Appendix A: Reference Documents

The Task Force used a variety of documents and references to develop this report:

City of Bellingham documents:

- 2012 Fairhaven Neighborhood and Urban Village Plan (Plan), City of Bellingham Planning Department
- 2011 Parking Plan, Fairhaven Neighborhood and Urban Village, (Study) TranspoGROUP
- 2011 Fairhaven Parking Study Proposed Parking Garage Feasibility Study, KPFF
- 2006 City of Bellingham Comprehensive Plan
- Transportation Commission Resolution No. 2012-02

Additional publications:

- Shoup, Donald. The High Cost of Free Parking, American Planning Association Planner Press, 2011. Print

Additional articles included as (PDF) files

- Dey, Soumya. "'Asset Lite' Payment Options and Occupancy Detection for Metered Curbside Parking" ITE Journal June 2014. P. 32-37. Institute of Transportation Engineers
- Turoff, Steffen and Krasnow, Carolyn "Hey, Buddy, What Will You Pay For This Parking Spot?" Planning May/June 2013. American Planning Association
“Asset Lite” Payment Options and Occupancy Detection for Metered Curbside Parking

By Soumya S. Dey, P.E., PMP
This paper discusses strategies for getting to a set of desired outcomes for metered curbside parking using less capital-intensive solutions. "Asset lite" solutions are discussed in the context of payment options and occupancy detection for metered on-street parking. On the payment side, the revenue stream has evolved from being primarily coin-based to a mixture of coin, credit, and new payment options such as pay by cell. There are inherent cost and convenience benefits for the non-coin options. The relationship between downtown congestion and cruising to find an open parking spot has encouraged local jurisdictions to look at pricing as a tool to ensure that a certain level of occupancy or availability is maintained for on-street spaces. Fundamental to this approach is estimating occupancy. The industry has migrated from manual counts for occupancy sensing to space sensors and, more recently, cameras. However, the cost structures for automated detection as currently used might be cost prohibitive. With the recent infusion of new technology and networked assets in the parking industry, the timing is right for individual jurisdictions to consider less capital-intensive, more cost-effective solutions by implementing smarter solutions and leveraging data from all components of the parking ecosystem. How far a jurisdiction or agency can move along the "asset lite" spectrum will be dictated by customer needs, biases, adoption, and an individual agency's policies and willingness to experiment and innovate.

"Asset lite" solutions refer to strategies geared toward getting to a desired outcome using fewer assets. This strategy is consistent with the theme across the transportation industry of doing "more with less." This paper discusses "asset lite" solutions in the context of metered curbside parking. In particular, the paper looks at less capital-intensive solutions for two specific aspects of metered curbside parking: (1) payment options and (2) real-time occupancy sensing. The discussion is framed around experiences and trends in on-street parking observed in Washington, DC, USA over the last few years. The paper also discusses the conceptual framework for a value pricing pilot in the Chinatown/Penn Quarter area of Washington, DC. The District Department of Transportation (DDOT) will be implementing and assessing multimodal "asset lite" parking solutions for tour buses, commercial vehicles, and automobiles and for occupancy sensing as part of this pilot. The goal of the pilot will be to assess the impact of value/congestion pricing on overall roadway congestion.

**Payment Options for On-Street Parking**

Parking meters are assets that enable customers to pay for parking. The options for paying have evolved over time. Ever since the first parking meter was introduced, until recently, one space was controlled by one meter. These meters are called single-space meters (SSMs). They accept only coins as a payment mechanism. The first parking meter was installed in 1935 in Oklahoma City, Oklahoma. As the industry evolved, the concept of multi-space meters (MSMs) emerged. As the name implies, these meters control multiple spaces. The first MSM was believed to have been implemented in Paris, France, as early as 1974. The first networked
MSMs were introduced in the United States in Berkeley, CA in 1999. The meters are networked, which implies that they communicate with a back-end system in real time, transmitting revenue and operational status. It also implies that customers have an added payment mechanism at these metered locations: credit/debit cards. These meters control approximately 8 to 10 spaces, which results in a reduction in the number of assets that need to be operated, maintained, and collected. Fewer assets also imply less urban clutter. MSMs can be used in multiple configurations.

- **Pay and display:** In this configuration, the customer walks up to the meter, performs the payment transaction, gets the receipt, and walks back to the car to display the receipt. Where a car parks along the curb space is not fixed. It is argued that a pay-and-display environment can accommodate 10 percent more vehicles.

- **Pay by space:** In the pay-by-space environment, each space is designated (usually by a space number and in-pavement markings). The customer walks up to the meter, punches in the space number, performs the payment transaction, and can simply walk away (in an automated enforcement environment).

- **Pay by license plate:** In this environment, the customer walks up to the machine, enters the license plate number, and performs the payment transaction. Enforcement can be through technologies such as license plate recognition.

Washington, DC, introduced MSMs in Georgetown in 2005. DC’s MSMs are currently operated in the pay-and-display mode.

As the industry matured, networked SSMs were introduced. The first credit/debit-card-accepting networked SSMs were installed in Los Angeles, CA, USA in 2007. DC first installed credit-card-accepting SSMs in late 2011.

Table 1 shows how DC’s asset mix for metered on-street parking has evolved over time. It provides snapshots at three points in time. As is evident from the figure, as the industry matured, the number of networked assets increased, as well as payment options for the customers. The other parameter that has changed is the space-to-asset ratio. In 2004, DC operated and maintained one asset for every space. Currently, that number has dropped to approximately three assets for every four spaces. Some jurisdictions have migrated to a completely multi-space environment; others have stayed in the single-space environment, while a few (such as DC) follow a hybrid approach. However, irrespective of how a jurisdiction proceeds, there has been a common underlying theme—a migration to networked credit card-accepting assets. The main benefit of this approach is that it provides customers with an additional payment option, and it enables an agency to monitor its assets in real time, thus switching from a reactive to a proactive maintenance strategy.

**Introduction of Pay by Cell**

DDOT introduced pay by cell (PBC) citywide in July 2011. This program enabled customers to pay for their parking using interactive voice recognition or a smartphone application. When the program was launched, less than a third of DC’s parking meters accepted credit cards. DC had gone through two rate adjustments, lifted the Saturday moratorium on parking meter fees, and gone to late night operations in some high-activity areas around the city. Not having multiple payment options was identified as one of the “root causes” of customers’ frustrations with the parking program. The primary impetus behind the program was to provide customers an added payment option at all metered spaces. The program was a great success. In slightly more than two years, the program has had 650,000 customers, resulted in 9.5 million transactions, and accounted for 43 percent of all meter revenues.

Figure 1 shows how the revenue mix for parking has evolved over the years. In 2006, coins accounted for 98 percent of DC’s parking revenues. As DDOT introduced more assets with credit card

<table>
<thead>
<tr>
<th>Asset Type</th>
<th>Networked</th>
<th>Payment Options</th>
<th>2004 Asset Mix</th>
<th>2009 Asset Mix</th>
<th>2013 Asset Mix</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Meters/Spaces</td>
<td>% Spaces</td>
<td>Meters/Spaces</td>
<td>% Spaces</td>
</tr>
<tr>
<td>Single space— Duncan Eagle 2000</td>
<td>No</td>
<td>Coin</td>
<td>15,000</td>
<td>91%</td>
<td>8,240</td>
</tr>
<tr>
<td>Single space— Mackay Guardian XL</td>
<td>No</td>
<td>Coin</td>
<td>1,500</td>
<td>9%</td>
<td>4,994</td>
</tr>
<tr>
<td>Multi-space— Parkeon Stelio</td>
<td>Yes</td>
<td>Coin/Credit</td>
<td>514</td>
<td>23%</td>
<td>638</td>
</tr>
<tr>
<td>Single space— IPS Meters</td>
<td>Yes</td>
<td>Coin/Credit</td>
<td>3,197</td>
<td>17%</td>
<td>14,073</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td></td>
<td>16,500</td>
<td>1.0</td>
<td>13,748</td>
</tr>
</tbody>
</table>

Table 1. Evolution of DC’s parking meter asset mix.
such as the meter rate, meter occupancy, meter uptime, hours of operation, and percentage paid legal (defined as the percentage of people that actually pay). The relationship between revenue and the other parameters can be expressed mathematically as:

Parking Revenue = f(rate, occupancy, uptime, hours of operation, and percentage paid legal)

For any parking system, meter rates and hours of operation are readily available. Revenue and meter uptime are available in real time for networked meters. The only parameters that are not available readily are occupancy and percentage paid legal.

Instead of calculating occupancy for every space (using a sensor for every space or a camera for every block face), can we get to the desired level of accuracy by developing (and calibrating) an algorithm that fuses limited (or sampled) real-time occupancy information from sensors or cameras with real-time meter data, historical system data, and citation data?

Figure 3 shows the "asset lite" concept for occupancy detection. Each jurisdiction makes a policy and technical decision on the level of accuracy necessary for occupancy sensing. This is usually driven by the purpose and need. In other words, if an agency uses occupancy information to change pricing a few times a year, a manual approach to occupancy sensing or a lower degree of accuracy from assets might be perfectly acceptable. However, if this information is used to provide customers real-time information about parking availability, a higher level of accuracy is necessary.

As shown in Figure 3, everything else being equal, there is some kind of relationship between the level of accuracy and the asset/space ratio for occupancy detection. If we reduce the asset-to-space ratio, the accuracy of information will decrease.

However, if we supplement limited occupancy information (low asset-to-space ratio) with data from real-time networked assets (such as revenue, uptime, etc.) and historical data, we will be able to quickly close the accuracy gap. This will enable us to get to the same level of accuracy using fewer assets. "Asset lite" solutions might involve strategies of deploying fewer sensors, deploying roving cameras for calibration purposes in different part of the system, or a combination of both.

Figure 3 discusses the concept of "asset lite" in the context of accuracy (y-axis). The y-axis in this graph can be any outcome that an agency wishes to achieve (such as revenue, customer satisfaction, etc.).

