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The Practice of Parking Requirements

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Here are reader questions answered by Donald Shoup, FAICP, author of the January 2006 *Zoning Practice* article "The Practice of Parking Requirements."

Question from Henry Jackson, AICP, Planning Manager, LFUCG Planning Division, Lexington, Kentucky:

At the risk of vastly over-simplifying the issue, is there any sort of table of recommended "urban" off-street parking rates versus traditional suburban rates?

Answer from author Donald Shoup:

No, there is no table of recommended off-street parking requirements for urban sites. Most cities base their parking requirements on surveys of the peak parking demand observed at a few suburban sites that offer free parking and lack public transit. This policy is inappropriate even in suburban areas, and it is absurd in urban areas.

Transportation engineers define parking demand as the peak parking occupancy observed at a site, without taking into account the price of parking. Cities then require new land uses to supply at least enough parking spaces to satisfy this peak demand, without considering how much these spaces cost. The maximum observed parking demand thus becomes the minimum required parking supply. Planning for parking is planning without prices.

Planning for parking is a circular process, and it starts from the premise that curb parking is free. If developers do not supply enough spaces to satisfy the demand for free parking at a site, some cars drawn to the site will park at the curb, and neighbors will complain about spillover. To prevent this spillover, cities require developers to supply at least enough off-street spaces to satisfy the peak demand for free parking at every site. Ubiquitous free parking then inflates the demand for vehicle travel, and cities must limit urban density so that new development won't generate more vehicle trips than nearby roads can carry. This lower density spreads activities farther apart, and further increases vehicle travel and parking demand. Planners then use surveys of the parking demand at existing sites to estimate how many parking spaces to require for new sites. This circular logic explains why planning for transportation and land use has gone subtly, incrementally wrong. Planning for parking in the U.S. is really planning for *free* parking.

Chapters 2 and 3 in *The High Cost of Free Parking* discuss how common errors in setting parking requirements inflate the parking supply. And here is a link to a short article, "Roughly Right vs. Precisely Wrong," that criticizes the data used to set parking requirements: www.uctc.net/access/access20.pdf.

Question from Jeff Campbell:

Initially, I just wanted to comment that I truly enjoyed your article. It was extremely informative. I have a question regarding parking for neighborhood churches. You briefly address the issue in a caption one of the pictures in the article. You noted that since more parishioners are driving to work, more communities are requiring off-street parking for churches and parking lots that replaced buildings once vital to the urban fabric.

My question relates to similar issues. Is it typical for municipalities to require a church to have parking requirements for every use that the building may serve. For example, if a church building serves as a sanctuary, a banquet center, offices, Sunday school, are parking spaces required for each of these uses. Please keep in mind that none of these uses would be concurrent. Obviously, the congregation would not have church service and Sunday school at the same time. The pastor would not be in his office during service. If the municipality were to require parking spaces for each use, then a small church may be required to have 95 parking spaces for 150 parishioners. This does not make a lot of sense.

As you stated in your article, this sort of planning to meet the peak demand is unnecessary. A parking provision for all these non-concurrent uses seems ludicrous. In your experience, is this sort of ordinance or requirement typical, or does this type or requirement represent a rogue ordinance? The alternative, more sensible, parking interpretation for a church with these non-concurrent uses is to require one parking space for three church seats, would it not?

Answer from author Donald Shoup:

The common planning practice of requiring enough spaces to meet the peak demand for free parking is particularly inappropriate at land uses with short, sharp peaks in demand. The peak parking occupancy at a church may last for only a few hours each week. Using this peak demand to set a minimum parking requirement leaves many parking spaces empty almost all the time. The full cost of the parking lot is incurred to serve a few hours each week, so the cost per hour the parking spaces are occupied can be enormous. Religious leaders advise, "Do not build the church for Easter Sunday," but planners ignore this advice for the church parking requirements.

Because the required parking is so expensive and is used so infrequently, churches often try to provide fewer spaces than the zoning demands. Where the parking requirement for a church is based on the number of fixed seats or the linear feet of permanent seating, for example, churches can evade the limit by using folding chairs instead of seats attached to the floor. And because some churches don't want to pay for parking spaces they use only on Sundays, they take advantage of the folding-chair loophole, as the *New York Times* explains:

There is a stretch of Flushing, Queens, where Christians, Buddhists, Jews, Muslims and Hindus worship within blocks of one another without a hint of sectarian strife. When it comes to parking spaces, though, it is all-out war. Every Sunday, a flood of cars descends on the neighborhood, thanks in large part to its dozens of newly built Korean churches. City law requires houses of worship to provide parking spaces for their parishioners if they have seating fixed to the floor, but many of the churches use folding chairs and are thus not covered by that rule. For years, residents have complained bitterly about that situation — and the ungodly noise, the crowds and the cars that often block their driveways.

