

# Cruising for Parking

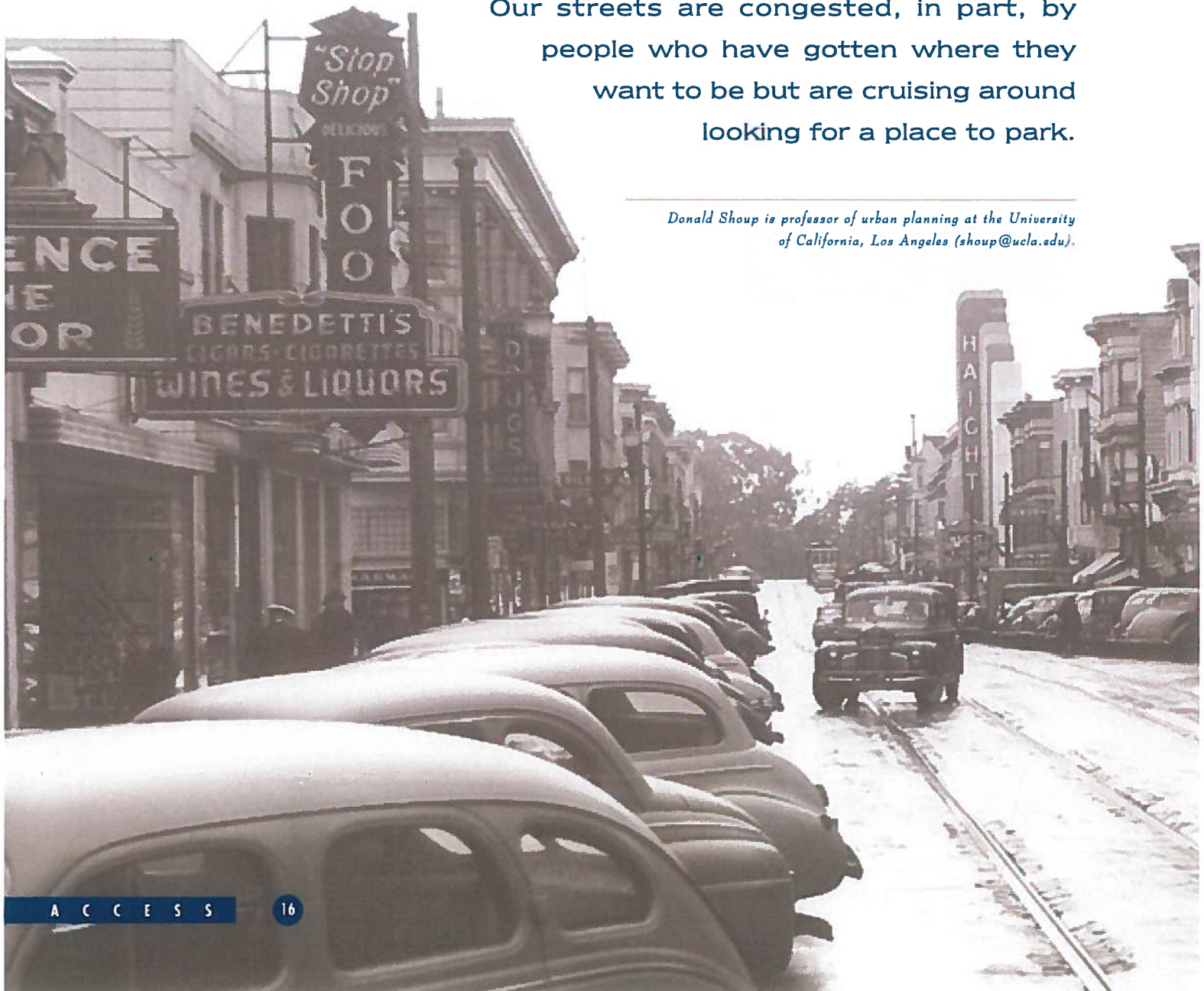
BY DONALD SHOUP

*My father didn't pay for parking, my mother, my brother, nobody. It's like going to a prostitute. Why should I pay when, if I apply myself, maybe I can get it for free?*

—George Costanza

A surprising amount of traffic isn't caused by people who are on their way somewhere. Rather it is caused by people who have already arrived. Our streets are congested, in part, by people who have gotten where they want to be but are cruising around looking for a place to park.