Multimodal "Asset Lite" pricing Pilot in Chinatown
DDOT received a federal grant for testing a multimodal dynamic pricing pilot in the Chinatown/Penn Quarter area of Washington, DC. It is a congested subarea, with multiple demands on curbside from competing modes, competing users, and competing land uses. The pilot will test different dynamic pricing scenarios and assess their impacts on congestion. Within the dynamic pricing framework, various "asset lite" solutions for parking will be tested in Chinatown/Penn Quarter area of Washington, DC. DDOT will also test "asset lite" solutions for parking occupancy sensing using a limited amount of sensor/camera information and using real-time/historical data from the various networked assets. The pilot area is shown in Figure 4 and comprises 140 block faces containing 1,300 metered curbside spaces, 30 loading zones, and 10 long-distance bus stop locations.
The area includes major generators such as the Verizon Center, Chinatown, courts, office buildings, museums, hotels, retail, and restaurants. It has a multimodal transportation network including freeway-arterial interaction, three major metro stations, different arterial classes, loading zones, Washington Metropolitan Area Transit Authority bus stops, intercity bus, high pedestrian traffic, capital bikeshare stations, and Zipcar spaces.

The major components of the pilots for different modes are listed below:

- **Passenger cars**
  - Test and implement dynamic pricing algorithm with the goal of having one space open per block face;
  - As PBC penetration rates increase to above 50 percent, remove meters from one side of the street; and
  - Provide real-time parking availability information to customers.

- **Freight/trucks**
  - PBC-only environment at loading zones—no meters;
  - Cost adjusted based on time of day (pre-AM rush, AM/PM rush, mid-day, post PM rush);
  - Relieve congestion by trying to divert loading/unloading to off-peak; and
  - Real-time parking availability information adds value to freight industry by helping plan deliveries better.

- **Tour buses**
  - PBC-only solution at tour bus stop locations—no meters;
  - Rate structure based on length of stay; and
  - Spaces designated by PBC zone numbers.

- **Pilot area-wide**
  - Provide real-time parking availability information.
  - Assess impact of dynamic pricing on area congestion.
  - Assess relationship between accuracy of occupancy information and asset/space ratio. This will be developed by comparing "calculated occupancy" with "actual occupancy" (or ground truth) at different levels of asset coverage (such as 100 percent, 90 percent, 75 percent, 67 percent, 50 percent, etc.).
  - Develop algorithms and processes to bridge the "accuracy gap."

**Conclusion**

Given the recent advancements and adoption of technology in parking, "asset lite" solutions seem to hold promise. They can be cost effective, can provide better customer service, and can provide the same level of information (or accuracy) as traditional approaches. The outcome gap between traditional and "asset lite" solutions is leveraged by utilizing smarter systems (such as PBC) or by making smarter use of data from other assets in the parking ecosystem. This strategy encourages the industry to move further up the data value chain and enhances efficiency of operation while maintaining or even in some cases enhancing the customer experience. "Asset lite" solutions have been successfully applied in other areas of transportation such as tolling and travel time prediction. The time is ripe for the parking industry to start migrating over to "asset lite" solutions by leveraging and fusing real-time data that is readily available. As with most other issues, no one size fits all. How far a jurisdiction or agency moves along the "asset lite" spectrum will be dictated by customer needs, biases, adoption, and the agency's policies and willingness to push the envelope. *ite*

**Works Cited**


**Soumya S. Dey, P.E., PMP, is the director of research and technology transfer for the District Department of Transportation. He has more than 20 years of experience in the transportation profession, spanning the public and private sectors. He has a B.S. in civil engineering from the Indian Institute of Technology, an M.S. in civil engineering from Purdue University, and an MBA from the University of Maryland. He is a recipient of ITE's Past Presidents Award and the Cafritz Award for Excellence in Public Leadership. He is an ITE Fellow.**
THE SEATTLE DEPARTMENT OF TRANSPORTATION

ANNUAL REPORT 2014

THIS REPORT PRESENTS ON-STREET OCCUPANCY DATA FOR SEATTLE'S PAID PARKING NEIGHBORHOODS AND INCLUDES RATE AND TIME CHANGES THAT HAVE OCCURRED SINCE 2013.
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5 DATA COLLECTION AND ANALYSIS PROCESS  
6 DESIGNATIONS AND ACTIONS  
7 SEATTLE NEIGHBORHOOD PARKING RATES MAP (THROUGH FALL 2014)  
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9 TABLE 2 | SUMMARY OF 2013 AND 2014 ON-STREET OCCUPANCY FOR EACH NEIGHBORHOOD  

**STUDY AREA**  
10 12TH AVENUE  
11 BALLARD CORE  
12 BALLARD PERIPHERY  
13 BALLARD LOCKS  
14 BELLTOWN NORTH  
15 BELLTOWN SOUTH  
16 CAPITOL HILL NORTH  
17 CAPITOL HILL SOUTH  
18 CHERRY HILL  
19 CHINATOWN/ID CORE  
20 CHINATOWN/ID PERIPHERY  
21 COMMERCIAL CORE FINANCIAL  
22 COMMERCIAL CORE RETAIL  
23 COMMERCIAL CORE WATERFRONT  
24 DENNY TRIANGLE NORTH  
25 DENNY TRIANGLE SOUTH  
26 FIRST HILL  
27 FREMONT  
28 GREEN LAKE  
29 PIKE-PINE  
30 PIONEER SQUARE CORE  
31 PIONEER SQUARE PERIPHERY  
32 ROOSEVELT  
33 SOUTH LAKE UNION 2 HR  
34 SOUTH LAKE UNION 10 HR  
35 SOUTH LAKE UNION NORTHWEST  
36 UNIVERSITY DISTRICT CORE  
37 UNIVERSITY DISTRICT PERIPHERY  
38 UPTOWN CORE  
39 UPTOWN PERIPHERY  
40 UPTOWN TRIANGLE  
41 WESTLAKE AVENUE N  

42 TABLE 3 | FALL 2014 PARKING RATES, HOURS AND TIME LIMITS  
43 SEATTLE NEIGHBORHOOD FALL 2014 RATES MAP
PROJECT BACKGROUND

The Seattle Department of Transportation (SDOT) collects occupancy data annually in all paid parking areas. The data collected are used to determine potential changes to on-street parking rates, time limits, and paid parking hours.

This data collection effort is required to implement the City’s Performance-Based Parking Pricing Program, established by Seattle Municipal Code [SMC] 11.16.121, which states, in part:

→ The Director shall establish on-street parking rates and shall adjust parking rates higher (up to the Maximum Hourly Rate) or lower (as low as the Minimum Hourly Rate) in neighborhood parking areas based on measured occupancy so that approximately one or two open spaces are available on each blockface throughout the day in order to:

1. Support neighborhood business districts by making on-street parking available and by encouraging economic development.
2. Maintain adequate turnover of on-street parking spaces and reduce incidents of meter feeding in commercial districts.
3. Encourage an adequate amount of on-street parking availability for a variety of parking users, efficient use of off-street parking facilities, and enhanced use of transit and other transportation alternatives.
4. Reduce congestion in travel lanes caused by drivers seeking on-street parking.

VIBRANT SEATTLE WITH CONNECTED PEOPLE, PLACES, AND PRODUCTS.
Recognizing that demand often varies within each paid parking area, many neighborhoods are further divided into subareas. The parking rate is often highest in the neighborhood retail core area, reflecting the area of highest demand, and lower in the peripheral area. In addition, the AFTER 5 PM designation extends paid parking hours to 8 PM in areas with high evening demand and the BEST VALUE designation identifies areas with lower demand and lower paid parking rates. These tools are communicated through emblems on parking signs, as shown below under parking designations.

This report uses the AFTER 5 PM designation or the ACTION symbols (described and shown below) to indicate on the neighborhood summary pages the Fall 2014 change.

### PARKING DESIGNATIONS

#### AFTER 5 PM

- Parking hours are extended to 8 PM to support reliable visitor access in the early evening. The maximum parking time limit is extended from 2 hrs to 3 hrs after 5 PM.

#### BEST VALUE

- BEST VALUE parking blocks have lower rates or longer time limits and likely have more parking available.

### FALL 2014 ACTION

#### NO CHANGE

- The paid parking rate, hours, or time limits will not change in 2014.

#### WATCH LIST

- When peak occupancy is within 5% of the target range SDOT adds it to the watch list for 1 year and reviews the data the following year to determine if any changes should be made.

#### SEASONAL RATES

- The paid parking rate will be adjusted by the season since occupancy varies widely depending on the time of year.

#### DECREASE RATE

- The paid parking rate will decrease by $0.50.

#### INCREASE RATE

- The paid parking rate will increase by $0.50.

#### TIME LIMITS

- **DECREASE** ⇒ The parking time limits will be decreased.
- **INCREASED** ⇒ The parking time limits will be increased.

#### TIME OF DAY RATES

- The paid parking rate will be adjusted by time of day.
In 2014, SDOT collected parking data in April and May in the neighborhoods that have on-street paid parking.

Data were collected on typical weekdays (Tuesday, Wednesday, or Thursday) to represent average parking conditions, as well as on weekends in select neighborhoods. Hourly occupancy observations were made from 8 AM - 9 PM, with select neighborhoods continuing as late as 2 AM.

Occupancy is defined as the percent of legal on-street parking spaces where a vehicle is parked at a given time. Seattle does not formally designate parking spaces, but does maintain an inventory of spaces that would exist if spaces were legally marked. These legal spaces are based on standard parking space dimensions and consider restrictions near intersections, driveways, and fire hydrants. Occupancy can be over 100% as vehicles often park close together or in illegal spaces.

