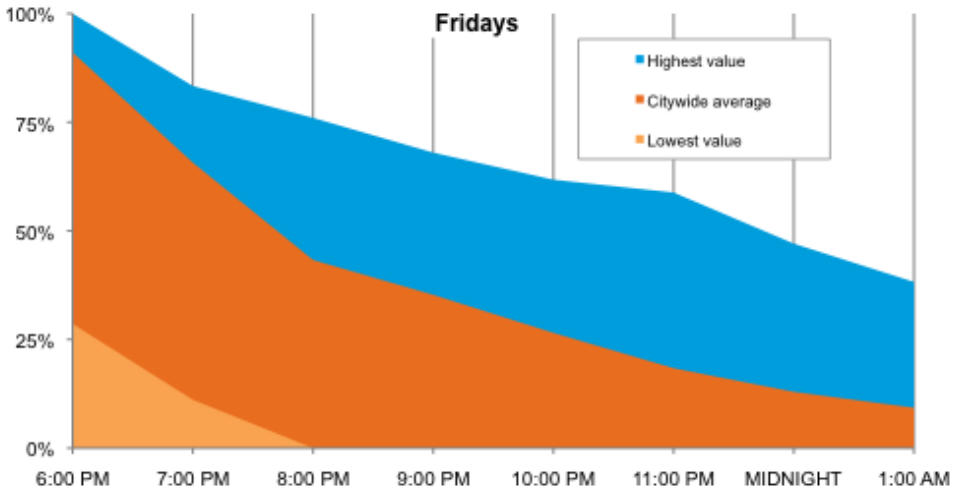
Business Hours Survey

To evaluate how well parking meter hours align with when businesses are actually open, we recorded the hours of operation for 1,130 businesses in operation in each of the study's 32 areas. During the survey, we recorded hours posted on storefronts; when no hours were posted, we asked an employee. When businesses were closed that day, we made follow-up phone calls or researched the businesses online as necessary. Only businesses that were in operation as of July 2009 (and for the 10 additional areas, October 2009) are included in the data and analysis.

Based on the survey, a high percentage of businesses are open later than 6 p.m., when most parking meters currently stop operating (Figure 5). Though parking occupancies are the primary consideration for when to operate parking meters, when businesses are open is another consideration. Even a small number of businesses, such as restaurants, theaters, or nightclubs, can generate significant parking demand and would like their customers to be able to easily find available parking spaces.

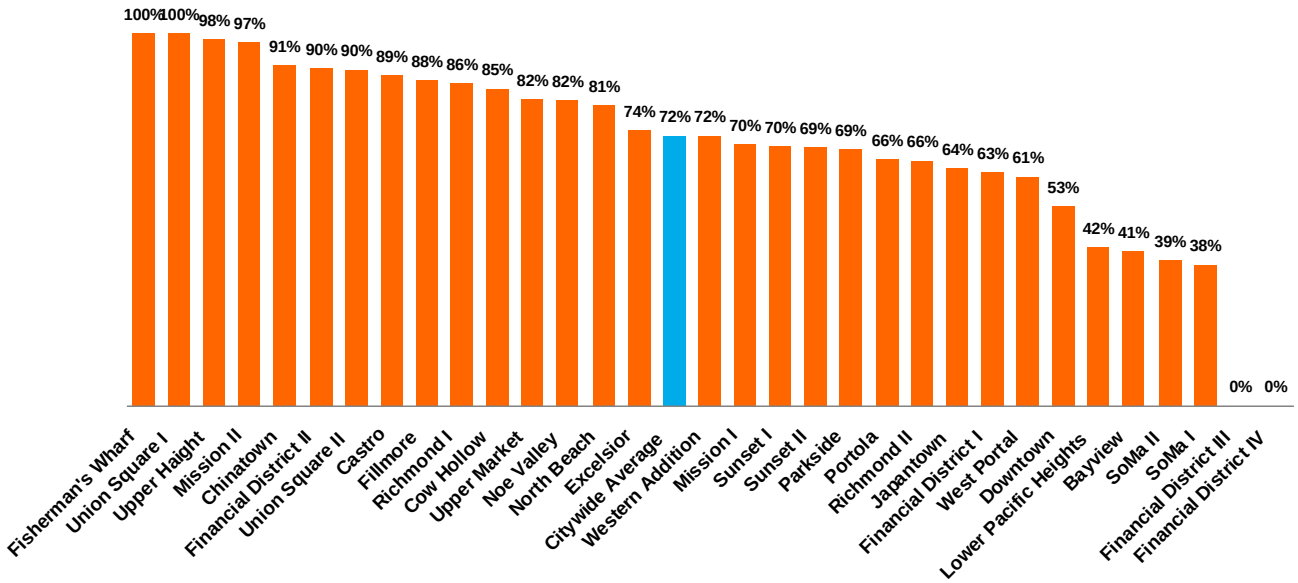
Figure 5. Percent of Businesses Open on Wednesdays and Fridays, by Hour