Parking requirements can also prevent a church from occupying a site. The *San Diego Union-Tribune* reported on a typical dispute about church parking. The Community of Praise Baptist Church rented an aging storefront for their services in a part of National City, California, that is zoned for churches. Six months after occupying the vacated furniture store with no off-street parking, the church found that it had neglected to check the city's parking requirements. In defense of the church, a member of the City Council who drove past the church on Sundays and saw available parking argued that the church offered more customers to local businesses and placed more people in the high-crime area during times when the area was a ghost town. "The Lord placed us here," Pastor E. M. Williams said. Nevertheless, the City Planning Commission voted 4-3 to deny an occupancy permit because there weren't enough parking spaces.

Parking requirements can freeze older buildings in their existing uses, or even prevent any feasible use at all. If a building doesn't have the parking spaces required for a new use, zoning won't allow the new use even if all other planning requirements are met. Parking requirements have become a moral imperative, and in planning disputes they are invoked in nonnegotiable terms, like sacred cows. All it takes to prohibit a new use for an older building is to say "It doesn't have all the required parking." People who oppose a project for any reason can cite the lack of required parking as the reason for objecting to it, as though parking were the real issue. When a proposed new restaurant, for example, requests a variance to open without the required number of off-street parking spaces, protests often come from existing restaurants that want to stifle competition, even if the site is in a derelict part of town where everyone else would like to see a new restaurant. The frequent references to parking requirements in planning disputes make it appear that everyone always insists on more parking, including even environmentalists who are no friends of the car.

Consider the dispute in 2002 over a 22-acre, \$42-million megachurch proposed on the south side of Chicago. Naturally, anything that big raises land-use planning questions, and the opponents usually invoke parking requirements as a reason to reject a development or scale it back. Referring to the issue of whether 2,000 parking spaces would be enough for the new Salem Baptist church, the Reverend James Meeks said, "I don't care if Jesus is a member of your church, the City Council zoning board will not pass a project that doesn't have the proper amount of parking."

Chapter 17 in *The High Cost of Free Parking* recommends a solution to the dilemma of church parking: cities should allow nonresidents to pay for curb parking in a neighborhood, and they should set with the prices for nonresident parking to ensure that demand does not exceed the supply of spaces. This arrangement is called a "parking benefit district." Parking *benefit* districts are similar to parking *permit* districts because residents can park free on the streets in front of their homes. The benefit districts differ from conventional permit districts in two ways:

1. Nonresidents can to park on the streets in a benefit district if they pay the fair market price.
2. The city earmarks the resulting revenue to finance added public services in the district.

The price for nonresident parking in a benefit district can be set high enough to ensure vacancies for both

residents (who park free) and nonresidents (who pay to park). The new revenue can finance additional public services in the neighborhood, beyond those provided everywhere in the city. The city can clean the streets more often, fill potholes, repair the sidewalks, plant trees, remove graffiti, preserve historic buildings, or put utility wires underground in the neighborhoods where the benefit districts generate revenue. Seen from the residents' side of the bargain, charging nonresidents for curb parking resembles Monty Python's plan to solve Britain's economic problems by taxing all foreigners living abroad.

To answer your question, then, I do not think cities should require any off-street parking for churches. Each congregation can make its own decisions about parking, with or without divine guidance. If the neighborhoods surrounding churches become parking benefit districts, higher prices for nonresident parking on Sundays can manage demand and settle the strife. We need a new Golden Rule for the price of parking: *Charge others what they would charge you.*

Question from Benjamin S. Lyman, Community Development Department, City and Borough of Juneau, Alaska:

In our downtown core, which is also our historic district, we have adopted a parking overlay district where no off-street parking is required when existing structures are re-used. This has a great effect on allowing developers to re-use historic buildings without resulting in more off-street parking. In this overlay district, however, we do require 40 percent of the standard off-street parking requirement for new construction.