SDOT uses an occupancy target range of 70 to 85 percent, which equates to 1 - 2 spaces available along a blockface. This rate is calculated based on the 3 hours with the highest occupancy from either 8 AM to 5 PM (if paid parking ends at 6 PM) or 8 AM to 7 PM (if paid parking ends at 8 PM). The data for 5 PM and 7 PM are included if these are among the 3 highest hours. Occupancy for the 3 hours is not averaged and the hours are not necessarily consecutive. The three-hour peak is calculated as the total vehicles divided by the total supply during those hours. SDOT uses this metric because parking occupancy can vary over the course of the day based on a variety of restrictions. Evening occupancy is measured at 7 PM in this report.

In addition to the target range, SDOT considers occupancy within 5 percent of the target range as within the watch list. This is defined as the ranges of 65-69 percent and 86-90 percent. If occupancy values are outside of the target or watch list range (below 65 percent or above 90 percent), SDOT will increase or decrease the paid parking rate in the same year assuming the area is not already at the minimum $1 or maximum $4 per hour rate. Neighborhoods who fall within the watch list will not have any rate changes made unless it is the second consecutive year of being above or below the target range.
The City of Seattle adopted parking occupancy targets in 2010 and has conducted annual parking surveys each year since. Since 2010, SDOT has made over 50 changes to parking rates, time limits, and paid parking hours.

### TABLE 1 | PARKING RATES, HOURS, AND TIME LIMITS (THROUGH FALL 2014)

<table>
<thead>
<tr>
<th>Neighborhood</th>
<th>Subarea</th>
<th>Rate</th>
<th>Hours</th>
<th>Time Limit (during paid hours)</th>
</tr>
</thead>
<tbody>
<tr>
<td>12th Avenue</td>
<td></td>
<td>$1.50</td>
<td>8 AM – 6 PM</td>
<td>2 hours</td>
</tr>
<tr>
<td>Ballard</td>
<td>Core</td>
<td>$2.00</td>
<td>8 AM – 6 PM</td>
<td>2 hours</td>
</tr>
<tr>
<td>Ballard</td>
<td>Periphery</td>
<td>$1.50</td>
<td>8 AM – 6 PM</td>
<td>4 hours</td>
</tr>
<tr>
<td>Ballard Locks</td>
<td></td>
<td>$1.50</td>
<td>8 AM – 6 PM</td>
<td>4 hours</td>
</tr>
<tr>
<td>Belltown</td>
<td>North</td>
<td>$2.00</td>
<td>8 AM – 8 PM</td>
<td>4 hours</td>
</tr>
<tr>
<td>Belltown</td>
<td>South</td>
<td>$2.50</td>
<td>8 AM – 8 PM</td>
<td>2 hours / 3 hours after 5 PM</td>
</tr>
<tr>
<td>Capitol Hill</td>
<td>North</td>
<td>$3.00</td>
<td>8 AM – 8 PM</td>
<td>2 hours / 3 hours after 5 PM</td>
</tr>
<tr>
<td>Capitol Hill</td>
<td>South</td>
<td>$2.50</td>
<td>8 AM – 8 PM</td>
<td>2 hours / 3 hours after 5 PM</td>
</tr>
<tr>
<td>Cherry Hill</td>
<td></td>
<td>$1.50</td>
<td>8 AM – 6 PM</td>
<td>2 hours</td>
</tr>
<tr>
<td>Chinatown-ID</td>
<td>Core</td>
<td>$2.50 (8 AM-5 PM)</td>
<td>8 AM – 8 PM</td>
<td>2 hours</td>
</tr>
<tr>
<td>Chinatown-ID</td>
<td>Periphery</td>
<td>$2.00</td>
<td>8 AM – 6 PM</td>
<td>2 hours</td>
</tr>
<tr>
<td>Commercial Core</td>
<td>Financial</td>
<td>$4.00</td>
<td>8 AM – 8 PM</td>
<td>2 hours / 3 hours after 5 PM</td>
</tr>
<tr>
<td>Commercial Core</td>
<td>Retail</td>
<td>$4.00</td>
<td>8 AM – 8 PM</td>
<td>2 hours / 3 hours after 5 PM</td>
</tr>
<tr>
<td>Commercial Core</td>
<td>Waterfront</td>
<td>$4.00</td>
<td>8 AM – 8 PM</td>
<td>2 hours / 3 hours after 5 PM or 4 hours</td>
</tr>
<tr>
<td>Denny Triangle</td>
<td>North</td>
<td>$2.00</td>
<td>8 AM – 6 PM</td>
<td>4 hours</td>
</tr>
<tr>
<td>Denny Triangle</td>
<td>South</td>
<td>$2.50</td>
<td>8 AM – 8 PM</td>
<td>2 hours / 3 hours after 5 PM</td>
</tr>
<tr>
<td>First Hill</td>
<td></td>
<td>$4.00</td>
<td>8 AM – 6 PM</td>
<td>2 hours</td>
</tr>
<tr>
<td>Fremont</td>
<td></td>
<td>$1.50</td>
<td>8 AM – 6 PM</td>
<td>2 hours</td>
</tr>
<tr>
<td>Green Lake</td>
<td></td>
<td>$1.00</td>
<td>8 AM – 6 PM</td>
<td>2 hours</td>
</tr>
<tr>
<td>Pike-Pine</td>
<td></td>
<td>$2.00</td>
<td>8 AM – 8 PM</td>
<td>2 hours / 3 hours after 5 PM, 4 hours or 10 hours</td>
</tr>
<tr>
<td>Pioneer Square</td>
<td>Core</td>
<td>$3.50</td>
<td>8 AM – 6 PM</td>
<td>2 hours</td>
</tr>
<tr>
<td>Pioneer Square</td>
<td>Periphery</td>
<td>$3.00</td>
<td>8 AM – 6 PM</td>
<td>2 hours</td>
</tr>
<tr>
<td>Roosevelt</td>
<td></td>
<td>$1.00</td>
<td>8 AM – 6 PM</td>
<td>4 hours</td>
</tr>
<tr>
<td>South Lake Union</td>
<td>2 Hour</td>
<td>$1.50</td>
<td>8 AM – 6 PM</td>
<td>2 hours</td>
</tr>
<tr>
<td>South Lake Union</td>
<td>10 Hour</td>
<td>$1.50</td>
<td>8 AM – 6 PM</td>
<td>10 hours</td>
</tr>
<tr>
<td>South Lake Union</td>
<td>Northwest</td>
<td>$1.00</td>
<td>8 AM – 6 PM</td>
<td>10 hours</td>
</tr>
<tr>
<td>University District</td>
<td>Core</td>
<td>$2.00</td>
<td>8 AM – 8 PM</td>
<td>2 hours / 3 hours after 5 PM</td>
</tr>
<tr>
<td>University District</td>
<td>Periphery</td>
<td>$1.50</td>
<td>8 AM – 8 PM</td>
<td>4 hours</td>
</tr>
<tr>
<td>Uptown</td>
<td>Core</td>
<td>$1.50</td>
<td>8 AM – 8 PM</td>
<td>2 hours / 3 hours after 5 PM</td>
</tr>
<tr>
<td>Uptown</td>
<td>Periphery</td>
<td>$1.50</td>
<td>8 AM – 8 PM</td>
<td>4 hours</td>
</tr>
<tr>
<td>Uptown Triangle</td>
<td></td>
<td>$1.00</td>
<td>8 AM – 6 PM</td>
<td>10 hours</td>
</tr>
<tr>
<td>Westlake Avenue N</td>
<td></td>
<td>$1.00</td>
<td>9 AM – 4 PM</td>
<td>7 hours (Weekdays Only)</td>
</tr>
</tbody>
</table>
**TABLE 2 | SUMMARY OF 2013 AND 2014 ON-STREET OCCUPANCY FOR EACH NEIGHBORHOOD**

Summary of 2013 and 2014 occupancy rates for each neighborhood and subarea.

<table>
<thead>
<tr>
<th>Neighborhood</th>
<th>Subarea</th>
<th>Daytime Peak Occupancy (3 Highest Hours)</th>
<th>7 PM Occupancy</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>2013</td>
<td>2014</td>
</tr>
<tr>
<td>12th Avenue</td>
<td></td>
<td>83%</td>
<td>77%</td>
</tr>
<tr>
<td>Ballard</td>
<td>Core</td>
<td>75%</td>
<td>83%</td>
</tr>
<tr>
<td></td>
<td>Periphery</td>
<td>58%</td>
<td>56%</td>
</tr>
<tr>
<td>Ballard Locks</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>North</td>
<td>52%</td>
<td>68%</td>
</tr>
<tr>
<td></td>
<td>South</td>
<td>87%</td>
<td>78%</td>
</tr>
<tr>
<td>Capitol Hill</td>
<td>North</td>
<td>89%</td>
<td>92%</td>
</tr>
<tr>
<td></td>
<td>South</td>
<td>85%</td>
<td>77%</td>
</tr>
<tr>
<td>Cherry Hill</td>
<td>Core</td>
<td>71%</td>
<td>88%</td>
</tr>
<tr>
<td></td>
<td>Periphery</td>
<td>65%</td>
<td>69%</td>
</tr>
<tr>
<td>Chinatown-ID</td>
<td>Financial</td>
<td>90%</td>
<td>95%</td>
</tr>
<tr>
<td></td>
<td>Retail</td>
<td>80%</td>
<td>84%</td>
</tr>
<tr>
<td></td>
<td>Waterfront</td>
<td>83%</td>
<td>79%</td>
</tr>
<tr>
<td>Commercial Core</td>
<td>North</td>
<td>69%</td>
<td>68%</td>
</tr>
<tr>
<td></td>
<td>South</td>
<td>89%</td>
<td>93%</td>
</tr>
<tr>
<td>Denny Triangle</td>
<td>North</td>
<td>69%</td>
<td>68%</td>
</tr>
<tr>
<td></td>
<td>South</td>
<td>89%</td>
<td>93%</td>
</tr>
<tr>
<td>First Hill</td>
<td></td>
<td>87%</td>
<td>93%</td>
</tr>
<tr>
<td>Fremont</td>
<td></td>
<td>80%</td>
<td>78%</td>
</tr>
<tr>
<td>Green Lake</td>
<td></td>
<td>76%</td>
<td>83%</td>
</tr>
<tr>
<td>Pike-Pine</td>
<td></td>
<td>93%</td>
<td>96%</td>
</tr>
<tr>
<td>Pioneer Square</td>
<td>Core [b]</td>
<td>Morning: 64% Afternoon: 95% Evening: 77%</td>
<td>Morning: 64% Afternoon: 95% Evening: 77%</td>
</tr>
<tr>
<td></td>
<td>Periphery [b]</td>
<td>Morning: 64% Afternoon: 94%</td>
<td>Morning: 64% Afternoon: 94%</td>
</tr>
<tr>
<td>Roosevelt</td>
<td></td>
<td>63%</td>
<td>65%</td>
</tr>
<tr>
<td>South Lake Union</td>
<td>2-Hour</td>
<td>81%</td>
<td>92%</td>
</tr>
<tr>
<td></td>
<td>10-Hour</td>
<td>95%</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td>Northwest</td>
<td>no data</td>
<td>no data</td>
</tr>
<tr>
<td>University District</td>
<td>Core</td>
<td>89%</td>
<td>88%</td>
</tr>
<tr>
<td></td>
<td>Periphery</td>
<td>57%</td>
<td>56%</td>
</tr>
<tr>
<td>Uptown</td>
<td>Core</td>
<td>75%</td>
<td>81%</td>
</tr>
<tr>
<td></td>
<td>Periphery</td>
<td>72%</td>
<td>77%</td>
</tr>
<tr>
<td>Uptown Triangle</td>
<td></td>
<td>59%</td>
<td>92%</td>
</tr>
<tr>
<td>Westlake Avenue N</td>
<td></td>
<td>76%</td>
<td>85%</td>
</tr>
</tbody>
</table>