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## DRIVING IN CIRCLES

Perhaps because cruising is a disguised source of congestion, most transportation planners and engineers have ignored it. Cruising creates a mobile queue of cars waiting for curb vacancies, but cruisers are mixed with traffic that is going somewhere, so no one can see how many cars are in the cruising queue. Nevertheless, a few researchers have analyzed cruising by videotaping traffic flows, interviewing drivers who park at the curb, or driving test cars to search for a curb space. Sixteen studies of cruising behavior were conducted between 1927 and 2001 in the central business districts of eleven cities on four continents (see Figure 1). The average time it took to find a curb space was eight minutes, and about thirty percent of the cars in the traffic flow were cruising for parking. The data varied widely around these averages, however; on some uncrowded streets no cars were cruising, while on some congested streets most of the cars were cruising.

Cities have changed since these observations were made, and the data are selective because researchers study cruising only where they expect to find it. Nevertheless, cruising itself has not changed, and the studies show that cruising for parking has wasted time and fuel for many decades.

Even a small search time per car can create a surprising amount of traffic. Consider a congested downtown where it takes three minutes to find a curb space and the parking turnover is ten cars per space per day. For each curb space, cruising thus results in thirty extra minutes of vehicle travel per day (3 minutes x 10 cars). If the average cruising speed is ten miles an hour, cruising creates five vehicle miles traveled per space per day (10 mph x 0.5 hour). Over a year, this driving in circles amounts to 1,825 VMT for each curb space (5 miles x 365 days), greater than half the distance across the United States. >

YEAR	CITY	SHARE OF TRAFFIC CRUISING	AVERAGE SEARCH TIME (minutes)
1927	Detroit (1)	19%	—
1927	Detroit (2)	34%	—
1933	Washington	—	8.0
1960	New Haven	17%	—
1965	London (1)	—	6.1
1965	London (2)	—	3.5
1965	London (3)	—	3.6
1977	Freiburg	74%	6.0
1984	Jerusalem	—	9.0
1985	Cambridge	30%	11.5
1993	Cape Town	—	12.2
1993	New York (1)	8%	7.9
1993	New York (2)	—	10.2
1993	New York (3)	—	13.9
1997	San Francisco	—	6.5
2001	Sydney	—	6.5
	AVERAGE	30%	8.1

**FIGURE 1**

Twentieth-century cruising

Note: The numbers in parentheses after Detroit, London, and New York refer to different locations within the same city.

Sources: Simpson (1927), Hogentogler, Willis, and Kelley (1934), Huber (1962), Inwood (1966), Bus + Bahn (1977), Salomon (1984), O'Malley (1985), Clark (1993), Falcochio, Darsin, and Prussas (1995), Saltzman (1997), and Hensher (2001).





### CHOOSING TO CRUISE

Suppose curb parking is free but all the spaces are occupied, so you have to cruise until you find a space being vacated by a departing car. Off-street parking is available but you have to pay the market price for it. How do you decide whether to cruise or to pay?

If off-street parking is expensive, many drivers will hunt for curb parking, an entirely rational response to prices. Thus, by underpricing their curb parking, cities create an economic incentive to cruise. To study this incentive, I collected data on the price of curb and off-street parking for an hour at noon at the same location—City Hall—in twenty cities throughout the United States. The average price of curb parking was only twenty percent of the price of parking in a garage. Cruising saved drivers the most money in New York, where the price of off-street parking was \$14.38 for the first hour, but curb parking was only \$1.50.

Consider the high price of off-street parking in downtown Boston (\$11 for the first hour), which stems in part from the city's cap on the number of off-street parking spaces. This supply cap drives up the market price of off-street parking and produces an unintended outcome: the combination of low prices for curb parking and high prices for off-street parking increases the incentive to cruise. Boston limits the private off-street parking supply, but fails to charge the market price for its own public curb parking. A survey in 2006 found the average price for off-street parking in the Boston central business district was \$31 a day. In contrast, Boston charges a flat rate (\$1 an hour) for all metered parking spaces in the city.

Boston's off-street parking cap makes sense as a way to reduce congestion on routes *to* the city, but the failure to follow through with market prices for curb parking increases congestion *in* the city. Everyone would criticize off-street parking operators if long lines of cars regularly spilled into the streets and snarled traffic because the lots and garages were always full. Cities create the same result with underpriced curb parking, but the cruising cars are hidden in the general traffic flow.