Since off-street parking is not desirable in terms of retaining the historic character of the district or in terms of promoting walkability, we are interested in simply abolishing all parking requirements in this area. Our consultant for re-writing our historic district design standards brought up a concern regarding this proposal--if we abolish all parking requirements in the historic district, developers could tear down existing one- and two-story historic buildings and construct new three- or four-story buildings (we have a fairly low height restriction that prevents taller buildings), as they would not have to provide any parking for the new structure. Do you have any suggestions as to how we can protect the existing historic structures and still promote development of existing empty lots while not requiring off-street parking that we don't want in the area anyway?

Our Planning Commission is interested in using a Local Improvement District to fund construction of centralized parking for the district in an equitable way, but the business community strongly opposes this. We have also discussed establishing a Business Improvement District, as this would likely be an easier sell to the business community, but it seems that a BID works better for maintenance of structures than it does for construction.

Last but not least, a fee-in-lieu of parking program has been in the works for well over 10 years, but has never been adopted. I'm working on reviving the effort to adopt it, but the same question regarding protection of historic buildings applies to this effort (our existing parking overlay districts are larger than the historic district, and include many historic buildings outside the historic district). So although we've got a lot of support for changing our parking requirements & management in the downtown area, the crux of many of the discussions comes back to historic preservation, and as far as I can tell, your discussion of historic preservation does not apply, due to our existing parking overlay districts.

Any ideas?

Thanks for a great book, and all your work on rectifying the horrible situations that have resulted from parking requirements.

Answer from author Donald Shoup:

Thanks for your questions. I will first discuss how parking requirements affect redevelopment in historic districts, and then the issue of in-lieu fees in historic districts.

Do Off-Street Parking Requirements Deter Redevelopment?

Your consultant makes an interesting argument about using off-street parking requirements to deter the redevelopment of historic sites. Off-street parking requirements *do* deter redevelopment—even in blighted areas the city wants to redevelop. Cities sometimes deliberately use high parking requirements as an indirect way to discourage specific land uses. If residents oppose fast food restaurants, for example, a higher parking requirement can make it more difficult to build them. But this strategy creates even more problems because the fast food

restaurants that *do* get built have supersize parking lots that are asphalt eyesores, and residents dislike them even more. The right way to discourage an undesired land use is to regulate the offending aspects of the land use, not simply to require more parking spaces that make that land use even more undesirable.

Consider the broader implications of your consultant's recommendation to use off-street parking requirements to deter redevelopment in your historic district. Off-street parking requirements retard the redevelopment of *all* property, not just historic property. In this way, off-street parking requirements reduce the supply and increase the price of housing. If even a reduced parking requirement of 40 percent of the standard off-street parking requirement can prevent redevelopment, consider how your city's standard parking requirement must prevent redevelopment everywhere, even in neighborhoods where you want to encourage higher density.

Planners long ago noticed that parking requirements restrict housing construction. In 1935 Los Angeles began to require one off-street parking space per dwelling unit for multifamily housing, and a 1948 article in the *Journal of the American Institute of Planners* noted a surprising result: "In many cases, the number of garage spaces actually controlled the number of dwelling units which could be accommodated on a lot."

Planners have also long known that restricting the supply of housing, parking requirements inevitably increase rents. In 1961, Oakland began to require one space per dwelling unit for apartment buildings. Data collected in a study of 45 apartment projects developed in the four years before Oakland required parking, and 19 projects developed in the two years afterward found that the construction cost per apartment increased by 18 percent, and the number of apartments on a typical lot fell by 30 percent. The study attributed these effects to the parking requirements.

The zoning change made prior densities impossible without underground garages. This increased the cost of development if the same density were to be achieved before and after the zoning change. ... The developers interviewed stated that the increased pre-development land costs encouraged development of an apartment with a higher rent structure.

Developers said that *adding* an apartment required another parking space, but *enlarging* an apartment did not; they therefore built fewer but larger apartments. Reluctant to build expensive underground garages, developers reduced the number of apartments and devoted more land to surface parking.

Chapter 5 in *The High Cost of Free Parking* assembles much more evidence showing that off-street parking requirements reduce the supply and increase the cost of housing. In particular, requiring a fixed number of parking spaces per dwelling unit disproportionately increases the cost of small apartments, and makes them uneconomical. This policy clearly discourages small apartments, but many cities require the same number of parking spaces regardless of dwelling-unit size. A survey in California's Silicon Valley found that half the cities have the same parking requirement for any size unit, whether a small studio or a five-bedroom penthouse.