[a] Seasonal occupancy is used to set parking rates, hours, and time limits. Ballard Locks rates will be set for May-September and October-April consistent with the hours of the Visitors Center. [b] Time of day paid parking rates will be implemented in Pioneer Square based on the morning (9 – 10 AM), afternoon (11 AM – 5 PM), and evening (6 – 7 PM).
The 12th Avenue parking area is completely along 12th Ave between E Madison St/E Union St and E Jefferson St.

2013 parking regulations: Rate $1.50/hr, paid hours 8 AM-6 PM, time limit 2 hrs.

We will implement the After 5 PM program because occupancy at 7 PM is 106%.
BALLARD CORE

Ballard’s paid parking area is divided into core and periphery subareas. The core subarea includes NW Market St (between 20th Ave NW and 24th Ave NW) and 22nd Ave NW (between Ballard Ave NW and NW 56th St).

2013 parking regulations: Rate $2.00/hr, paid hours 8 AM-6 PM, time limit 2 hrs.

DAYTIME PEAK OCCUPANCY (3 HIGHEST HOURS) AND 7 PM OCCUPANCY

We will implement the After 5 PM program because occupancy at 7 PM is 109%.

FALL 2014 PARKING REGULATIONS

RATE PER HOUR
$2.00

PAID HOURS
8AM to 8PM

TIME LIMIT
2hrs
3HRS AFTER 5 PM

2014 ACTION

We will implement the After 5 PM program because occupancy at 7 PM is 109%.
BALLARD PERIPHERY

The periphery subarea includes all Ballard paid parking outside of NW Market St (between 20th Ave NW and 24th Ave NW) and 22nd Ave NW (between Ballard Ave NW and NW 56th St).

→ 2013 parking regulations: Rate $1.50/hr, paid hours 8 AM–6 PM, time limit 4 hrs.

FALL 2014 PARKING REGULATIONS

RATE PER HOUR

$1.00

PAID HOURS

8AM to 6PM

TIME LIMIT

4hrs

2014 ACTION

➤ DECREASE RATE

We will lower the rate because daytime occupancy is below target at 58%.
BALLARD LOCKS

The Ballard Locks parking area covers the parking lots south of NW 54th St adjacent to the Ballard Locks.

2013 parking regulations: Rate $1.50/hr, paid hours 8 AM-6 PM, time limit 4 hrs.

DAYTIME PEAK OCCUPANCY (3 HIGHEST HOURS) AND 7 PM OCCUPANCY

<table>
<thead>
<tr>
<th>3-HR PEAK 8 AM-5 PM</th>
<th>7 PM OCCUPANCY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spring 2014</td>
<td>50%</td>
</tr>
<tr>
<td>Summer 2014</td>
<td>94%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SPRING 2014</th>
<th>SUMMER 2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>25%</td>
<td>61%</td>
</tr>
</tbody>
</table>

OCCUPANCY BY TIME OF DAY

FALL 2014 PARKING REGULATIONS

<table>
<thead>
<tr>
<th>RATE PER HOUR</th>
<th>PAID HOURS</th>
<th>TIME LIMIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>$2 MAY-SEPT</td>
<td>8AM to 6PM</td>
<td>4hrs</td>
</tr>
<tr>
<td>$1 OCT-APR</td>
<td>ADJUST SEASONALLY</td>
<td></td>
</tr>
</tbody>
</table>

2014 ACTION

We will make seasonal rate adjustments because occupancy varies by season.
BELLETTOWN NORTH

The Belltown North subarea is bounded on the north by Denny Way, northeast by 6th Ave, southwest by Alaskan Way, and southeast by Bell St.

→2013 parking regulations: Rate $2.00/hr, paid hours 8 AM-8 PM, time limit 4 hrs.

We will lower the rate because the daytime occupancy was below target at 52% in 2013 and is 68% in 2014.
BELLTOWN SOUTH

The Belltown South subarea is bounded on the northeast by 6th Ave, northwest by Bell St (and includes parking on this St), southwest by Alaskan Way, and southeast by Stewart St.

2013 parking regulations: Rate $2.50/hr, paid hours 8 AM-8 PM, time limit 2 hrs / 3 hrs after 5 PM.

FALL 2014 PARKING REGULATIONS

RATE PER HOUR
$2.50

PAID HOURS
8AM to 8PM

TIME LIMIT
2hrs 3HRS AFTER 5 PM

2014 ACTION
NO CHANGE

We will not make a change because daytime occupancy meets target at 78%.
CAPITOL HILL NORTH

The Capitol Hill North subarea is north of E John St and includes the areas along and between E Aloha St to the north, Harvard Ave E to the west, and 10th Ave E to the east.

→2013 parking regulations: Rate $3.00/hr, paid hours 8 AM-8 PM, time limit 2 hrs / 3 hrs after 5 PM.

→2014 ACTION

We will raise the rate because this area was on the watch list in 2013 with an occupancy of 89% and is above the target in 2014 at 92%.

FALL 2014 PARKING REGULATIONS

RATE PER HOUR $3.50
PAID HOURS 8AM to 8PM
TIME LIMIT 2hrs 3HRS AFTER 5 PM

2014 ACTION

→INCREASE RATE
CAPITOL HILL SOUTH

The Capitol Hill South subarea is north of E Pine St and includes the areas along and between E John St to the north, Harvard Ave E to the west, and 12th Ave E to the east.

→2013 parking regulations: Rate $2.50/hr, paid hours 8 AM-8 PM, time limit 4 hrs.

DAYTIME PEAK OCCUPANCY (3 HIGHEST HOURS) AND 7 PM OCCUPANCY

OCCUPANCY BY TIME OF DAY

FALL 2014 PARKING REGULATIONS

2014 ACTION

We will not make a change because the occupancy meets target at 77%.
CHERRY HILL

The Cherry Hill paid parking area includes the blocks immediately surrounding the Swedish Medical Center Cherry Hill Campus including E Cherry St, E Jefferson St, and 18th Ave.

→ 2013 parking regulations: Rate $1.50/hr, paid hours 8 AM-6 PM, time limit 2 hrs.

FALL 2014 PARKING REGULATIONS

RATE PER HOUR $1.50
PAID HOURS 8AM to 8PM
TIME LIMIT 2hrs AFTER 5 PM

2014 ACTION

We will implement the After 5 PM program because occupancy at 7 PM is 95%. This area will be on the high watch list because daytime occupancy is above target at 88%
CHINATOWN/ID CORE

Chinatown / International District Core includes S King and S Weller Streets between 6th Ave S and 8th Ave S, and 6th, Maynard, and 7th Avenues S between S King St and S Lane St.

→2013 parking regulations: Rate $2.50/hr (8 AM-5 PM), $1.50/hr (5 PM-8 PM), paid hours 8 AM-8 PM, time limit 2 hrs.

DAYTIME PEAK OCCUPANCY (3 HIGHEST HOURS) AND 7 PM OCCUPANCY

We will raise the daytime rate because this area was on the watch list in 2013 with an occupancy of 89% and in 2014 the occupancy is also 89%.

2013>
89% 89%

2014>
77% 77%

INCREASE RATE

FALL 2014 PARKING REGULATIONS

RATE PER HOUR
$3.00 8AM-5PM
$1.50 5PM-8PM

PAID HOURS
8AM to 8PM

TIME LIMIT
2hrs

We will raise the daytime rate because this area was on the watch list in 2013 with an occupancy of 89% and in 2014 the occupancy is also 89%.
# Chinatown/International District Periphery

Chinatown/International District Periphery includes the area outside the core and is bounded by I-5 to the east, S Dearborn St to the south, 4th Ave S to the west and S Washington St to the north.

2013 parking regulations: Rate $2.00/hr, paid hours 8 AM-6 PM, time limit 2 hrs.