We also found that a clear majority of businesses are open on Sundays in most parts of the City (Figure 6). These results reflect the change that has occurred since 1947 when parking meters were first installed in San Francisco. At that time, relatively few businesses were open on Sundays. Now, in many parts of the city, Sundays are just as busy, if not busier, than other days of the week.

Figure 6. Percentage of Businesses Open on Sundays by Area



Appendix C: Parking Search Time Methodology

In practice, drivers have different ways of searching for parking, and they take different routes and experience varying search times for parking near the same destinations. To best estimate parking search time, pre-assigned starting points and carefully detailed search routes were used to ensure that data collection methodology was replicable, consistent, and comprehensible by surveyors.

Each sample area has a set route, which was selected to exclude streets with peak-period tow-away zones or with planned closure for construction. Surveyors traveled by bicycle[15] along the set route and recorded the amount of time it took to find the first legal parking space along the route.

Surveyors had up to 30 minutes to find a parking space. The surveyor recorded the time when a legal space (as defined by a set of consistent rules) was located, returned to the starting point, and waited four minutes before starting another run. If the surveyor did not find a parking spot within 30 minutes, the run was recorded as a failed run, and the surveyor returned to the starting point to begin a new run.[16]

In each sample area, surveyors made parking search runs from 8-10am, 12-2pm, 4-6pm, and 8-10pm on Tuesday through Thursday, Saturday, and Sunday. A sample data collection form is included below.

[15] This methodology is consistent with previous SFMTA parking search time surveys, which were conducted on bicycle. Drivers looking for parking in the surveyed neighborhoods tend to slow to about 12 mph, and surveyors on bicycle are able, when safe, to maneuver through traffic like a car. Surveys conducted by bicycle avoid double parking or distracted driving, and they also require less personnel and equipment than surveys conducted by car.

[16] A 30 minute cap on parking search time was chosen as a reasonable threshold for estimating the point when drivers will become frustrated and either (a) leave the area, (b) park in a garage or lot, or (c) park in an adjacent residential neighborhood. From a methodological perspective, it is also necessary to cap the time surveyors spend searching for parking, as it is possible that during peak times it may take much longer than 30 minutes to find a parking space, making it difficult for SFMTA to collect a sample size large enough to allow for statistical analysis.

Name: _____

Route: _____ Date: _____

Time (circle one): 8-10am 12-2pm 4-6pm 8-10pm

Survey Run	Start Time (Hour:Min)	Elapsed Time (min & sec)	Number of Laps	Failed Search? (Y/N)	Meter ID of found metered parking space OR Nearest address of found unmetered parking space
Sample	8:15	1:36	0	N	60600190 S#3
Search 0					Mark blocked at bottom of page.
Search 1					
Search 2					
Search 3					
Search 4					
Search 5					
Search 6					
Search 7					
Search 8					
Search 9					
Search 10					
Search 11					
Search 12					
Search 13					
Search 14					
Search 15					
Search 16					
Search 17					
Search 18					
Search 19					
Search 20					

Blocked (reason)	Street	Start Street	End Street	# of spaces	Dates	Times	Notes

1. A failed search means that you could not find a vacant legal parking space able to accommodate an average-sized passenger vehicle after 30 minutes of searching.

2.Mark the number of times you passed the starting point in "laps". If you did not pass the starting point, mark "0" in "laps".

