

Central City Parking Policy Update

Variable Pricing as part of Performance-based Parking Management

Case Studies

The City of Portland has used paid parking to encourage on-street parking turnover in dense, mixed use areas for more than 40 years. Binding City Policy TRN. 3.102 defines the objectives parking meter districts are intended to achieve, and sets the process and criteria to be used to establish or adjust meter district boundaries, regulations and meter rates.

Portland's Meter District Policy is almost 20 years old and scheduled for review as part of PBOT's Citywide Parking Strategy, of which the Central City Parking Policy Update project is a part. As part of this review, Portland is looking to other jurisdictions for management policies and practices that might be appropriate in the local context. This memorandum summarizes research on performance-based parking management and variable pricing in San Francisco, Seattle and Washington, DC.

VARIABLE PRICING DEFINITION

Variable pricing is a tool within the parking toolbox for managing the parking supply in a particular area. Variable pricing in many markets outside of parking is not a new concept. Essentially, the concept is to increase fees for service during heavily used times, days, during event or in particular areas, and lower fees when demand is low. It is mechanism to better manage the parking supply to reach a particular performance target, usually parking occupancy levels of about 85% (thought to be the 'effective capacity' level—leaving about one or two parking stalls available per block) through pricing. Within variable pricing, prices can vary based on duration of stay, day of week, time of day or location.

Variable pricing needs to have a clear policy to guide its intended outcome(s). As a result, transportation priorities/needs should inform parking policy, and whether variable pricing would be an effective tool to manage on-street supply. Further, if variable pricing is used, alternative modes and alternatives to on-street parking need to be understood and communicated to the public and a comprehensive planning strategy should help ensure economic vitality is not hindered.

To better understand variable pricing, this report will examine three cities that have implemented variable pricing. The findings will look to answer basic questions, as well as more nuanced questions to understand policy, process, evaluation, implementation and ultimately, successes. Questions include:

1. Why do they use variable pricing?

2. What are the policy objectives they are trying to achieve?
3. Where are they implementing variable pricings (subdistricts, campuses, CBDs, etc.)?
4. How does pricing vary? By location? By day? By time? By user?
5. How are rates determined?
6. How frequently are rates reviewed? Who reviews the rates? What is the review process?
7. How do drivers know how much to pay?
8. What types of meters are used?
9. How does the public respond to parking changes? Are they supportive? If there was resistance, on what grounds? How did the business community respond to the changes?
10. How does variable pricing affect the City's revenue stream?

CASE STUDY #1: SAN FRANCISCO, CA

Sources:

- 'Getting the prices right: An evaluation of pricing parking by demand in San Francisco.' , April 2, 2013. UCLA Luskin School of Public Affairs. Gregory Pierce and Donald Shoup.
- *Sfpark.org* – The official website for the project.
- http://direct.sfpark.org/wp-content/uploads/eval/SFpark_Pilot_Project_Evaluation.pdf

Background: From Spring 2011 to Spring 2013, the *Sfpark* pilot program tested wireless parking sensors, new meters and demand-responsive pricing (variable pricing) in seven subdistricts of San Francisco.

Reason(s) for Variable Pricing: In 2011, San Francisco implemented *Sfpark*, a variable pricing program for on-street parking to achieve a target parking of one or two open spaces per block. Seven pilot zones were designated to install sensors in each curb space on every block with the goal to achieve an occupancy rate of between 60 and 80 percent through variable pricing throughout the day. This program was instituted in response to general mispricing of the on-street supply; either underpricing stalls leading to social problems or overpricing causing local economic stagnation.

Policy Objectives: As noted above, variable pricing is simply a tool that needs to be guided by a larger vision, principles and/or policies. *Sfpark's* main policy goals in using variable pricing were:

- To have at least one space open per block
- Increase local economic vitality
- Cleaner and safer streets for everyone

Location(s): Seven pilot zones throughout San Francisco included the subdistricts of Civic Center/Hayes Valley, the Financial District, SoMa/Mission Bay, the Mission, Fisherman's Wharf, the Fillmore and the Marina. *Sfpark* encompassed 6,000 metered spaces (25% of the city's total) and 12,250 spaces in 15 of 20 City-owned parking garages (75% of SFMTA's managed garages).