I do not recommend using off-street parking requirements as the best way to deter redevelopment in historic areas. If you do not want more parking in your historic district, you should not require it. Some cities offer tax abatements to owners who donate easements on historic properties (the Mills Act in California is an example of legislation for this purpose).

In-Lieu Fees in Historic Districts

If you do keep the parking requirements for new development in your historic district, but do not want on-site parking at each new development, you can require developers to pay in-lieu fees for all the required parking, rather than provide the parking itself. Chapter 9 in *The High Cost of Free Parking* explains how the policy has worked well in Carmel, California. You can use the in-lieu fees to build public parking structures in appropriate locations, or to improve sidewalks and public transit.

Question from Paul Isaks, Transport Specialist, ACT Planning and Land Authority, Canberra, Australia:

I have a question relating to Donald Shoup's February 2006 Q&A response. The 85 percent utilization rate intrigues me. What is the basis for this figure? Why not 90 percent or some other figure? Is it possible to achieve 85 percent utilization for all parking areas in a district, or is this a target figure better applied to the total of all parking spaces in all carparks in a commercial area or center? (I haven't read The High Cost of Free Parking yet, but I have it on order and hope that my copy will be here in the next week or two.) I'd be interested to hear.

Answer from author Donald Shoup:

The 85 percent occupancy rate is only an approximate goal for curb parking, but any sensible goal would not be far different from 85 percent. What about 90 percent, for example, which would still leave a few vacant spaces? This would increase the number of cars parked at the curb by only 6 percent, but would reduce the number of vacant spaces by a third. So you don't get many more cars parked, but you significantly reduce the ease of finding a vacant space. Drivers would have spend more time cruising to find a vacant space, and they would also have to spend more time walking from their cars to their destinations and back. Perhaps one empty space on each side of every block is the most sensible goal. If there are an average of eight curb spaces on each block, seven should be occupied and one empty. Given the stochastic nature of arrivals and departures, you will need to trade off some time with two or more vacancies so that you have less time with no vacancies. Basically, I would say that it is hard to make a case for any curb parking occupancy goal other than about 85 or 90 percent.

I would argue that cities should try to achieve this occupancy goal on every block. For example, if all curb spaces are occupied in one part of downtown but half of the curb spaces are empty in another part of downtown, the meter rates should be raised where all spaces are full and reduced where half of the spaces are empty.

Cities can rely on prices to maintain a few curb vacancies and to create turnover. Prices cannot constantly fluctuate to maintain an occupancy rate of exactly 85 percent, of course, but they can vary sufficiently to avoid chronic overcrowding or underuse. If about 15 percent of spaces are vacant, the price is right.

A variable price for curb parking may seem impractical at first, but the price of metered curb parking already varies between daytime (when the meters operate) and nighttime (when parking is free). Meters are usually free at night even though the curb spaces may be crowded. Free parking at night probably stems from the idea that parking meters are intended to create turnover. It does not make sense to have one-hour parking meters enforced at 3 a.m., but it does make sense to charge for parking if it is scarce. When spaces are allocated by prices rather than time limits, the price may be lower at night, but need not be zero.

Other transportation prices also vary according to supply and demand. The price of gasoline, for example, fluctuates in response to the balance between supply and demand, and it is hard to imagine gasoline being sold any other way. Indeed, when gasoline prices were controlled for a brief period in the 1970s, the results were disastrous. The long lines of cars at filling stations dramatically showed the disadvantages of not letting prices fluctuate to balance supply and demand. Cars searching for underpriced curb parking are mixed in with those actually going somewhere, but they are comparable to cars waiting in line for underpriced gasoline.

The price of most commercial parking varies by time of day and day of the week. Parking lot operators instinctively raise prices when their occupancy rates regularly approach 100 percent, and some operators claim they do not own a "full" sign because they never need one. To set the prices for on-street parking, cities can use the traditional four-step process that commercial operators use to set prices for off-street parking:

1. Look to see if your lot is full or empty.
2. Check your competition.
3. If you are full and they are empty, raise your price.
4. If you are empty and they are full, lower your price.

Question from Brian Gibson, Transportation Planner, Fargo-Moorhead Council of Governments, Fargo, North Dakota:

I understand your basic premise — market driven parking will help capture the true cost of parking (and automobiles in a general sense) and more efficiently regulate the need for parking.