Appendix D: Parking Length of Stay and Turnover Methodology

Surveyors followed carefully detailed routes in each survey area, walking along the route to stop at each parking space and record the relevant information. The surveyor ran completely through the route at 6pm and 9pm on Saturday evening and at 12pm, 1pm, 2pm, 3pm, and 4pm on Sunday afternoon.

Surveyors made a note for each space in the survey route, recording whether or not the space was occupied or vacant. For each occupied space, the surveyor noted the last four digits of the license plate. This is enough to track parking trends but does not allow drivers to be identified through their registration information.

The surveyor also recorded all parking regulations as well as any street closures, special events, or irregularly parked vehicles. The surveyor repeated this process in each identified time band. A sample data form is included below.

Sunday Metering "Before" Data Collection

STREET		**SURVEYOR**	
BLOCK		**DATE**	
SIDE		**REGULATION**	

		PARKED CARS (If occupied, mark last four digits of license plate. Mark " - " if no vehicle in space.)							
Space	Regl'n/ Meter Color	**SATURDAY (DATE _____)**		**SUNDAY (DATE _____)**					NOTES
		6 - 7 PM	9 - 10 PM	12 - 1 PM	1 - 2 PM	2 - 3 PM	3 - 4 PM	4 - 5 PM	
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									

Appendix E: Sunday Metering Revenue and Expenses

Net Revenue: Gross Revenue and Expenses, January 6 – September 29, 2013

Category	FY 2013 (6 months: January through June)			FY 2014 (3 months: July through September)		
	Revenue YTD	Costs YTD	Net YTD	Revenue YTD	Costs YTD	Net YTD
Smart Meter Revenue & CC fees (IPS and Duncans)	$ 1,384,635	$ 75,019	$ 1,309,617	$ 716,800	$ 40,189	$ 676,611
Legacy Meter Revenues (MacKay and Reinos)	$ 1,094,154	$ -	$ 1,094,154	$ 561,421	$ -	$ 561,421
Citations (all meters) & processing	$ 2,399,059	$ 107,138	$ 2,291,921	$ 1,112,756	$ 48,130	$ 1,064,626
Meter Maintenance Labor	$ -	$ 47,617	$ (47,617)	$ -	$ 23,809	$ (23,809)
Enforcement Labor (PCOs)	$ -	$ 405,192	$ (405,192)	$ -	$ 202,596	$ (202,596)
Enforcement Handhelds	$ -	$ 106,110	$ (106,110)	$ -	$ 53,055	$ (53,055)
Enforcement Vehicles	$ -	$ 189,767	$ (189,767)	$ -	$ 94,883	$ (94,883)
Coin Collections and Counting Labor	$ -	$ 24,004	$ (24,004)	$ -	$ 20,749	$ (20,749)
Implementation	$ -	$ 52,888	$ (52,888)	$ -	$ 20,210	$ (20,210)
Ongoing Oversight	$ -	$ 28,104	$ (28,104)	$ -	$ 14,052	$ (14,052)
DBA Engineer	$ -	$ 16,505	$ (16,505)	$ -	$ 4,126	$ (4,126)
Meter Decals	$ -	$ 142,734	$ (142,734)	$ -	$ -	$ -
Additional Signage	$ -	$ 122,344	$ (122,344)	$ -	$ -	$ -
Installation Labor (decals and extra signage)	$ -	$ 363,376	$ (363,376)	$ -	$ -	$ -
Communications labor	$ -	$ 40,419	$ (40,419)	$ -	$ -	$ -
Communications printing costs	$ -	$ 13,375	$ (13,375)	$ -	$ -	$ -
Total:	**$ 4,877,848**	**$ 1,734,593**	**$ 3,143,255**	**$ 2,390,977**	**$ 521,800**	**$ 1,869,177**

Appendix F: Methodology for calculating legacy meter revenue

Of the city's 28,900 metered spaces, 7,640 are managed by smart meters which can directly report how much revenue was generated on Sundays. The remaining 21,000 metered spaces, which have older meters, report the exact amount of revenue, but the revenue is reported for each coin collection cycle (e.g., every three to eight days). To estimate the revenue generated by these oldermeters on Sundays, the SFMTA calculated the average hourly rate for each meter at every collection period following a Sunday and multiplied this number by the number of operating hours on a Sunday (six hours, except for in 24-hour lots).