## CRUISING IN LOS ANGELES

To learn more about cruising, my students and I made 240 observations of how long it takes to find a curb parking space at four sites in Westwood Village, a commercial district next to the UCLA campus. Curb parking in metered spaces was only fifty cents an hour during the day and free in the evening, while the cheapest off-street parking was \$1 an hour. For each observation we drove to the site and then circled the block until we found a curb space. Because the curb spaces were occupied almost all the time, we rarely found a vacant space when we arrived. Instead, we usually searched until we found a parked car about to vacate a space, and then waited for it to leave.

Most drivers who are cruising for parking try to avoid following directly behind another car that appears to be cruising, so as to maximize the chance of being the first to see a vacant spot. Driving a car to measure cruising times may therefore influence the behavior being studied. To avoid this potential pitfall and to get some exercise, we decided to make most of the observations by bicycle. The average cruising speed by car in Westwood is only eight to ten miles an hour because every intersection has a stop sign or traffic light, so a cyclist can easily keep up with vehicle traffic. For the tests, we equipped each bicycle with a cyclometer to measure elapsed travel time, distance traveled, and average speed.

The average cruising time to find a curb space was 3.3 minutes, and the average cruising distance was half a mile (about 2.5 times around the block). The small distances cruised by individual drivers add up quickly, because the turnover rate for curb parking was seventeen cars per space per day. With 470 metered parking spaces in the Village, almost 8,000 cars park at the curb each day ( $17 \times 470$ ). Because so many cars park at the curb, a short cruising time for each driver creates an astonishing amount of traffic. Although the average driver cruises only half a mile before parking, cruising around the fifteen blocks in the Village creates almost 4,000 VMT every weekday ( $8,000 \times 0.5$ ).

Over a year, cruising in Westwood Village creates 950,000 excess VMT—equivalent to 38 trips around the earth, or four trips to the moon. The obvious waste of time and fuel is even more appalling when we consider the low speed and fuel efficiency of cruising cars. Because drivers average about ten miles an hour in the Village, cruising 950,000 miles a year wastes about 95,000 hours (eleven *years*) of drivers' time every year. And here's another inconvenient truth about underpriced curb parking: cruising 950,000 miles wastes 47,000 gallons of gasoline and produces 730 tons of CO<sub>2</sub> emissions in a small business district.

## THE RIGHT PRICE FOR CURB PARKING

When drivers compare the prices of parking at the curb or in a garage, they usually decide the price of garage parking is too high, but instead the reverse is true. The price of curb parking is too *low*. Underpriced curb spaces are like rent-controlled apartments: they are hard to find, and once you find a space you'd be crazy to give it up. This makes curb spaces even harder to find, and increases the time cost (and therefore the congestion and pollution costs) of searching for them. Like rent-controlled apartments, curb spaces go to the lucky more than to the deserving. One person might find a curb space and park there for days, while others are left to circle the block.

The left panel of Figure 2 shows a typical commercial block in Westwood where curb parking is underpriced and all the curb spaces are occupied. The block has >