But, in Fargo-Moorhead our planners are considering not just minimum parking requirements, but maximum parking requirements also. They are tired of retailers demanding acres and acres of free parking when the planners have no tools to limit their request to a "reasonable" size. By adopting market driven parking requirements, I can foresee that Big Box Inc. will gladly pay for the convenience of oversized parking lots because they have the revenue to do so, but Mom & Pop across town won't or can't and suddenly there is a question of equality. Mom & Pop will cry that they can't compete with Big Box Inc. unless they have free parking too.

I can also see how a parking benefit district would work in a CBD with lots of density and shared parking already. But out in suburbia it seems like it would work to keep the large, wealthy retailers entrenched at the top of the pyramid, and would even contribute to pulling more jobs out of the CBD as successful downtown businesses move to the urban fringe in search of the free "convenient" parking that their customers "deserve". It would even become a marketing tool for them.

How do you reconcile the questions of market justice?

What part if any do you see maximum parking restrictions playing in the current "free parking" environment?

What part if any do you see maximum parking restrictions playing in the "market driven" environment?

Answer from author Donald Shoup:

Most cities have minimum parking requirements, not maximum parking limits. Despite their ambivalence on whether to require or restrict parking, planners always seem to regulate it. This behavior recalls a Soviet maxim: "What is not required must be prohibited." American cities put a floor under the parking supply to satisfy the peak demand for free parking, and then cap development density to limit vehicle trips. European cities, in contrast, often cap the number of parking spaces to avoid congesting the roads, and combine this strategy with a floor on allowed development density to encourage walking, cycling, and public transport. That is, Americans require parking and limit density, while Europeans require density and limit parking. The American policy looks exceptionally foolish when combined with complaints about traffic congestion and calls for smart growth.

Maximums versus Minimums

There is probably as little analysis to justify specific parking caps as there is to justify the specific parking minimums, and the parking caps may, by default, become the parking minimums for many developments. Nevertheless, parking caps make far more sense than minimum parking requirements as a planning policy. A few American cities—Boston, New York, and San Francisco—do limit parking in their downtowns, but even these cities require parking everywhere else. If parking caps *reduce* vehicle trips, parking requirements surely *increase* them. If we want to reduce traffic congestion, energy consumption, and air pollution, the simplest and most productive single reform of American zoning would be to declare that all the existing off-street parking requirements are maximums rather than minimums, without changing any of the numbers, as the London Borough of Kensington and Chelsea did in 1995. From that point on we could let the market take care of parking, and let city planners take care of the many vital issues that really demand their attention.

Minimum parking requirements, with no maximum, imply that cities care only about having enough parking spaces, and that there can never be *too many*. But as Jane Jacobs (1962) says,

The main purpose of downtown streets is transaction, and this function can be swamped by the torrent of machine circulation. The more downtown is broken up and interspersed with parking lots and garages, the duller and deader it becomes in appearance, and there is nothing more repellent than a dead downtown. ... In a panicky effort to combat the suburbs on their own terms, something downtown cannot do, we are sacrificing the fundamental strengths of downtown — its variety and choice, its bustle, its interest, its compactness, its compelling message that this is not a way-station, but the very intricate center of things. The only reason people come downtown or set up business downtown at all is because downtown packs so much into such a compact area.

Because downtown packs so much into a small area, people are willing to visit it even if they have to pay for parking and then walk to get there. A successful downtown must be accessible, which means traffic and parking, but too much parking enfeebles a downtown. Fred Kent, president of Partners for Public Spaces, describes the difference in parking "requirements" for a great place and a dull place:

Parking is important where the place isn't important. In a place like Faneuil Hall in Boston it's amazing how far people are willing to walk. In a dull place, you want a parking space right in front of where you're going.

Kent also says minimum parking requirements "assure that a place will be uninteresting." Or as Jane Holtz Kay put it, "The more parking, the less place. The more place, the less parking." Where there are plenty of off-street parking spaces, "the pedestrian is now as likely to be ambushed by a car sliding from some underground garage as visually assaulted by gap-toothed parking lots and eerie garage facades." Similarly, urban designer Dom Nozzi (2003) says,

When we hear the claim that there is "not enough parking downtown," what we are really hearing is that there is "not enough *free* parking *a few feet* from where I want to go." To demand such an impossible supply of parking is to ask a downtown to compete with outlying suburbs *on suburban*

terms, that is, asking for the impossible.