Price Structure: In *Sfpark*, meter rates vary based on time of day and day of week, and rates are adjusted over time in response to demand. Rates are adjusted on a block-by-block basis, using

occupancy data from the parking sensors installed in most on-street parking spaces in the *SFpark* pilot areas.

Meter operational hours are split into distinct rate periods. *SFpark* charges different rates based on the time of day to help ensure that parking is available. Most meters in the city operate from 9am to 6pm. Those meters are split into three rate periods: 9am-12pm; 12pm-3pm; 3pm-6pm.

Weekday and weekend rates differ significantly as parking trends are very different.

Rate Determination: Price changes made to meters are on a per-block basis. The SFMTA considered larger areas but chose blocks to allow parking rates to respond to rapidly changing parking demand patterns that sometimes shift block to block in San Francisco. A block-by-block change pattern was also expected to more effectively redistribute parking demand within a neighborhood to better achieve availability targets and therefore the larger parking management goals of *SFpark*.

To achieve the goal of at least one available parking space per block, meter rates are adjusted with the goal of maintaining no more than 80 percent occupancy on any given block. Rates are adjusted using the following formula:

- When occupancy is 80-100 percent, the hourly rate is raised by \$0.25.
- When occupancy is 60-80 percent, the hourly rate is not changed.
- When occupancy is 30-60 percent, the hourly rate is lowered by \$0.25.
- Less than 30 percent, the hourly rate is decreased by \$0.50.

Rate Review

- **Frequency:** Rates change gradually and periodically based on demand. *Rates change no more often than once per month.*
- **Entity in charge:** SFMTA Board of Directors
- **Process:** Changes to the meter rates respond to demand as shown by occupancy in the previous month. SFMTA notifies the public of the price changes no less than seven calendar days before the change in prices via SFMTA and *SFpark* websites. From July 2011 to January 2014, SFMTA implemented thirteen meter rate adjustments throughout the *SFpark* system. The average cost to park at metered spaces decreased from \$2.73 per hour to \$2.46 per hour.

At the end of 2013, the in-ground parking sensors were deactivated, however, through the use of occupancy data derived from the sensors and payment data derived from the parking meters, a model was created to continue to adjust meter rates within the *SFpark* system. The model took into account three factors: 1) Understanding the different between occupancy and payment rates (not everyone pays the meter) 2) Weekday and weekend parking patterns 3) Payment rates in different areas of the city.

Project Communication:

- **System-wide:** The Public was skeptical that *SFpark* was just a means to raise parking rates. Increasing as well as decreasing the meter rates established trust in *SFpark*.
- **Revenue Destination:** Establishing a clear understanding that parking revenue from *SFpark* was to fund transit and the overall transportation system was well received by the public.
- **Effective Communication:** Create clear communications and design for patrons.
- **Conduct Extensive Outreach:** *SFpark* started with many one-on-one meetings with community leaders from the start of the project. This was essential for the project to be well received. The leaders, in turn, reached out to their constituencies to gain support for the program. This effort was very time consuming, but critical.
- **Transparency:** Important to be clear to the public about *SFpark*'s goals, policies and methods. For example, as rates were adjusted, the rules, data and decisions to raise or lower the rates were shared online.

Driver Communication:

The public is notified of price changes no less than seven calendar days before the change in prices via SFMTA and *SFpark* websites.

Meter Type:

Parking meters accepted payment by coin, credit card, the SFMTA parking card, and phone.

Public Response: Overall, positive response. In particular, business owners were quite skeptical at first, but after they saw that it was easier for customers to find and pay for parking, they were pleased. In fact, some business owners are upset that the Mayor repealed Sunday metering.

City Revenue Impact: *SFpark* has increased SFMTA net parking revenues by approximately \$1.9M per year. The installation of credit card enabled parking meters and longer limits in *SFpark* areas appeared to have increased net annual revenues from meters by approximately \$3.3M from FY2011 to FY2013. During this time, annual citation revenues decreased by approximately \$0.5M in **SFpark** pilot areas. *SFpark* slowed the revenue growth in garages, accounting for about \$0.9M in annual revenue.

