

Commission Briefing Paper 4H-03

Market-Based Parking Fees for Employees and Other Parking Pricing Strategies

Prepared by: Section 1909 Commission Staff

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Introduction

This paper is part of a series of briefing papers to be prepared for the National Surface Transportation Policy and Revenue Study Commission authorized in Section 1909 of SAFETEA-LU. The papers are intended to synthesize the state-of-the-practice consensus on the issues that are relevant to the Commission's charge outlined in Section 1909, and will serve as background material in developing the analyses to be presented in the final report of the Commission.

This paper presents information on the vehicle-travel and congestion-reducing effects, among others, of parking pricing strategies, including charging employees for parking or creating an opportunity cost for employees to accept parking through "parking cash-out." The paper also addresses charging market-rates for public curb space parking in order to eliminate circling in search of free spaces.

Background and Key Findings

Most parking in the U.S. is offered to users for free, but the cost of providing that parking is often far from free. Aligning the price of parking with the cost of providing it offers the potential for reducing congestion, managing the demand for parking, reducing vehicle travel, supporting public transit, and better managing roadway infrastructure.

- Based upon numerous studies, the cost of providing structured parking is on average about \$30,000 per space, affecting office space and housing affordability.
- The more parking that is provided (per acre or per square foot), the more automobile trips are created and the more auto ownership increases. Likewise, transit usage tends to decrease with the more parking availability, especially at suburban employment centers.
- Studies have shown that the overall effect of motorists not paying directly for parking is estimated to be a 20 percent to 30 percent increase in vehicle usage.
- Requiring parking costs to be paid directly, rather than being bundled with multi-unit housing costs, is estimated to reduce vehicle ownership by 17 percent.
- Parking cash-out, or providing employees the cash they save their employers if they forfeit an employer-provided parking benefit, has been shown to reduce commuter vehicle miles traveled by 12 percent at employment sites in Southern California.
- In the case of on-street parking, failing to charge to ensure some space availability may often lead policymakers to mandate off-street parking construction. The lack of available on-street parking can also encourage more "cruising" for parking, which studies have shown on average to contribute 30 percent to urban traffic congestion. There have been notable successes with charging for on-street parking in the U.S. for the purpose of

synchronizing supply and demand, including in Aspen, CO, Portland, OR's Lloyd District, and Redwood City, CA, among other places.

The Problem of Excess Parking and Its Impacts on Transportation Needs

Some transportation experts believe that building and requiring too much parking conflicts with smart growth objectives and can create communities that are overly reliant on single-occupancy vehicle travel and encumbered with the cost of providing the roadway infrastructure that this requires. The U.S. Environmental Protection Agency's January 2006 "Parking Spaces/Community Places: Finding the Balance through Smart Growth Solutions" describes this problem well: "The space and money devoted to unnecessary parking could be used to accommodate other homes, businesses, shopping, or recreational opportunities in the community. In some cases, rigid parking standards can discourage or even prevent development, because providing it is just too expensive—and developers are usually offered no alternative."

Except in a few rare cases, off-street parking is mandated by zoning codes, typically in quantities that exceed demand, even if provided at no direct charge to users. This parking can be very expensive (with the most expensive spaces costing about \$130,000 to build according to a December 6, 2006, *New York Times* article, or \$30,000 for the more typical structured parking space according to numerous studies) and this expense is normally bundled with the purchase and rental prices of housing, thereby hindering housing affordability. In perhaps the best study of the effect of parking on housing price, conducted in San Francisco ("Parking Requirements and Housing Affordability: A Case Study of San Francisco," authored by Wenyu Jia and Martin Wachs in 1999), a regression analysis that included all factors that could have an effect on San Francisco housing prices in 1996 was developed with the result of parking being shown to lead to a \$46,391 increase in the price of single-family dwellings and \$38,803 in condominium unit prices. Minimum parking requirements in San Francisco, and elsewhere, almost certainly suppress this price differential by artificially raising parking supply, meaning a larger differential would be expected if such requirements were eliminated. This study concluded that fully 24 percent more households in San Francisco could afford houses and 20 percent more could afford condominiums, if they did not include parking. These very high percentages would be even higher had they incorporated the fact that today in many cities, including in San Francisco, lenders will allow higher loan-to-income ratios in neighborhoods with fewer cars because households that do not own cars save money, and thus would further increase affordability in such circumstances.

A one-of-a-kind before-after study of an Oakland, CA requirement, beginning in 1961, for one parking space per apartment building dwelling unit showed an 18 percent rise in construction cost per dwelling unit and a reduction in housing density of 30 percent after the requirement was imposed. An Oakland developer interviewed about this result said that apartments with a higher rent structure were needed in order to offset higher costs. Clearly, minimum parking requirements are not without effect; they have a serious impact on what developers will do, rather than merely codifying what developers plan to do or have already done.