Off-street parking requirements have different meanings for new buildings and for existing buildings. *For a new building*, parking requirements determine the number of spaces that a developer must *supply*. *For an existing building*, parking requirements limit the uses that a city will *allow*. Given the haphazard methods planners use to set parking requirements, they make many important land-use decisions with no rational basis.

Equity for Mom & Pop

In regard to the question of whether maximum parking limits will harm Mom & Pop stores, I think minimum parking requirements do far more harm. Do Mom & Pop stores really have so much money that they want to build new quarters on greenfield sites and provide lots of free parking? In reality, minimum parking requirements often make it hard for Mom & Pop stores to reuse older buildings. For example, if a building has 2 parking spaces per 1,000 square feet of floor area, most zoning codes will not allow it to be converted to a new use with a requirement of more than 2 spaces per 1,000 square feet unless more parking spaces are added or a variance is obtained. Adding new spaces to an older building is usually out of the question because there is simply no room. Older buildings are thus limited to uses for which the existing parking supply meets the parking requirements. As one consultant wrote to me, "There are heartbreaking stories of people who are trying to make use of vacant buildings but are forbidden to do so by onerous parking requirements."

I recommend that cities should charge market prices for curbside parking and eliminate off-street parking requirements. To judge whether charging for curbside parking is fair, we can compare it with the current alternative-off-street parking requirements that increase the prices of everything else. With off-street parking requirements, even households without cars pay for parking indirectly in the form of higher prices for everything they buy. In contrast, when curbside spaces are priced at market rates, only parkers must absorb the cost. Charging for curbside parking thus seems fairer than imposing off-street parking requirements, especially when for those who are too poor to own a car. The 2001 National Household Travel Survey found that households with incomes less than \$25,000 a year are nine times more likely not to own a car than households with incomes greater than \$25,000 a year. Similarly, households living in a rented residence are six times more likely than homeowners not to own a car. Because cars are unequally distributed in the population, charging drivers for the curbside parking they use is fairer than forcing everyone to pay for off-street parking whether they use it or not. Parking requirements take money from the poor to subsidize the better off: drivers park without paying, while nondrivers pay without parking.

I am *not* saying we should pay more for parking. Off-street parking requirements force everyone, including the carless, to pay too much for parking indirectly. I *am* saying we should pay for parking directly. Cities can *individualize* — decollectivize — the cost of parking, so that we pay less for parking if we use less. While we all want to park free, we should not elevate this wish into a social judgment that charging for curbside parking is unfair, especially when we compare it with the alternative-off-street parking requirements that impose a heavy burden even on those with the least ability to pay. Almost everyone will be better off by paying only for the parking they use, and *not* paying the high costs that off-street parking requirements impose on everyone.

I have put a short summary of my recommendations for curbside parking prices at this link:

http://shoup.bol.ucla.edu/Parking_on_a_Great_Street.pdf

Question from Kaizer Rangwala, City of Farmers Branch Planning Department, Farmers Branch, Texas:

Our first ring suburban city will get light rail services in 2010. Our vision for the transit area is a compact, mixed-use, pedestrian-friendly town center.

The light rail transit agency owns a functional park and ride tract near the future station platform site. While the progressive transit agency would be interested in a public-private partnership for a mixed-use project with structured parking on their tract they would still like to retain a minimum number of parking spaces for their riders.

Is there a strong link between free parking at transit stops and increased transit ridership.

Answer from author Donald Shoup:

Providing free parking at rail stations greatly increases the cost of transit oriented developments because parking

spaces are more expensive in denser areas. A study by the California Department of Transportation points out the higher burden of parking requirements in TODs:

Increased densities in TODs, coupled with the goal of improving accessibility for pedestrians to transit stations, often means building structured parking garages. Parking spaces in structures can cost from \$10,000 to \$30,000 each, compared to about \$5,000 per space for surface parking ... These increased costs can negatively affect the financial feasibility of projects, even if they are otherwise profitable. Hence, if the design and location of TODs enable a reduction in the number of parking spaces needed, the cost savings can be significant.