Off-Street: Demand-responsive pricing was also used in 13 SFMTA administered parking garages in the *SFpark* pilot areas. Again, the goal was to improve utilization and to minimize the frequency of garages being completely full. In addition, other pricing policies were important such as time of day pricing, off-peak discounts, and de-emphasizing early bird commuter parking. The goal behind these additional policies was to minimize garage entries and exits during peak traffic times to reduce congestion.

- Time-of-day: Increase pricing at peak times and decrease pricing at off-peak times.
- Off-peak discounts provide a discount for drivers entering the garage before the morning rush hour and after the even rush hour.
- By eliminating early bird parking (in by 10am and out by 6pm), *SFpark* lessened an incentive for rush hour traffic, and encouraged drivers to be on the streets at off-peak times.

The demand-responsive pricing at garages complements SFpark on-street policies by encouraging some on-street demand off-street, discouraging commuting by car, and improving parking for short-term trips by using prices to discourage commuter parking and discouraging commuters from entering/exiting garages at rush hours through economic incentives. Some garage statistics:

- Average daytime garage occupancy increased from 51% to 59% - a 14.5% increase.
- Even as occupancy increased, *SFpark* garages maintained parking availability at least 97% of the time.
- At all SFpark garages, total entries were up 11% in FY2013 over FY2011.
- Off-peak entries were up 14%, while peak entries rose only 1%.
- Exit showed a similar trend: total exits were up 11%, off-peak exits were up 15, while peak exits were up only 3%
- In FY2013, hourly usage was up approximately 575,000 customers over FY2011 and now exceeds FY2009 levels.
- Early bird usage since the debut of SFpark declined significantly, down about 43% from FY2011 levels.
- Off-street garage rate structures were adjusted using these occupancy parameters (similar to on-street):
 - 80-100%, the hourly rate was raised by \$0.50.
 - 40-80%, the hourly rate was not changed.
 - Less than 40%, the hourly rate was lowered by \$.50.

Key Findings: After the two-year pilot project was completed, the San Francisco Municipal Transportation Agency (SFMTA) evaluated *SFpark* and found:

- Average parking rates were lower
- Parking availability improved
- It is easier to find a parking space
- It is easier to pay and avoid parking citations
- Greenhouse gas emissions decreased
- Vehicle miles traveled decreased

Additional statistics:

- Average on-street meter rates dropped by \$0.11 per hour, or 4 percent (from \$2.69 to \$2.58)
- Average garage rates dropped by \$0.42 per hour, or 12 percent (from \$3.45 to \$3.03)
- Target occupancy of 60-80 percent was met 31 percent more often;
- Blocks were full (i.e., no available parking) 16 percent less often;
- Average time spent searching for parking decreased by 5 minutes, or 43 percent;
- Meter-related citations decreased by 23 percent; and

- Vehicle miles traveled, and greenhouse gas emissions from cars circling for parking, decreased by 30 percent.
- Traffic volume decreased by nearly 8% in areas with improved parking availability
- Double parking reduced by 22% in pilot areas.
- Average payment compliance increased by 21% (from 45% to 54%) in pilot areas on weekdays, and the average number of citations issued for expired meters decreased by 23% compared to 12% decrease in control areas.

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CASE STUDY #2: SEATTLE, WA

Sources:

- 'Contemporary Approaches to Parking Pricing: A Primer', May, 2012, U.S. Department of Transportation, Federal Highway Administration.
- 'Top Five Lessons from the Paid Parking Trenches of Seattle' – www.seattle.gov/transporation/parking/default.htm

Background: In late 2010, the Seattle City Council adopted a new policy that focused on measurement and technical criteria for setting parking rates. The ordinance directed their Department of Transportation to collect on-street parking data annually and assess whether changes to parking rates and hours of operations were warranted to achieve specific parking availability targets. The Mayor and the City Council wanted to link any meter rate changes to data and not to revenue. Previous to the changes (called 'Performance Based Pricing'), rates were a flat \$2.50 per hour.