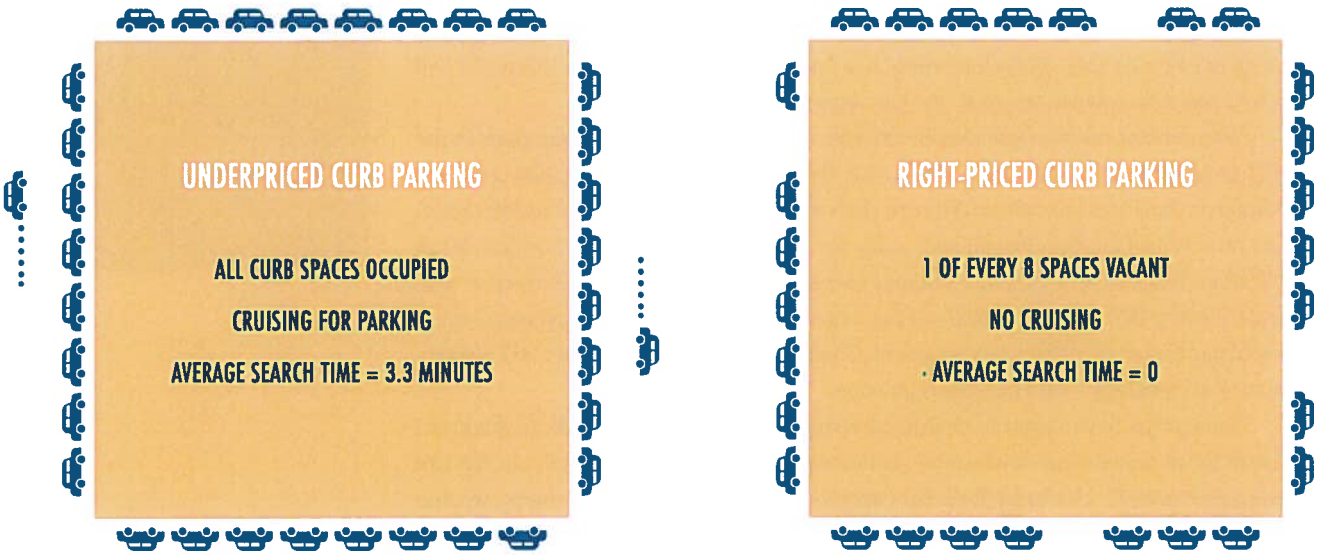


eight curb spaces on each side, the average cruising time to find a curb space is 3.3 minutes, and two cruisers are circling the block. In contrast, the right panel shows what happens if a city charges the lowest price that will produce a few vacant spaces. Drivers have no reason to cruise because they can always find a vacant curb space near their destination, search time is zero, and cruising cars do not add to traffic congestion.

Only trial and error will reveal the right price for curb parking. Initially, if all the curb spaces are always occupied, a city might periodically raise the meter rate by 25-cent increments until occupancy at some hours is about 85 percent. If spaces are still full during other hours, the city could continue to nudge meter rates upward during those times until the occupancy is about 85 percent all day. We can call this balance between the varying demand for parking and the fixed supply of curb spaces the Goldilocks Principle of parking prices: the price is too high if too many spaces are vacant, and too low if no spaces are vacant. When only a few spaces are vacant, the price is just right, and everyone will see that curb parking is both well used and readily available.

Pricing curb parking to ensure a few vacancies does not mean that travel will become unaffordable. Drivers can use several strategies to economize on curb parking without reducing their travel. They can (1) drive at off-peak hours when curb parking is cheaper, (2) park where prices are lower and walk farther to their destinations, (3) park for a shorter time, (4) park off-street, (5) carpool and split the cost of parking, or (6) take public transit, ride a bike, or walk all the way to their destinations. Diverting some trips to carpools, public transit, cycling, and walking will reduce *vehicle* travel without reducing *human* travel, and all real travel is by people, not cars.

**FIGURE 2**  
Curb parking prices and cruising





## CRUISING IN NEW YORK

In 2006, surveyors interviewed drivers stopped at a traffic signal in the SoHo district of Manhattan, and 28 percent reported they were cruising for curbside parking. A similar study in Brooklyn found that 45 percent of drivers were cruising. The same results might be found on many other streets in New York because off-street parking is generally far more expensive than on-street parking. In midtown Manhattan, for example, the price for the first hour of off-street parking is often about \$20, while curbside parking is only \$1. Parking for an hour at the curb saves \$19, but drivers first have to cruise to find a space on the street.

The high price of off-street parking in midtown Manhattan doesn't mean the right price for curbside parking is also \$20 an hour. Private operators can charge a disproportionately high price for short-term parking only because the curbside spaces are always full. If the city charges the lowest price for curbside parking that will yield a few vacant spaces everywhere, the price of short-term parking off-street will fall to compete with the curbside rate.