Reduced density in itself increases the need for and ownership of automobiles as it spreads destinations and creates an environment less hospitable to walking and other alternative transportation modes. A doubling of residential density, for example, reduces vehicle ownership by 32 percent to 40 percent (Holtzclaw, J., Clear, R., Dittmar, H., Goldstein, D., and Haas, P. "Location Efficiency: Neighborhood and Socio-Economic Characteristics Determine Auto

Ownership and Use—Studies in Chicago, Los Angeles and San Francisco.” *Transportation Planning and Technology*, vol. 25, no. 1, pp.1-27, 2002.). This suggests that neighborhoods encouraging new infill development may need proportionately less parking over time, but today’s typically rigid parking requirements would preclude such an evolution. It is even conceivable that, contrary to common perception, car ownership can decline without declining population or wealth. New York City, for example, experienced a nearly 5 percent decline in car ownership from 2.04 million vehicles to 1.94 million vehicles from 2000 to the beginning of 2004, while population continued to increase slightly (Orcutt, John and Slevin, Kate, ed. “Mobilizing the Region,” number 454, Tri-State Transportation Campaign, New York, NY, April 12, 2004).¹

Parking also affects vehicle ownership rates (and household vehicle use) based merely upon how it is paid for. One study shows a range in reduced vehicle ownership when parking costs are paid directly from 4 percent to 38 percent, with a 17 percent reduction resulting from a mid-point estimate of a \$75 monthly parking fee and a -0.7 price elasticity (Litman, Todd. “Parking Requirement Impacts on Housing Affordability,” Victoria Transport Policy Institute, Victoria, BC, 1999).

Researcher Todd Litman’s book, *Parking Management Best Practices* (2005), estimates that a 20 percent to 30 percent increase in vehicle travel and parking results from motorists not directly paying for what amounts to an average \$0.15 per mile driven cost for their own parking (representing about half of the total cost of what motorists do pay to drive). If consumers were charged directly for parking, they would have an opportunity to save such costs that they do not now have.

It is often said that parking is a necessity, and yet there is a market for housing with little or no parking to serve at least some households in all income groups, but especially low-income households. Since zoning codes in most cities have precluded the construction of new housing that serves households owning fewer than the average number of vehicles, there is certain to be pent up consumer demand for newly constructed housing without bundled parking and its requisite costs. This is especially the case with the advent of carsharing, which is widely available in many U.S. cities, and allows households ready and convenient automobile access without ownership. One rule of thumb commonly understood within the carsharing industry is that one carsharing vehicle—with one reserved parking space—can serve up to 20 households.

There is only one possible reason that off-street parking is required, and few would argue that it rises to the same level of importance as housing affordability: to minimize competition resulting from new developments for generally free public on-street parking spaces. The obvious alternative, discussed in depth in a subsequent section of this paper, is to manage public on-street parking through pricing, thus eliminating public spillover concerns resulting from whatever amount of off-street parking is or is not provided with new developments. While private implications would remain (i.e., the marketability of housing with different quantities of off-street parking provided and with different resulting prices), such implications would be sorted in the marketplace along with other housing-related consumer preferences.

¹ In London, England, eight boroughs have adopted the “Parking and Transit Accessibility Level (PTAL), an index relating public transit service levels to parking *maximums*. A new development is granted higher development density (either more units or greater square footage per unit) in exchange for rules limiting parking based on the PTAL. The developer negotiates with Transport for London to provide additional transit service so that personal and business mobility in and around the new development is at least equal to what it was prior to the development.

More significant than housing costs from the standpoint of those concerned about providing transportation infrastructure are the transportation costs associated with parking requirements. Clearly, given the data presented in this paper, roadway expansion needs, and related costs, would be substantially reduced if parking requirements and subsidies were to be curtailed.

Employer-Paid Parking and Parking Cash-Out

Parking cash-out allows employers to offer their employees the option of receiving taxable cash in lieu of a parking subsidy, providing employees an incentive to find alternatives to drive-alone peak-period commuting. In most cases, employers offer their employees the cash value of a monthly parking space in lieu of the space itself. Employees may deny the cash and keep the tax-free parking subsidy or accept tax-free transit or vanpooling benefits (up to \$100 per month) in its place—with any balance in taxable cash. Both employers and employees ultimately benefit from implementing parking cash-out, since employees' income rises using revenues from employers' reduced business expenses (from not having to subsidize as much parking), helping employers recruit and retain good employees. The potential congestion reduction benefits can be quite high. Among 1,700 employees in eight case study firms in Southern California, parking cash-out implementation led to an 11 percent reduction in commute trips and a 12 percent reduction in commute vehicle miles traveled, according to UCLA Professor Donald Shoup, a renowned parking expert and author of the 700-page treatise, *The High Cost of Free Parking*. Studies of parking cash-out in Seattle, Washington, and the Twin Cities area in Minnesota have yielded very similar results.