Reason(s) for Variable Pricing:

To have 1-2 open spaces per block to achieve a 70-80% on-street parking occupancy in the 31 affected districts.

Policy Objectives: Seattle adopted performance-based pricing for their on-street parking supply within many of its neighborhood business districts to achieve the following objectives:

- Maintain adequate turnover of on-street parking spaces and reduce incidents of meter feeding in commercial district;
- Encourage an adequate amount of on-street availability for variety of parking users, efficient use of off-street parking facilities, and enhanced use of transit and other transportation alternatives; and
- Reduce congestion in travel lanes caused by drivers seeking on-street parking
- Create faster, easier and safer parking options for drivers

Location(s): Performance based-pricing is located in 31 neighborhood business districts.

Price Structure: The adopted ordinance sets rates between a minimum of \$1.00 per hour and a maximum of \$4.00 per hour (Code 11.16.121). Rates are set per block over the 31 districts and are set once a year. Seattle changes rate in increments of \$.50 and often changes the timestay in concert with a rate change. Also to note, timestays were simplified to 2 hour, 4 hour and all-day with the change in meter rates. Recently, Seattle instituted evening paid parking, extending paid parking from 6pm to 8pm. On blocks with 2-hour parking, timestays are extended to three hours from 5-8pm.

Rate Determination: Seattle sets the rates once a year after a robust data collection/analysis effort. Seattle looks to 65% as the threshold for changing meter rates. Rates are adjusted using the following concept:

- When occupancy is 90+, the hourly rate is raised.
- When occupancy is 70-85, no change occurs.
- When the occupancy is 65-70, the area is flagged and put on a 'watchlist' for future changes.
- When the occupancy is 65, no change occurs.
- When the occupancy is below 65, the hourly rate is lowered.

Rate Review

- **Frequency:** Once a year after the annual spring data collection.
- **Entity in Charge:** Seattle Department of Transportation Director
- **Process:** The rates are set based on technical analysis to maintain one or two open spaces on each block face throughout the day. The price range is set by law (minimum \$1.00 and maximum \$4.00). Each spring the City hires a consulting company to do annual spring data collection to understand occupancy rates in the 31 districts. The occupancy rate per block is not based on the 'peak', but averages the three highest occupancy percentages in case of unknown hourly variables. Rates are then set by the Department of Transportation based upon the formulas outlined above.

Project Communication: The public and business community got onboard due to the transparent data collection efforts and the ability of the City to decrease (as well as increase) meter rates from the pre-2010 rate of \$2.50. Pointing to the meter data was and continues to be critical for the public's approval and for the Mayor/City Council. Thereby, changes are not made for revenue purposes, but as the data dictates.

Driver Communication: Above each paystation, the City installed large (18"x36": larger than pre-2010) signs indicating a simple symbology indicating either high occupancy or medium/low occupancy. High occupancy blocks have *blue* signs and medium/low blocks have *green* signs. In addition, the Seattle Department of Transportation has a robust marketing program which includes its website, online advertising and traditional print marketing materials (posters, pamphlets, etc.)

Meter Type: IPS meters. All meters have the ability to use the 'Pay by Phone' application.

Public Response: The public response has been positive and is likely due to the data driven decision making process. As stated above, the business community accepted the changes as City revenue was not the goal, rather data dictated rates (high or low).

City Revenue Impact: Despite over 50 meter rate changes since 2010 with most hourly rates decreasing, gross revenue has generally increased. Seattle DOT points to an increased economy, and therefore more turnover.

Key Findings: Annual data collection and analysis were and continue to be critical for transparency and community approval for Seattle's Performance-based pricing.

Update: As of April, 2015, Seattle will be replacing all 2,200 parking meters with new IPS Group pay stations that are solar powered, and unlike the current machines, allow the user to retain his/her debit or credit card. The card is swiped like a cash machine. The pay stations have wireless communication that will allow the city to remotely change the hourly rate at different times of the day. The old pay stations used 2G wireless technology, while these machines are much faster.