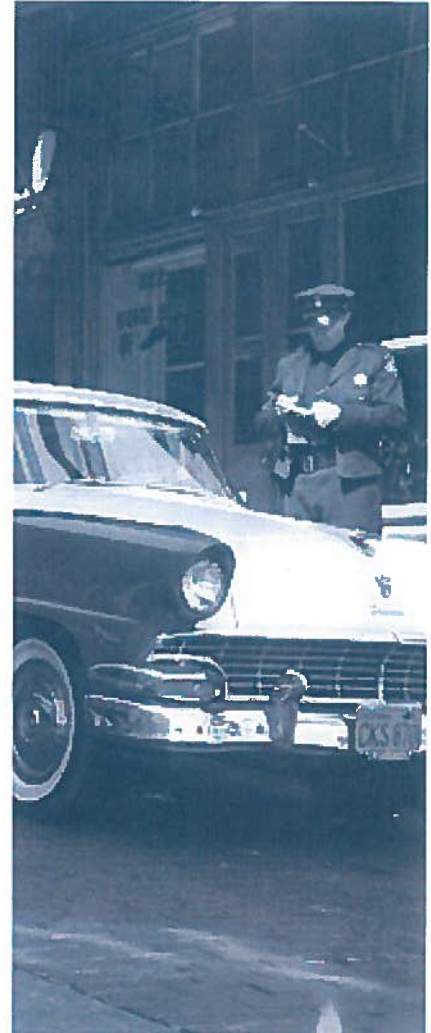
## LOCAL REVENUE RETURN

In addition to its transportation and environmental benefits, right-priced curbside parking can yield ample revenue. If a city returns some of this revenue to pay for added public services on the metered streets, residents and local merchants will be more likely to support charging the right price for curbside parking. The added funds can pay to clean and maintain the sidewalks, plant trees, improve lighting, remove graffiti, bury overhead utility wires, and provide other public improvements.

Consider the case of a Business Improvement District (BID) in an older area where curbside parking is free and customers complain about a parking shortage. Suppose the city installs meters and charges the lowest prices that will produce a few vacancies. Everyone who wants to shop in the district can park quickly, and the meter money pays to clean the sidewalks and provide security. These added public services make the business district a place where people want to be, rather than merely a place where anyone can park free after they cruise long enough to find a space. No one can say this policy will drive customers away if almost all the curbside spaces are always occupied.

When meter revenue goes into a city's general fund rather than going back to the BID or neighborhood that generated it, the city can be careless about collecting it. In downtown San Francisco where the curbside spaces always seem full, an audit in 2006 found that drivers paid for less than an hour a day per meter. A similar audit in Los Angeles in 2002 found that 96 percent of the vehicles parked at expired meters did not receive citations. If every BID received a share of the meter revenue it generated, business leaders would pay closer attention to enforcement. Consistent parking enforcement will create a culture of compliance with parking regulations.

Some cities have begun to charge performance-based prices for curbside parking and return the meter revenue to its source. In Redwood City, California, for example, the city sets meter rates to achieve an 85 percent occupancy rate for curbside parking downtown; the rates differ by location and time of day, depending on demand. The city returns the >





#### FURTHER READING

Richard Arnott and Eren Incl, "An Integrated Model of Downtown Parking and Traffic Congestion," *Journal of Urban Economics*, vol. 60, no. 3, 2006.

Douglas Kolozsvari and Donald Shoup, "Turning Small Change Into Big Changes," *Access*, no. 23, Fall 2003.  
<http://shoup.bol.ucla.edu/SmallChange.pdf>

Schaller Consulting, "Curbing Cars: Shopping, Parking and Pedestrian Space In SoHo," Report prepared for Transportation Alternatives, New York City, 2006.  
[http://transalt.org/campaigns/reclaiming/soho\\_curbing\\_cars.pdf](http://transalt.org/campaigns/reclaiming/soho_curbing_cars.pdf)

Donald Shoup. *The High Cost of Free Parking* (Chicago: Planners Press, 2005).

Donald Shoup, "Cruising for Parking," *Transport Policy*, vol. 13, no. 3, 2006.  
<http://shoup.bol.ucla.edu/Cruising.pdf>

revenue for added public services in the metered district, and downtown Redwood City will receive an extra \$1 million a year to pay for increased police protection and clean sidewalks. The merchants and property owners all supported the new policy when they learned the meter revenue would pay for added public services in the downtown business district, and the city council adopted it unanimously. Performance-based prices create a few curb vacancies so visitors can easily find a space, the added meter revenue pays to improve public services, and these public services create political support for the performance-based prices.

Most cities keep their meter rates constant throughout the day and let occupancy rates vary in response to demand. Instead, cities can charge different prices at different times of day to keep occupancy at about 85 percent. In Redwood City, the meter rates are higher in the central spaces because demand is higher there. The goal is to balance supply and demand everywhere, all the time.

Most cities also limit the length of stay at meters so long-term parkers won't monopolize the underpriced curb spaces. But after Redwood City adjusted meter rates to guarantee the availability of curb spaces, it removed the time limits at meters. This unlimited-time policy has turned out to be popular with some drivers, who can now park for as long as they are willing to pay. The demand-determined meter rates create turnover at convenient curb spaces, and most long-term parkers tend to choose cheaper spaces in off-street lots.