## Daytime Peak Occupancy (3 Highest Hours) and 7 PM Occupancy

<table>
<thead>
<tr>
<th>Time of Day</th>
<th>2013 Occupancy</th>
<th>2014 Occupancy</th>
</tr>
</thead>
<tbody>
<tr>
<td>8AM-5PM</td>
<td>65%</td>
<td>69%</td>
</tr>
<tr>
<td>7PM</td>
<td>52%</td>
<td>70%</td>
</tr>
</tbody>
</table>

## Occupancy by Time of Day

![Graph showing occupancy by time of day from 8am to 10pm.]

Target Range: 70%-85%

- **May 2013**: 65%
- **April 2014**: 70%

## Fall 2014 Parking Regulations

- **Rate per Hour**: $1.50
- **Paid Hours**: 8AM to 6PM
- **Time Limit**: 2hrs

### 2014 Action

We will lower the rate because this area was on the watch list in 2013 with an occupancy of 65% and in 2014 the occupancy is below target at 69%.
COMMERCIAL CORE FINANCIAL

Commercial Core Financial includes the area bounded by S Washington St to the south, 2nd Ave to the southwest, Seneca St to the northwest, and I-5 to the east.

2013 parking regulations: Rate $4.00/hr, paid hours 8 AM-8 PM, time limit 2 hrs.

While daytime occupancy is above the target at 93%, the rate in this area is already at the maximum rate allowed by City Code.
COMMERCIAL CORE RETAIL

Commercial Core Retail includes the area southeast of Stewart St, northwest of Seneca St, northeast of 1st Ave S, and west of I-5.

2013 parking regulations: Rate $4.00/hr, paid hours 8 AM-8 PM, time limit 2 hrs.

FALL 2014 PARKING REGULATIONS

RATE PER HOUR
$4.00

PAID HOURS
8AM to 8PM

TIME LIMIT
2hrs
3 HRS AFTER 5 PM

2014 ACTION

NO CHANGE

We will not make a change because the occupancy meets target at 84%.
COMMERCIAL CORE WATERFRONT

Commercial Core Waterfront includes 1st Ave between Columbia and Seneca Streets, and Alaskan Way and Western Ave between Columbia and Stewart Streets. Pioneer Square is located just south of this area.

2013 parking regulations: Rate $4.00/hr, paid hours 8 AM-8 PM, time limit 2 hrs / 4 hrs / 3 hrs after 5 PM.

DAYTIME PEAK OCCUPANCY (3 HIGHEST HOURS) AND 7 PM OCCUPANCY

OCCUPANCY BY TIME OF DAY  

FALL 2014 PARKING REGULATIONS

RATE PER HOUR  
$4.00

PAID HOURS  
8AM to 8PM

TIME LIMIT  
2-4hrs  
3 HRS AFTER 5 PM

2014 ACTION

NO CHANGE

We will not make a change because the occupancy meets target at 79%.
DENNY TRIANGLE NORTH

The Denny Triangle North includes the area south of Denny Way, west of I-5, northwest of Olive Way, and northeast of 6th Ave outside of the Denny Triangle South subarea.

→ 2013 parking regulations: Rate $2.00/hr, paid hours 8 AM-6 PM, time limit 4 hrs.

We will lower the rate because this area was on the watch list in 2013 with an occupancy of 69% and in 2014 the occupancy is below target at 68%.

FALL 2014 PARKING REGULATIONS

RATE PER HOUR: $1.50
PAID HOURS: 8 AM to 6 PM
TIME LIMIT: 4 hrs
DENNY TRIANGLE SOUTH

Denny Triangle South subarea includes north of Olive Way and includes the areas along and between Lenora St on the north, 6th Ave on the southwest, and 8th Ave on the northeast.

→ 2013 parking regulations: Rate $2.50/hr paid hours 8 AM-8 PM, time limit 2 hrs / 3 hrs after 5 PM.

We will raise the rate because this area was on the watch list in 2013 with an occupancy of 89% and in 2014 the occupancy is above target at 93%.
The First Hill paid parking area is located east of I-5, west of Broadway, and south of E Union St. It lies immediately east of the Commercial Core and south of Pike-Pine.

→2013 parking regulations: Rate $4.00/hr paid hours 8 AM-6 PM, time limit 2 hrs.

While daytime occupancy is above the target at 93%, the rate in this area is already at the maximum rate allowed by City Code.
FREMONT

The Fremont paid parking area includes a portion of the Fremont commercial area and is located between N 36th St and N 34th St.

→2013 parking regulations: Rate $1.50/hr, paid hours 8 AM-6 PM, time limit 2 hrs.

DAYTIME PEAK OCCUPANCY (3 HIGHEST HOURS) AND 7 PM OCCUPANCY

3-HR PEAK 8 AM-5 PM

<table>
<thead>
<tr>
<th>Hour</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>8am</td>
<td>55%</td>
</tr>
<tr>
<td>9am</td>
<td>60%</td>
</tr>
<tr>
<td>10am</td>
<td>65%</td>
</tr>
<tr>
<td>11am</td>
<td>70%</td>
</tr>
<tr>
<td>12pm</td>
<td>85%</td>
</tr>
<tr>
<td>1pm</td>
<td>90%</td>
</tr>
<tr>
<td>2pm</td>
<td>95%</td>
</tr>
</tbody>
</table>

7 PM OCCUPANCY

<table>
<thead>
<tr>
<th>Hour</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>7pm</td>
<td>80%</td>
</tr>
<tr>
<td>8pm</td>
<td>95%</td>
</tr>
</tbody>
</table>

OCCUPANCY BY TIME OF DAY  

March 2013  
April 2014  
Target Range 70%-85%

FALL 2014 PARKING REGULATIONS

RATE PER HOUR  
$1.50

PAID HOURS  
8AM to 8PM

TIME LIMIT  
2hrs 3 HRS AFTER 5 PM

2014 ACTION

We will implement the After 5 PM program because occupancy at 7 PM is 95%.
GREEN LAKE

The Green Lake paid parking area is located east of E Green Lake Drive, between NE 73rd and NE 70th Streets. 

2013 parking regulations: Rate $1.00/hr, paid hours 8 AM-6 PM, time limit 2 hrs.

DAYTIME PEAK OCCUPANCY (3 HIGHEST HOURS) AND 7 PM OCCUPANCY

7 PM OCCUPANCY

OCCUPANCY BY TIME OF DAY

FALL 2014 PARKING REGULATIONS

2014 ACTION

We will implement the After 5 PM program because occupancy at 7 PM is 102%.
PIKE-PINE

Pike-Pine encompasses Pine St, Pike St, and Union St and is between Minor Ave to the west and E Madison St to the east.

2013 parking regulations: Rate $2.00/hr, paid hours 8 AM-8 PM, time limit 2 hrs/3 hrs after 5 PM, 4 hrs, or 10 hrs.

DAYTIME PEAK OCCUPANCY (3 HIGHEST HOURS) AND 7 PM OCCUPANCY

<table>
<thead>
<tr>
<th>Rate per Hour</th>
<th>Paid Hours</th>
<th>Time Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>$2.50 (2h)</td>
<td>8AM to 8PM</td>
<td>2-10hrs</td>
</tr>
<tr>
<td>$2.00 (10h)</td>
<td></td>
<td>3hrs after 5 PM</td>
</tr>
</tbody>
</table>

2014 ACTION

We will raise the rate because occupancy was above target at 96%.
PIONEER SQUARE CORE

Pioneer Square Core is located north of King St, southeast of Columbia St, east of Alaskan Way, and west of 3rd Ave.

→2013 parking regulations: Rate $3.50/hr, paid hours 8 AM-6 PM, time limit 2 hrs.

DAYTIME PEAK OCCUPANCY (3 HIGHEST HOURS) AND 7 PM OCCUPANCY

<table>
<thead>
<tr>
<th>TIME OF DAY</th>
<th>PRICING</th>
<th>2013</th>
<th>2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>morning 9-10 AM</td>
<td>$3.00</td>
<td>53%</td>
<td>64%</td>
</tr>
<tr>
<td>afternoon 11 AM-5 PM</td>
<td>$4.00</td>
<td>78%</td>
<td>77%</td>
</tr>
<tr>
<td>7 PM</td>
<td>85%</td>
<td>90%</td>
<td>95%</td>
</tr>
</tbody>
</table>

7 PM OCCUPANCY

- 2014 → 87%

OCCUPANCY BY TIME OF DAY

- April 2013
- May 2014
- Target Range 70%-85%

FALL 2014 PARKING REGULATIONS

- RATE PER HOUR
  - $3.00 (8-11 AM)
  - $4.00 (11 AM-6 PM)
- PAID HOURS: 8AM to 6PM
- TIME LIMIT: 2hrs

2014 ACTION

We will lower the rate in the morning because occupancy is below target at 53%. The rate will be raised in the afternoon because occupancy is above target at 96%.
PIONEER SQUARE PERIPHERY

Pioneer Square Periphery is located outside of the Core, south of Columbia St, north of Edgar Martinez Drive S, east of 5th Ave S, and west of Alaskan Way S.

2013 parking regulations: Rate $3.00, paid hours 8 AM-6 PM, time limit 2 hrs.