The new 'smart parking' stations will largely have three meter rates based on time of day. Hourly rates will vary based on location, but the simplified three-tiered rate structure will be uniform. The hours will be:

- 8:00am-11:00am
- 11:00am-6:00pm
- 6:00pm-8:00pm

For example rates in the retail core will be \$3 per hour from 8-11am, then \$4 per hour from 11am-6pm; however, rates in the neighborhood's edge may be \$2.50 per hour from 8-11am and then \$3.50 per hour from 11am-6pm.

Parking meter revenue this year are to gross \$37 million.

CASE STUDY #3: WASHINGTON, D.C.

Sources:

- <http://ddot.dc.gov>
- Legislation:
http://ddot.dc.gov/sites/default/files/dc/sites/ddot/publication/attachments/performance_based_perf_pilot_zone_act_2008.pdf

Background: In 2008, The District Department of Transportation (DDOT) implemented the 'Performance-based Parking Pilot Zone Act of 2008' in three District neighborhoods – Columbia Heights (Ward 1), Capitol Hill/Ballpark District (Ward 6) and H Street/NE corridor from 3rd Street, NE to 15th Street, NE/Benning Road, NE. The pilot project concluded after two years.

Reason(s) for Variable Pricing:

- Protect resident parking - Higher curbside parking meter rates combined with more stringent parking restrictions in residential neighborhoods in the pilot areas help preserve curbside parking for residents in areas where business or entertainment uses draw lots of visitors.
- Protect businesses - Performance based meter rates and time limits are designed to encourage brief curbside parking with high turnover while discouraging long-term parking that would deprive businesses of customers. Visitors with long-term parking requirements are encouraged by the higher meter rates to utilize off-street parking facilities.
- Promote non-automotive transportation and reduce congestion - Higher curbside meter rates encourage walking, biking and transit use in lieu of auto travel in congested places.

Policy Objectives: To effectively manage the parking resources in designated pilot zones.

Location(s): Three District Neighborhoods:

- Columbia Heights (Ward 1)
- Capitol Hill/Ballpark District (Ward 6)
- H Street/NE corridor from 3rd Street, NE to 15th Street, NE/Benning Road, NE.

Price Structure: After collecting annual data to determine turnover and occupancy levels for each of the three areas, the price structures changed by time of date and blockface. Changes were in concert with signage and off-street rate changes to redistribute parking and alleviate on-street parking constraints. Changes are outlined below per District:

- Columbia Heights (Ward 1)
 - Extend meter hours of operation throughout pilot zone to: 7am-10pm Monday-Saturday
 - Increase meter rates from \$4.00 for two hours to \$5.50 for two hours and \$8.50 for three hours in a progress system:
 - First hour: \$2.50
 - Second hour: \$3.00
 - Third hour (after 6:30pm): \$3.00
 - Two hour limit: 7am-6:30pm
 - No limit parking: 6.30pm-10pm
- Capitol Hill/Ballpark District (Ward 6)
 - Increase non game day rates from \$4.00 for three hours to \$6.00 for three hours on variably priced meters on blocks near the Washington Nationals Ballpark. The rate structure would be:
 - First hour: \$1.50
 - Second hour: \$2.00
 - Third hour: \$2.50
 - Reduce daily meter rates at DDOT off street parking facility from \$1.50 per hour to \$0.75 Monday-Saturday 7am-9:30pm

- Expand the Ballpark District
- H Street/NE corridor from 3rd Street, NE to 15th Street, NE/Benning Road, NE.
 - *No information found on meter rates for this district*

Rate Determination: The Mayor was to adjust fees to achieve 10-20% availability of curbside parking spaces. Annual occupancy and turnover studies were conducted per blockface.

Rate Review

- **Frequency:** Changes occurred no more than once a month.
- **Entity in Charge:** DDOT and Mayor
- **Process:** For curbside parking spaces where there were not established parking fees at the start of this pilot project, the Mayor could increase fees up to once per month by an amount up to 50% of the initial fee set for that pilot zone. For areas where there were established parking fees at the start of the project, fees could not increase by more than \$0.50 in any one-month period.