#### PARKING INCREMENT FINANCE

Most cities now put parking meter revenue into the city's general fund. How can a city return meter revenue to business districts without shortchanging the general fund? The city can keep all the *existing* meter revenue and return a share of the subsequent *increment* in meter revenue—above and beyond the current meter revenue—that arises from right-priced curb parking. We can call this arrangement *parking increment finance*. More meters, higher rates, longer hours of operation, and better enforcement will increase the parking revenue in business districts. The added public services paid for by increased parking revenue will promote business activity, and the increased demand for parking will further increase meter revenue.

#### GET THE PRICES RIGHT

Where curb parking is underpriced, drivers cruise for a curb space rather than pay to park off-street. Charging the right price for curb parking can eliminate this cruising and all its harmful side effects. Because city governments set the prices for curb parking, they choose whether drivers will cruise.

Because its curb parking is underpriced, Westwood Village generates almost a million miles of cruising every year. And because its curb parking is value-priced, Redwood City will generate \$1 million a year for added public services. Which is the better policy? If cities want to reduce congestion, clean the air, save energy, reduce greenhouse gas emissions, improve neighborhoods, and do all this quickly, they should charge the right price for curb parking and spend the resulting revenue to improve local public services. Getting the price of curb parking right will do a world of good. ♦





## PREFACE NOTES

1. Twenty-four reviews of the book are available at <http://its.ucla.edu/shoup/BookReviews.pdf>.

2. Schaller (2006, 1, 15) and *Transportation Alternatives* (2007, 1).

3. *Transportation Alternatives* (2008, 10). Another way to learn about cruising is to ask drivers how much time they spend hunting for parking spaces. A survey of 9,000 drivers in the United Kingdom in 2010 found that British drivers reported spending an average of 25 minutes per day, or 152 hours per year, cruising for parking (Macrae 2010). That adds up to 11 months for someone who drives over the course of 50 years. Londoners lost the most time cruising, an average of 182 hours a year, or 54 weeks in 50 years.

4. Also with a grant from the U.S. DOT, Los Angeles will establish a similar program, called ExpressPark (Groves 2010). Berkeley, California, is establishing a program of "dynamic parking pricing" in two neighborhoods. In Los Angeles, occupancy sensors send information on curb vacancies to an iPhone app, Parker, which provides a real-time map showing nearby city blocks with more than four, more than two, or less than two vacant curb spaces, as well as blocks with "rock star" parking—the closest blocks with the most open spaces. The app also shows information about meter time limits, meter prices, and whether meters take credit cards or coins.

5. The census did not include off-street residential parking spaces. The data are available at <http://sfpark.org/2010/04/05/parkingcensus>.

6. The ANSWER Coalition's website is [www.answercoalition.org/national/index.html](http://www.answercoalition.org/national/index.html).

7. See, for example, Raskin (2007).

8. Even rich people who complain about paying for parking may shift to public transit. Consider this instance in Beverly Hills: "Glen Rosten, 60, a retired real estate investor in Beverly Hills, took the bus to shop at Cartier on Rodeo Drive on Friday. 'You hate to get ripped off for parking, especially if you're going to spend the money you generally spend in Beverly Hills,' said Rosten after buying new sunglasses for about \$1,000. 'The parking wouldn't break me,' he said. 'It's just the principle. If I'm going to spend \$1,000 for sunglasses, I shouldn't have to pay for parking'" (Hennessy-Fisk and Abdollah 2007).

9. Barry (2010).

10. SFpark has an excellent website that describes the program, including a short video that shows how the program works: <http://sfpark.org>.

11. Pierce (2010). Multispace meters also offer a new twist: pay by license plate number. Drivers enter their license plate numbers at the pay station when paying for parking. They do not need to remember their space numbers or return to their cars to display receipts. Parking enforcement officers use vehicle-mounted license-plate-recognition cameras that communicate with the payment database to check whether drivers have paid or whether they have permits for residential parking districts.

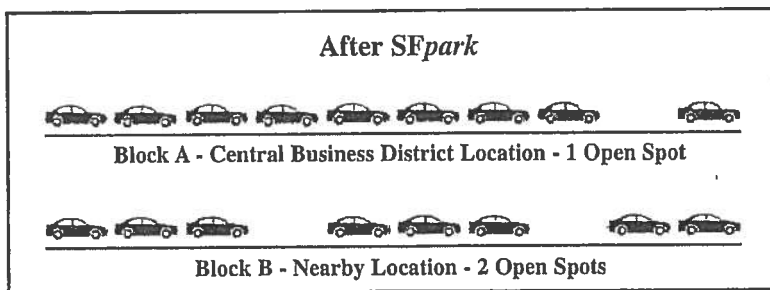
12. The payment system has two forms: (1) start-duration, in which the driver inserts the credit card to pay for a fixed time in advance and reinserts the card when leaving to receive a rebate for unused time, or (2) start-stop, in which the driver inserts the credit card to start paying and reinserts the card when leaving to stop paying. Payment by cell phone can have the same start-duration and start-stop options.