DAYTIME PEAK OCCUPANCY (3 HIGHEST HOURS) AND 7 PM OCCUPANCY

<table>
<thead>
<tr>
<th>TIME OF DAY</th>
<th>2014 9-10 AM</th>
<th>2013 9-10 AM</th>
<th>2014 6-7 PM</th>
<th>2013 6-7 PM</th>
<th>2014 11 AM-5 PM</th>
<th>2013 11 AM-5 PM</th>
</tr>
</thead>
<tbody>
<tr>
<td>morning</td>
<td>63%</td>
<td>64%</td>
<td>81%</td>
<td>79%</td>
<td>94%</td>
<td>89%</td>
</tr>
<tr>
<td>evening</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

7 PM OCCUPANCY

<table>
<thead>
<tr>
<th></th>
<th>2013</th>
<th>2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>8pm</td>
<td>85%</td>
<td>90%</td>
</tr>
<tr>
<td>9pm</td>
<td>90%</td>
<td>95%</td>
</tr>
</tbody>
</table>

OCCUPANCY BY TIME OF DAY

<table>
<thead>
<tr>
<th>March 2013</th>
<th>April 2014</th>
<th>Target Range 70%-85%</th>
</tr>
</thead>
<tbody>
<tr>
<td>9-10 AM</td>
<td>&gt;64%</td>
<td></td>
</tr>
<tr>
<td>11 AM-5 PM</td>
<td>&gt;89%</td>
<td></td>
</tr>
<tr>
<td>6-7 PM</td>
<td>&gt;79%</td>
<td></td>
</tr>
</tbody>
</table>

FALL 2014 PARKING REGULATIONS

<table>
<thead>
<tr>
<th>RATE PER HOUR</th>
<th>PAID HOURS</th>
<th>TIME LIMIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>$2.50 (8-11 AM)</td>
<td>8AM to 6PM</td>
<td>2hrs</td>
</tr>
<tr>
<td>$3.50 (11 AM-6 PM)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2014 ACTION

We will lower the rate in the morning because occupancy is below target at 63%. The rate will be raised in the afternoon because occupancy is above target at 94%.
ROOSEVELT

Roosevelt paid parking area is primarily on Roosevelt Ave NE and NE 65th St with additional blocks on 12th Ave NE and NE 64th St.

→2013 parking regulations: Rate $1.00/hr, paid hours 8 AM-6 PM, time limit 4 hrs.

While daytime occupancy is below the target at 65%, the rate in this area is already at the minimum rate allowed by City Code.
SOUTH LAKE UNION 2 HR

South Lake Union 2-hour subarea is bound by I-5 to the east, Denny Way to the south, SR 99 to the west, and Lake Union to the north. The 2-hour subarea blockfaces have 2-hour time limits.

>2013 parking regulations: Rate $1.50/hr, paid hours 8 AM-6 PM, time limit 2 hrs.

DAYTIME PEAK OCCUPANCY (3 HIGHEST HOURS) AND 7 PM OCCUPANCY

<table>
<thead>
<tr>
<th>Rate per Hour</th>
<th>Paid Hours</th>
<th>Time Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>$2.00</td>
<td>8AM to 6PM</td>
<td>2hrs</td>
</tr>
</tbody>
</table>

We will raise the rate because daytime occupancy is above target at 92%.
SOUTH LAKE UNION 10 HR

South Lake Union 10-hour subarea is bound by Denny Way, Mercer St, SR 99, and I-5. The 10-hour subarea blockfaces have 10-hour time limits.

→2013 parking regulations: Rate $1.50/hr, paid hours 8 AM-6 PM, time limit 10 hrs.

**DAYTIME PEAK OCCUPANCY (3 HIGHEST HOURS) AND 7 PM OCCUPANCY**

<table>
<thead>
<tr>
<th>3-HR PEAK 8 AM-5 PM</th>
<th>2014</th>
<th>2013-95%</th>
</tr>
</thead>
<tbody>
<tr>
<td>60%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>65%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>70%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>85%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>90%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>95%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**7 PM OCCUPANCY**

| 2013-55% | 2014 58% |

**OCCUPANCY BY TIME OF DAY**

- March 2013
- April 2014
- Target Range 70%-85%

**FALL 2014 PARKING REGULATIONS**

- **RATE PER HOUR**: $2.00
- **PAID HOURS**: 8AM to 6PM
- **TIME LIMIT**: 10hrs

**2014 ACTION**

We will raise the rate because daytime occupancy is above target at 100%.
SOUTH LAKE UNION NORTHWEST

The South Lake Union Northwest subarea includes blocks northwest of Broad St along Broad St, 8th Ave N, and Aloha St. Data was not collected in this area in 2013.

2013 parking regulations: Rate $1.00/hr, paid hours 8 AM-6 PM, time limit 10 hrs.

**DAYTIME PEAK OCCUPANCY (3 HIGHEST HOURS) AND 7 PM OCCUPANCY**

<table>
<thead>
<tr>
<th>Time</th>
<th>30%</th>
<th>35%</th>
<th>40%</th>
<th>45%</th>
<th>50%</th>
<th>55%</th>
<th>60%</th>
<th>65%</th>
<th>70%</th>
<th>85%</th>
<th>90%</th>
</tr>
</thead>
<tbody>
<tr>
<td>8am</td>
<td></td>
<td></td>
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<td>4pm</td>
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<td>5pm</td>
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<td>6pm</td>
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<td>7pm</td>
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<td></td>
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<td></td>
</tr>
</tbody>
</table>

**2014 OCCUPANCY**

- 8am to 5pm: 69%
- 7pm: 31%

**OCCUPANCY BY TIME OF DAY**

- April 2014
- Target Range 70%-85%

**FALL 2014 PARKING REGULATIONS**

- **Rate per Hour**: $1.00
- **Paid Hours**: 8AM to 6PM
- **Time Limit**: 10hrs

**2014 ACTION**

NO CHANGE

While daytime occupancy is below the target at 69%, the rate in this area is already at the minimum rate allowed by City Code.
UNIVERSITY DISTRICT CORE

The University District Core is centered along University Way ("The Ave") and the blocks closest to the University of Washington campus. It is along and between NE 50th St, NE Boat St, Brooklyn Ave NE and 15th Ave NE.

→ 2013 parking regulations: Rate $2.00/hr, paid hours 8 AM-8 PM, time limit 2 hrs / 3hrs after 5 PM.

DAYTIME PEAK OCCUPANCY (3 HIGHEST HOURS) AND 7 PM OCCUPANCY

OCCUPANCY BY TIME OF DAY

FALL 2014 PARKING REGULATIONS

RATE PER HOUR

$2.50

PAID HOURS

8AM to 8PM

TIME LIMIT

2hrs

3HRS AFTER 5 PM

2014 ACTION

We will raise this rate because this area was on the watch list in 2013 with an occupancy of 89% and in 2014 the occupancy is 88%. 

2013→89%

2013→107%
UNIVERSITY DISTRICT PERIPHERY

The University District Periphery subarea is generally west of Brooklyn Ave NE and along and between Roosevelt Way NE, NE Campus Pkwy, and NE 50th St. It also includes 15th Ave NE between NE 50th St and NE 45th St.

*2013 parking regulations: Rate $1.50/hr, paid hours 8 AM-8 PM, time limit 4 hrs.*

**DAYTIME PEAK OCCUPANCY (3 HIGHEST HOURS) AND 7 PM OCCUPANCY**

- **2014**
  - Rate $1.00 per hour
  - Paid hours 8 AM-8 PM
  - Time limit 4 hours

- **2013**
  - Rate $1.50 per hour
  - Paid hours 8 AM-8 PM
  - Time limit 4 hours

**OCCUPANCY BY TIME OF DAY**

<table>
<thead>
<tr>
<th>Time of Day</th>
<th>March 2013</th>
<th>April 2014</th>
<th>Target Range 70%-85%</th>
</tr>
</thead>
<tbody>
<tr>
<td>8am to 8pm</td>
<td>80%</td>
<td>80%</td>
<td>70%-85%</td>
</tr>
</tbody>
</table>

**FALL 2014 PARKING REGULATIONS**

- **Rate per Hour**: $1.00
- **Paid Hours**: 8 AM to 8 PM
- **Time Limit**: 4 hours

**2014 ACTION**

- **DECREASE RATE**
  - We will lower the rate because the daytime occupancy is below target at 56%.
**UPTOWN CORE**

The Uptown Core subarea includes Roy St between Queen Anne Ave N and 1st Ave N, W Mercer and Republican Streets between 1st Ave W and 1st Ave N, Queen Anne Ave N between W Republican St and Roy St, and 1st Ave W and 1st Ave N between W Republican and Mercer Streets.

>2013 parking regulations: Rate $1.50/hr; paid hours 8 AM-8 PM, time limit 2 hrs / 3hrs after 5 PM.

**DAYTIME PEAK OCCUPANCY (3 HIGHEST HOURS) AND 7 PM OCCUPANCY**

<table>
<thead>
<tr>
<th>Time Period</th>
<th>2013</th>
<th>2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>3-HR PEAK 8 AM-7 PM</td>
<td>65%</td>
<td>81%</td>
</tr>
<tr>
<td>7 PM OCCUPANCY</td>
<td></td>
<td>93%</td>
</tr>
</tbody>
</table>

We will not make a change because daytime occupancy meets target at 81%.
UPTOWN PERIPHERY

Uptown Periphery includes all the areas outside the core bounded by 2nd Ave W to the west, Roy St to the north, 5th Ave N to the east, Broad St to the southeast, Denny Way to the south, and Western Ave W to the southwest.

→ 2013 parking regulations: Rate $1.50/hr, paid hours 8 AM-8 PM, time limit 4 hrs.

DAYTIME PEAK OCCUPANCY (3 HIGHEST HOURS) AND 7 PM OCCUPANCY

3-HR PEAK 8 AM-7 PM

2013 → 72%

2014 → 77%

7 PM OCCUPANCY

2013 → 88%

2014 → 85%

OCCUPANCY BY TIME OF DAY

March 2013

May 2014

Target Range 70%-85%

FALL 2014 PARKING REGULATIONS

RATE PER HOUR

$1.50

PAID HOURS

8AM to 8PM

TIME LIMIT

4hrs

2014 ACTION

→ NO CHANGE

We will not make a change because daytime occupancy meets target at 77%.
**STUDY AREA**

# UPTOWN TRIANGLE

The Uptown Triangle paid parking area lies southeast of Broad St, north of Denny Way, and west of Aurora Ave North. It is adjacent to the Uptown, South Lake Union, Belltown, and Denny Triangle paid parking areas.

2013 parking regulations: Rate $1.00/hr, paid hours 8 AM-6 PM, time limit 10 hrs.