Project Communication:

- The Mayor designated a project manager to serve as the main point of contact for the public on matters related to each performance parking pilot zone.
- Created public website that included the following:
 - Pilot zone boundaries
 - Rules or regulations
 - Information about how to use new parking fee technologies
 - Parking pilot project manager's name and contact information
- During the two-years of the performance parking pilots, DDOT, in collaboration with the local Ward council members, conducted quarterly public meetings to provide an update on the parking management targets within the zone and to get public comments on the program.
- An annual report outlined aspects of the pilot zones. Elements of the report included:
 - Any changes to established parking fees
 - A description of curbside parking availability
 - A description of parking turnover rates on retail streets
 - Congestion and double-parking statistics for retail streets
 - Statistics on use of pay-by-phone technology
 - Number, location and nature of parking violations and citations issued
 - Total revenue from the pilot zone
 - An itemization of expenditures for meter procurement and maintenance, enhanced enforcement, and non-auto transportation improvements in each pilot zone
 - Any recommendations for legislative or regulatory initiatives to improve curbside parking efficiency.

Driver Communication:

- As meter rates change, the Mayor is to provide notice to the affected Ward Council member and Advisory Neighborhood Commission ('ANC') at least 10 days before implementation.
- Curbside signage, meter decals and electronic displays are to provide sufficient notice of changes to restrictions within the performance parking pilot zone.
- For the first 30 days of implementation (within the Ballpark Performance Parking Pilot Zone), the Mayor had the discretion to issue warning citations for curbside parking violations related to the pilot program in the zone.
- Within the Retail Zone, signs were installed to direct traffic toward off-street parking within the retail complex.

Meter Type: DDOT installed multi-space meters throughout commercial corridors in the District replacing many old and non-functioning single space meters. In addition, in 2011, DDOT rolled out Pay by Phone and solar-powered single space meters which take credit cards.

Public Response: No information found

City Revenue Impact: Uncertain of the gross revenue City impact, however, the revenue from the Performance Pilot Programs was outlined. One hundred percent of the annual curbside parking fee revenue from each performance parking pilot zone was to be used for the following purposes:

- 20% to be used for general purposes of the DDOT Operating Fund
- Up to 60% to be used to repay the cost of procurement and maintenance of new meters and related signage for the pilot program in that zone
- Once the cost of the meter procurement was paid in full for a zone, up to 5% was to be used to pay for meter maintenance and related signage in the zone; and
- The remaining balance of curbside parking revenue was to be used solely for the purpose of non-automobile transportation improvements in the zone.

The Mayor, along with local stakeholders, created a prioritized list of non-automobile transportation improvements to occur within a zone.

KEY TAKEAWAYS

San Francisco, Seattle and Washington DC have all implemented differing forms of variable/performance based pricing with overall success. San Francisco piggybacked on Federal funding and technology to implement the most 'innovative' pilot program arguably in the country. Seattle implemented a straightforward and simple variable pricing program in 31 districts. And Washington DC studied performance based pricing in three differing districts and studied its impacts over the course of two-years.

Despite slightly different in size and scale, these three cities' implementation of variable pricing offer important and universal 'take home' messages.

- Clear Policy Goals & Objectives: Each city implemented meter changes by outlining simple goals which many user groups could easily digest and support.
- Transparency: Through annual data collections, public meetings and various studies, making these findings accessible for all users is critical in building support for changes in the parking system.
- Layered Communications: As changes occur, create a multilayered communication strategy not only for drivers looking to park, but also to gain awareness of the system through marketing, web communication, meetings, social media, etc.
- Simple Rate System: Once meter rates are determined, implement a simple rate change system which is quickly identifiable to reduce confusion and frustration.
- Data Driven Changes: As rates are recalibrated, let the data through a set/simple methodology drive the decision making. Whether increases or decreases are needed, data should be the dictator of the decisions – not revenue.
- Off-Street Options: Off-street parking rates and awareness should be strategically tied to on-street rates to encourage long-term drivers off-street and therefore, increase turnover.
- Transportation Options Benefits: Similar to off-street parking changes, investing in TDM programs and transportation options' infrastructure with meter dollars will help indirectly manage on-street parking.
- Local Revenue Remains: Reinvest the local meter dollars back into the neighborhood/district through local improvements, transportation options programs/infrastructure and/or on-street parking management programs.