Parking cash-out works best for employers that, for at least some of their parking spaces, lease their spaces separately from their offices and for those that can: (1) let go of at least some unused parking without penalty from the lessor; (2) rent that parking to an outside party for an equal or greater price; or (3) convert it into revenue producing space. Since the average lease length is only seven years, most employers eventually have an opportunity to save money by shedding parking. The employer takes any revenue, or simply leases fewer spaces, and transfers the money directly to employees who do not use the parking subsidy. This can save the employer money by helping to avoid expensive new parking construction. With a four-person carpool, three employees could cash out their spaces while maintaining a free ride to work. If each space the employer provided was worth \$80 per month, the four carpoolers would each get an extra \$60 a month in taxable income ($\$80 \times 3 = \240 ; $\$240 / 4 = \60). Then, they would drive to work together and park in the fourth space at no additional cost.

Parking cash-out is mandated by law for some large California employers whose circumstances allow them to recover the cost of offering the benefit by shedding parking. Some states provide tax credits and other incentives to employers that offer transportation commute benefits, including parking cash-out. Maryland provides the most generous incentives of any state, offering employers a 50 percent tax credit (extended also to non-profits), up to \$30 per employee per month, for the cost of these benefits, including for a parking cash-out payment.

Pricing Curb Space to Meet Performance Objectives and to Stop Cruising

Dr. Shoup has summarized the results of 16 studies of cruising in 11 cities in *The High Cost of Free Parking*. The share of city traffic cruising in these studies ranged from 8 percent to 74

percent, and averaged 30 percent, with an average search time of 3.5 minutes to 13.9 minutes, or an “average of the averages” of 8.1 minutes. If cruising for parking could somehow be eliminated, its congestion-reducing benefits would clearly be very substantial and it would reduce the need to provide additional costly roadway infrastructure (where it even could be provided) to serve travel needs.

The obvious solution is to price parking to achieve a particular occupancy standard so that at least a few spaces will always be readily available. Dr. Shoup has regularly called for pricing at a level that yields 85 percent occupancy, leaving about one in seven parking spaces per block available for the taking. Regardless of the benefits of this strategy, though, metered parking is often thought of as ugly, unfriendly to pedestrians (blocking sidewalks), inconvenient (requiring coins in hand), time consuming (to re-feed meters), and prone to failure. Relatively new technologies can help overcome these shortcomings. Mid-block parking ticket dispensing machines, designed to accept credit cards and sometimes dollar bills, are increasingly common. Drivers purchase tickets and place them inside their vehicle windows to avoid parking fines, so long as they return before ticket expiration. More sophisticated systems allow drivers to phone in additional payments, with this information immediately conveyed to a centralized system that links to the electronic enforcement apparatus used by the meter maids.

There have been some notable successes in the U.S. with metered on-street parking. Aspen, CO began to price about 1,200 previously un-priced parking spaces in January 1995 and restricted adjacent neighborhood parking spaces to resident permit holders. This was done concurrently with doubling bus service, increasing high occupancy vehicle lane miles, and providing convenient mid-block ticket dispensing machines and in-vehicle clock meters. To win public support for the parking pricing, a binding referendum was promised to end the new pricing within a few months after it was scheduled to begin. The referendum was held in April 1995 and lost by a three to one margin, and so the parking pricing continues to this day. The Lloyd District, near downtown Portland, OR, implemented a new transportation management program that included on-street parking pricing (up to \$0.75 per hour) in September 1997. Not all parking, especially employer provided, became paid parking, but drive-alone trips to work nevertheless still declined from a 63 percent to a 56 percent mode share. In New York City, pricing is successfully being used to encourage freight trucks to load and unload quickly; encouraging more efficient use of very limited curbside space. The first hour costs only \$1, but rises to \$2 and \$3 for each of the next two hours, respectively. Finally, in the most far-reaching effort in the U.S., Redwood City, CA, recently adopted an ordinance instructing city staff to regularly adjust curb-space meter charges to achieve an 85 percent occupancy rate.

Advanced Technology Applications

In addition to imposing appropriate charges for car parking so that demand will comport with supply, providing drivers real-time information about parking availability and price is required to bring about the maximum public benefits and to best serve drivers in search of parking. This is especially the case in cities that have a better supply of existing off-street parking spaces than curb spaces, but where the location, price, and availability of off-street parking spaces are not readily known. A report prepared for the Federal Highway Administration by SAIC in August 2006, “Taking the Stress Out of Parking: Advanced Parking Management Systems—A Cross-Cutting Study,” showed some impressive results. A system deployed in downtown, St. Paul,

MN, for example, reduced delays at one particularly bad intersection by 10 percent and increased traffic volume through that same intersection by 15 percent, while substantially increasing the occupancy rates of participating garages. Advance parking management systems often entail real-time space monitoring, regularly-updated electronic signage and other communications enhancements, and cost from \$250 to \$800 per space to implement, which is substantially less than the cost of building a new space.

Conclusions

Parking is too valuable, and too important to a community, to merely give away, or to require, without sufficient thought to the cost of providing it. Parking pricing, supported by the deployment of advanced parking management technologies, is an essential strategy for managing travel demand, advancing smart growth and development policies, and more importantly, from the standpoint of infrastructure financing, to reducing traffic congestion without new public investments.