## DAYTIME PEAK OCCUPANCY (3 HIGHEST HOURS) AND 7 PM OCCUPANCY

### 3-HR PEAK 8 AM-5 PM

- 2013: 59%
- 2014: 92%

### 7 PM OCCUPANCY

- 2013: 62%
- 2014: 67%

## OCCUPANCY BY TIME OF DAY

- March 2013
- April 2014
- Target Range 70%-85%

### FALL 2014 PARKING REGULATIONS

- **Rate Per Hour**: $1.50
- **Paid Hours**: 8AM to 6PM
- **Time Limit**: 10hrs

## 2014 ACTION

We will raise the rate because daytime occupancy is above target at 92%.
WESTLAKE AVENUE N

The Westlake Avenue N includes the blocks and parking lots along Westlake Ave N between Aloha St and McGraw St.

2013 parking regulations: Rate $1.00/hr, paid hours 9 AM-4 PM, time limit 7 hrs (Weekdays only).

We will decrease the time limit south of Crockett St from 7 to 4 hrs because while the entire corridor is within target at 85% south of Crockett St it is above target at 91%.
<table>
<thead>
<tr>
<th>Neighborhood</th>
<th>Subarea</th>
<th>Rate</th>
<th>Hours</th>
<th>Time Limit (during paid hours)</th>
</tr>
</thead>
<tbody>
<tr>
<td>12th Avenue</td>
<td></td>
<td>$1.50</td>
<td>8 AM – 8 PM</td>
<td>2 hours / 3 hours after 5 PM</td>
</tr>
<tr>
<td>Ballard</td>
<td>Core</td>
<td>$2.00</td>
<td>8 AM – 8 PM</td>
<td>2 hours / 3 hours after 5 PM</td>
</tr>
<tr>
<td>Ballard</td>
<td>Periphery</td>
<td>$1.00</td>
<td>8 AM – 6 PM</td>
<td>4 hours</td>
</tr>
<tr>
<td>Ballard Locks</td>
<td></td>
<td>$2.00 May-Sept</td>
<td>8 AM – 6 PM</td>
<td>4 hours</td>
</tr>
<tr>
<td>Ballard</td>
<td>Core</td>
<td>$1.00 Oct-April</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ballard</td>
<td>Periphery</td>
<td>$1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Belltown</td>
<td>North</td>
<td>$1.50</td>
<td>8 AM – 8 PM</td>
<td>4 hours</td>
</tr>
<tr>
<td>Belltown</td>
<td>South</td>
<td>$2.50</td>
<td>8 AM – 8 PM</td>
<td>2 hours / 3 hours after 5 PM</td>
</tr>
<tr>
<td>Capitol Hill</td>
<td>North</td>
<td>$3.50</td>
<td>8 AM – 8 PM</td>
<td>2 hours / 3 hours after 5 PM</td>
</tr>
<tr>
<td>Capitol Hill</td>
<td>South</td>
<td>$2.50</td>
<td>8 AM – 8 PM</td>
<td>2 hours / 3 hours after 5 PM</td>
</tr>
<tr>
<td>Cherry Hill</td>
<td>Core</td>
<td>$3.00 (8 AM-5 PM)</td>
<td>8 AM – 8 PM</td>
<td>2 hours</td>
</tr>
<tr>
<td>Cherry Hill</td>
<td>Periphery</td>
<td>$1.50</td>
<td>8 AM – 6 PM</td>
<td>2 hours</td>
</tr>
<tr>
<td>Chinatown-ID</td>
<td>Core</td>
<td>$3.00 (8 AM-5 PM)</td>
<td>8 AM – 8 PM</td>
<td>2 hours</td>
</tr>
<tr>
<td>Chinatown-ID</td>
<td>Periphery</td>
<td>$1.50</td>
<td>8 AM – 6 PM</td>
<td>2 hours</td>
</tr>
<tr>
<td>Commercial Core</td>
<td>Financial</td>
<td>$4.00</td>
<td>8 AM – 8 PM</td>
<td>2 hours / 3 hours after 5 PM</td>
</tr>
<tr>
<td>Commercial Core</td>
<td>Retail</td>
<td>$4.00</td>
<td>8 AM – 8 PM</td>
<td>2 hours / 3 hours after 5 PM</td>
</tr>
<tr>
<td>Commercial Core</td>
<td>Waterfront</td>
<td>$4.00</td>
<td>8 AM – 8 PM</td>
<td>2 hours / 3 hours after 5 PM</td>
</tr>
<tr>
<td>Denny Triangle</td>
<td>North</td>
<td>$1.50</td>
<td>8 AM – 6 PM</td>
<td>4 hours</td>
</tr>
<tr>
<td>Denny Triangle</td>
<td>South</td>
<td>$3.00</td>
<td>8 AM – 8 PM</td>
<td>2 hours / 3 hours after 5 PM</td>
</tr>
<tr>
<td>First Hill</td>
<td></td>
<td>$4.00</td>
<td>8 AM – 6 PM</td>
<td>2 hours</td>
</tr>
<tr>
<td>Fremont</td>
<td></td>
<td>$1.50</td>
<td>8 AM – 8 PM</td>
<td>2 hours / 3 hours after 5 PM</td>
</tr>
<tr>
<td>Green Lake</td>
<td></td>
<td>$1.00</td>
<td>8 AM – 8 PM</td>
<td>2 hours / 3 hours after 5 PM</td>
</tr>
<tr>
<td>Pike-Pine</td>
<td></td>
<td>$2.50</td>
<td>8 AM – 8 PM</td>
<td>2 hours / 3 hours after 5 PM</td>
</tr>
<tr>
<td>Pioneer Square</td>
<td>Core</td>
<td>$3.00 (8-11 AM)</td>
<td>8 AM – 6 PM</td>
<td>2 hours</td>
</tr>
<tr>
<td>Pioneer Square</td>
<td>Periphery</td>
<td>$2.50 (8-11 AM)</td>
<td>8 AM – 6 PM</td>
<td>2 hours</td>
</tr>
<tr>
<td>Roosevelt</td>
<td></td>
<td>$1.00</td>
<td>8 AM – 6 PM</td>
<td>4 hours</td>
</tr>
<tr>
<td>South Lake Union</td>
<td>2-Hour</td>
<td>$2.00</td>
<td>8 AM – 6 PM</td>
<td>2 hours</td>
</tr>
<tr>
<td>South Lake Union</td>
<td>10-Hour</td>
<td>$2.00</td>
<td>8 AM – 6 PM</td>
<td>10 hours</td>
</tr>
<tr>
<td>South Lake Union</td>
<td>Northwest</td>
<td>$1.00</td>
<td>8 AM – 6 PM</td>
<td>10 hours</td>
</tr>
<tr>
<td>University District</td>
<td>Core</td>
<td>$2.50</td>
<td>8 AM – 8 PM</td>
<td>2 hours / 3 hours after 5 PM</td>
</tr>
<tr>
<td>University District</td>
<td>Periphery</td>
<td>$1.00</td>
<td>8 AM – 8 PM</td>
<td>4 hours</td>
</tr>
<tr>
<td>Uptown</td>
<td>Core</td>
<td>$1.50</td>
<td>8 AM – 8 PM</td>
<td>2 hours / 3 hours after 5 PM</td>
</tr>
<tr>
<td>Uptown</td>
<td>Periphery</td>
<td>$1.50</td>
<td>8 AM – 8 PM</td>
<td>4 hours</td>
</tr>
<tr>
<td>Uptown Triangle</td>
<td></td>
<td>$1.50</td>
<td>8 AM – 6 PM</td>
<td>10 hours</td>
</tr>
<tr>
<td>Westlake Avenue N</td>
<td></td>
<td>$1.00</td>
<td>9 AM – 4 PM</td>
<td>4 hours (south of Crockett St) / 7 hours (north of Crockett St) (Weekday Only)</td>
</tr>
</tbody>
</table>
SEATTLE NEIGHBORHOOD FALL 2014 RATES

- **Ballard Periphery**: $1.00
- **Ballard Core**: $2.00
- **Green Lake**: $1.00
- **Roosevelt**: $1.00
- **University District Periphery**: $2.50
- **University District Core**: $1.00
- **South Lake Union 2h & 10h**: $2.00
- **Capitol Hill North**: $3.50
- **Capitol Hill South**: $2.50
- **Pike-Pine**: $2.50
- **12th Ave**: $1.50
- **Cherry Hill**: $1.50
- **Chinatown/ID Periphery**: $3.00
- **Chinatown/ID Core**: $1.50
- **8-11 AM**: $3.00
- **11 AM-6 PM**: $4.00
- **8 AM-5 PM**: $1.50
- **5 PM-8 PM**: $2.00
- **8-11 AM**: $2.50
- **11 AM-6 PM**: $3.50
- **May-Sept**: $1.00
- **Oct-April**: $2.50

Special Rates:
- **First Hill**: $4.00
- **Capitol Hill North**: $2.50
- **Capitol Hill South**: $2.50
- **Pike-Pine**: $2.50
- **12th Ave**: $1.50
- **Cherry Hill**: $1.50
- **Chinatown/ID Periphery**: $3.00
- **Chinatown/ID Core**: $1.50
Hey, Buddy, What Will You Pay for This Parking Spot?

A lot has happened since APA published The High Cost of Free Parking.
By Steffen Tuoff, AICP, and Carolyn H. Krasnow

Donald Shoup, FAICP, was a young economics and public policy professor in 1975 when he read about a research paper called "The Effects of the Subsidization of Employee Parking on Human Behavior," by Bill Francis and Curt Groninga, who were then graduate students in public administration at the University of Southern California. Intrigued by this groundbreaking study of the intersection between parking economics, planning, and psychology, Shoup began to research and publish on this largely ignored field. Thirty years later, his book, The High Cost of Free Parking, consolidated his many years of work and rapidly created a paradigm shift in the way many people think about parking.