13. Salzman (2010, 27).

14. In a *Wall Street Journal* article about Redwood City's program, Conor Dougherty (2007) wrote, "In the past, Cheryl Angeles has had to jump up in the middle of a coloring treatment, foil in her hair and a black-plastic cape around her neck, to pop more

many poor people receive so much public benefit paid for by so few rich people. Even drivers will benefit because performance prices will help solve the two most difficult problems of owning a car in these cities: traffic congestion and parking shortages.

Market prices can manage the demand for parking spaces. If cities continue to offer free curb parking and require ample off-street parking, it won't be because performance prices don't work but because planners and politicians choose not to change course. There is a way, but we need the will. We can make great gifts to the future by reforming our misguided planning for free parking. In both sprawling rich cities and crowded poor cities, charging performance prices for curb parking, spending the revenue on local public services, and removing off-street parking requirements can do a world of good.



quarters in the meter. Twice the self-storage company regional manager got \$25 parking tickets when she didn't make it in time. Now that the time limits have been removed, she can pay once and return when the appointment is over."

15. Many other newspaper articles illustrate how off-street parking requirements affect the layout and restrict the use of buildings. Consider, for example, this report about the design of the \$25 million Holocaust Memorial Museum in Illinois: "The number of seats in the main lecture hall of the museum, originally set at 293, has been reduced to 270 to meet parking requirements" ("Holocaust Museum makes modifications to site plan," *Pioneer Press*, December 1, 2005). Consider also this report about a restaurant in Florida: "Town planning staffers have recommended approval of the site plan changes, but tagged several conditions onto their recommendations. Chief among them are the requirements to reduce the restaurant area by 1,500 square feet to match the parking available during the day" ("Guanabanas seeks Jupiter's permission to become full-fledged restaurant," *Jupiter Courier*, December 4, 2005).

16. Behdad (2006) explains the history of the ARO. For conversion of an office building to residential use under the ARO, Section 12.222-A, 26(h)(3) of the Los Angeles Municipal Code requires that "the number of parking spaces shall be the same as the number of parking spaces that existed on the site on June 3, 1999."

17. Manville (2010).

18. Manville (2010, 12).

19. Manville (2010, 17).

20. Manville (2010, 26).

21. Dreyfuss (1982).

22. The average size of an off-street parking space is assumed to be 330 square feet, including the access aisles needed for circulation in the parking lot or structure. San Jose requires 25 parking spaces per 1,000 square feet of dining area in a restaurant, so the parking lot is 8,250 square feet for every 1,000 square feet of dining area (25 spaces x 330 square feet).

23. See Table 20-190 in the San Jose Municipal Code.

24. The apartment buildings inserted on the periphery of the parking lot are copied from downtown Los Angeles.

25. Janis (1982, 9). Other definitions of groupthink emphasize conformity and uncritical acceptance of a perceived majority point of view; the lack of creativity or individual responsibility in making decisions; the search for consensus without critically testing, analyzing, and evaluating ideas; the desire to minimize conflict; and making decisions without weighing all the facts, especially those contradicting the majority opinion.

26. Janis (1982, 175).

27. A survey of land-use plans in 30 cities and counties in North Carolina found that only two included any discussion of off-street parking requirements. Rodriguez et al. (2004, 7) explain that minimum parking requirements "lie at the intersection between land use and transportation planning, and as such are rarely included explicitly in either type of plan."

28. Dickerson (2004).

29. The Centre for Science and Environment (2009) explains how parking reforms in New Delhi can reduce traffic congestion, air pollution, and energy consumption; save drivers' time and fuel; and improve both neighborhood businesses and the environment. Barter (2010) studied parking policies in 14 Asian cities and recommends many promising policy reforms. The Institute for Transportation and Development Policy has also recently published two excellent reports on parking reforms in the United States (Weinberger, Kaehny, and Rufo 2010) and in Europe (Kodransky and Hermann 2011).