Because he sought to overturn many long-held assumptions about parking, Shoup's findings and recommendations were met with skepticism, and occasionally hostility, in the emotionally charged world of planning. It defied common sense, many said, that charging for parking would bring more people to a commercial district. How could requiring less parking make a destination more attractive to the public? And wasn’t any increase in parking rates simply a money grab by city officials or greedy private developers?

To his critics, Shoup's theories seemed counterintuitive. After all, how could you encourage shoppers and employees of local businesses to travel downtown if they had to pay for parking? Wasn’t free parking part of what had given suburban malls an advantage over downtowns in the first place?

While the book's in-depth economic analysis might have seemed theoretical and impractical to many lay readers, in fact Shoup's work was, at base, a return to the laws of supply and demand that govern the allocation of most goods people consume throughout society. Is parking really so worthy of exception? Shoup's "three commandments" follow traditional market rules:

**Charge** the lowest price for on-street parking that will leave one or two open spaces per block at all times; this may require adjusting rates up or down, with rates that vary by location and the time of day.

**Reinvest** some portion of parking revenue in the area where it is generated to pay for local improvements and services.

**Remove** minimum parking requirements and let owners determine how much parking they need to support their customers and tenants.

There has been much progress since 2005, when APA first published The High Cost of Free Parking, but also some challenges on all three fronts.

**Charging market rates**

On-street parking spaces are a popular—and finite—resource. The only way they can serve more people is through frequent turnover. On-street parking provides the "face" of an area's parking supply and availability. When on-street parking is full, parking is perceived to be unavailable and inconvenient. If on-street parking is free, employees arrive first and the customers who arrive later cannot find parking. When on-street parking is priced appropriately, employees will park farther away or in cheaper locations, freeing up spaces for customers.

Research by Shoup and others in cities around the world has shown that underpriced parking—and the subsequent lack of on-street parking availability—not only drives away potential customers (literally), it generates a shockingly high percentage of traffic. The most effective way to mitigate these problems is to aim for one or two open spaces per block. This is achieved by pricing parking high enough to discourage unnecessary long-term parking. Shoup recommends adjusting rates as needed—even over the course of a day—to achieve the needed balance. For those who call this a major effort in social engineering, Shoup points out, "we don't need to change everyone's behavior; we want to move just one car off blocks where parking spaces are fully occupied."

Over the past eight years Shoup's pricing policy recommendation has been implemented in varying degrees in both large and small cities, beginning with Redwood City, California. A similar parking pricing plan for on- and off-street parking was implemented in Santa Monica, California,
in 2012, with lower parking rates established in underused locations and higher rates in locations that suffered from a lack of availability. In both cities, the policy has succeeded in increasing employees' use of previously underutilized parking facilities peripheral to popular commercial districts, thereby opening up parking spaces near businesses. Santa Monica saved tens of millions of dollars by using rates to balance utilization; the city had previously contemplated building new parking structures to solve perceived shortages.

Most recently Shoup's ideas have been used as the basis for Houston's Washington Avenue Parking Benefit District, which commenced operation this year. According to Don Pagel, Houston's deputy director of parking management, "much of the thinking behind the new parking benefit district is driven by advances in technology in the parking industry in the past few years, as well as concepts in ... The High Cost of Free Parking." The book was also recently cited as the inspiration for a new—and extremely popular—on-street parking pricing program for the notoriously traffic-strangled streets of Mexico City, demonstrating its relevance to the parking issues of rapidly urbanizing countries and growing markets abroad.

The most high profile of these programs, San Francisco's SFpark, was implemented with the help of a $20 million grant from the Federal Highway Administration. Many call the program successful, and Shoup notes that SFpark's policies have so far resulted in an overall reduction in parking rates of one percent. In some locations, on-street parking spaces in this notoriously expensive city have dropped to 25 cents per hour, although in others hourly parking rates have climbed to $6 per hour.

Some high-priced blocks still suffer from a lack of available on-street spaces, which has led some people, including parking industry veteran and the editor of Parking Today, John Van Horn, to criticize SFpark. "Theoretically, Shoup's basic premise is a good one," says Van Horn, but he also notes that even at $6 an hour, a number of blocks in San Francisco have no available spaces. That suggests to him that the program is not working. "Rates have not increased to affect (the parking behavior of) the number of people" that need to be affected, he says.

Perhaps parking rates simply have not been set high enough?

That is part of the problem, says Van Horn. "The political will is [lacking] to set rates as high as they will need to be" in San Francisco and elsewhere, he notes. Add to this the quick decisions that would be necessary for drivers—and city rate setters—to truly implement on-demand parking pricing and the barriers to adopting the ideas in Shoup's book are daunting, Van Horn says.

Van Horn also raises the question of the importance of comprehensive implementation. "Shoup's theories are a three-legged stool. I'm not sure one (policy) works without the other two."

Keeping revenue local

Perhaps the most common complaint com-
The idea of “localizing” parking revenue predates the publication of *The High Cost of Free Parking*. But since the book came out more cities have implemented this practice successfully. In addition to Redwood City and Houston, parking districts in Austin, Texas, and Ventura, California, among others, have incorporated this practice into their parking management.

**No minimum parking requirements**

The policy of requiring a land use to provide a minimum number of parking spaces based on its square footage was introduced in the early 20th century to ease the overcrowding of on-street parking spaces. In his book, Shoup states that in most cases the policy achieved its goal. However, minimum parking requirements tend to be inflexible and arbitrary and often result in an oversupply. That oversupply increases distances and decreases walkability between destinations.

Shoup summed up his case in a recent opinion piece in *Parking Today*: "In *The High Cost of Free Parking*, I argued that minimum parking requirements subsidize cars, increase vehicle travel, encourage sprawl, worsen air pollution, raise housing costs, degrade urban design, preclude walkability, and exclude poor people. To my knowledge, no city planner has argued that minimum parking requirements do not have these harmful effects."

It can also be argued that the requirements often do not work because simply adding off-street parking will not necessarily reduce the occupancy rates of on-street spaces. Because drivers tend to prefer on-street parking, those spaces will usually fill first, leaving drivers circling to find an available space, unless the on-street parking is regulated using price, well-enforced time limits, or another mechanism.

The publication of *The High Cost of Free Parking* has led countless planning and economic development departments to re-examine their parking requirements—and to reduce or eliminate them. Others have made them more flexible by allowing the requirement to be met by shared parking, in-lieu parking fees, or bicycle spaces. There has been real, albeit slow, progress.

Despite the challenges, many cities apparently have understood the benefits of eliminating minimum parking requirements. In the preface to the 2011 paperback edition of his book, Shoup states that, since the book’s initial publication, a survey of newspaper articles showed that 129 cities had removed or reduced off-street parking requirements in their downtowns.

But there are still hurdles. The public often mistakenly perceives a reduction or elimination of minimum requirements to mean mandating less parking. Communities are informed of a proposal to reduce requirements but not told of additional city efforts to address possible impacts to the on-street parking supply, as called for in *The High Cost of Free Parking*; people simply hear “less parking.” Is it any wonder that business owners fear that proposed changes will limit parking and access for their customers?

Finally, cities and in many cases planners, too, have resisted the call to reduce parking requirements. Parking requirements have become an important negotiating point for cash-strapped cities that want new development and—because of the system of public finance in some states—the associated sales tax dollars.

Portland, Oregon, removed the parking requirements for all apartment buildings situ-
ated within 500 feet of frequent transit service before *The High Cost of Free Parking* was published. The specific impetus for the action was to make housing in the city more affordable. Shoup points out that the market for apartments without parking is large because almost a quarter of Portland’s renter households do not own a car. Apparently developers and their lenders agreed. Thousands of apartments were subsequently built with an average of only 0.6 parking spaces per dwelling unit.

Still, some residents living near the new buildings complained about nighttime parking on the street. Consistent with his recommendations in *The High Cost of Free Parking*, Shoup put forward recommendations for nighttime parking districts. He also recommended that revenue generated by the permit programs be returned to the area that generated it.

As of this writing, the city was considering a proposal to change parking minimums (solely in commercial corridors and along frequent transit lines) as the first response to addressing the issue. It should be noted that the change being considered would affect only certain buildings in areas where parking is currently not required and the proposed new requirement would be 0.25 spaces per unit, a small fraction of the requirement for residential buildings in most other American cities.

Finally, as with the other two commandments, the conversation about reducing minimum parking requirements often occurs separately from the discussion of pricing on-street parking—and generating revenue for local improvements. In the public’s perception, and sometimes in reality, the threat of an impact on on-street parking does not get addressed.

**Political will**

Ultimately, the challenges come down to a question of political will, not good policy. As is often the case with public policy, the most common reason that the recommendations in *The High Cost of Free Parking* are not adopted is the pursuit of more politically correct half measures. This can undermine the very goals policy makers are trying to implement.

Change is scary for most people, particularly when that change involves asking people to pay for parking, something they’ve never had to do before, or when it involves revising parking regulations that directly impact local businesses. However, in the eight years since the book’s initial publication, the cities that have implemented its recommendations have found that Shoup’s market approach benefits communities, residents, business owners, and the environment alike.

Perhaps these success stories will embolden other cities to implement similar plans. Ultimately, better-managed parking leaves more space and money with which to create destinations that people want to visit. When it comes to parking—and economic development—Shoup’s recommendations highlight what parking consultants have always known: Availability trumps price. In the words of international parking expert Mary Smith, of Walker Parking Consultants, “the destination is the draw.”

Sarasota, Florida, built the city-owned Park Avenue garage as a LEED-certified structure.

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**RESOURCES**

FROM APA  *The High Cost of Free Parking* (in hardback and paperback editions) is available at APAPlanningBooks.com. For more about cities that have adopted innovative parking systems, see “Smart Parking Revisited,” in the May/June 2012 issue of *Planning.*

MORE  www.houstontx.gov/parking/washingtonavenue.html
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