If cities do not reduce the number of spaces required in a TOD by more than the increased cost per space in structures, the cost of the required parking is higher in a TOD than in a conventional development. Suppose, for example, a city requires 4 spaces per 1,000 square feet of floor area in a conventional development, and the developer's cost of surface parking is \$5,000 per space; the cost of the required parking is thus \$20 per square foot of floor area. Suppose the city requires only 2 spaces per 1,000 square feet in a TOD, and the developer's cost of structured parking is \$20,000 per space; the cost of the parking required for a TOD is thus \$40 per square foot of floor area, or twice the cost in a conventional development.

Rather than giving free parking to transit riders, I think transit agencies should consider developing their parking lots and requiring all developments to offer "Eco Passes" to their tenants. Several transit agencies—in Dallas, Denver, Salt Lake, and San Jose, for example—offer employers the option to buy Eco Passes that give all their employees the right to ride free on all local transit lines. This arrangement reduces to zero the employees' marginal cost of riding public transit, and therefore makes transit (in terms of perceived money cost) similar to driving and parking free. Because many commuters won't ride transit even when it is free, the transit agencies' cost per Eco Pass holder is low, and the agencies can therefore sell the Eco Passes at a surprisingly low price. In California's Silicon Valley, the Santa Clara Valley Transportation Authority (SCVTA) charges between \$5 and \$80 a year per employee for Eco Passes, depending on the employer's location and number of employees. The price of an Eco Pass is much lower than that of a conventional pass. Because frequent riders often buy the conventional passes, transit agencies must price them on the assumption that buyers will use them frequently. The price of an Eco Pass is much lower because employers buy the Eco Passes for all commuters regardless of whether or not they ride transit. The SCVTA's price for its Eco Pass is only 1 to 19 percent of the price for its conventional pass (\$420 a year). Allowing a TOD developer to offer low-cost Eco Passes in lieu of high-cost parking spaces can thus improve the TOD's financial feasibility.

A study of travel patterns in California found that, in practice, TOD employers are far more likely to offer commuters free parking than a transit subsidy. In Los Angeles, for example, 89 percent of all commuters who worked in a TOD in Hollywood were offered free parking, while only 19 percent were offered a transit subsidy. In Orange County, 87 percent of commuters in a TOD in Anaheim were offered free parking, while only 8 percent were offered a transit subsidy. In San Diego, 83 percent of commuters in a TOD in Mission Valley were offered free parking, while only 17 percent were offered a transit subsidy. The TODs were also embedded in regions where free parking was the norm, and this free parking elsewhere had a major influence on the TOD residents' travel behavior. Among TOD residents, only 5 percent of those whose employers offered free parking rode transit to work, while 45 percent of those whose employers did *not* offer free parking rode transit. TODs will have little effect on travel behavior if parking remains free everywhere, even in the TODs themselves, and transit remains expensive.

Providing Eco Passes instead of parking spaces will increase transit ridership, reduce the cost of transit-oriented development, improve urban design, and reduce traffic congestion, air pollution, and energy consumption. These benefits will come at low cost if the transit system has excess capacity, as most do.

So to answer your specific question, I do not think that *free* parking at transit stops is necessary to increase ridership. Even where free parking does increase transit ridership, it is an extraordinarily expensive way to gain riders. TOD may be a far more productive use for valuable land at transit stops. Portland, Oregon, for example, is turning a park-and-ride lot at one rail station into a TOD. Converting free parking lots at rail stations into TODs with Eco Passes can increase rather than reduce transit ridership.

Chapter 10 in *The High Cost of Free Parking* discusses the question of parking at transit oriented developments.

Question from Kirk Westphal, Ann Arbor, Michigan:

Is there a general rule of thumb that would help a large town or small city "sell" the case that they've reached the point where it would be advisable to begin conversion from surface to structured parking? A certain density of existing retail or office within a minimum area? Projected growth in commercial square footage? Land values?

Answer from author Donald Shoup:

In *Parking Structures*, Mary Smith of Walker Parking Consultants/Engineers shows that both surface parking and above-ground structured parking costs about \$12,000 per space if the price of land is \$30 per square foot. (See "Planning for Structured Parking," in Anthony Chrest, Mary Smith, Sam Bhuyan, Donald Monahan, and Mohammad Iqbal, *Parking Structures*, Third Edition, Boston: Kluwer Academic Publishers.) Structured parking is cheaper than surface parking at land prices above \$30 per square foot (\$330 per square meter or \$1.3 million per acre).

The vast deserts of surface parking lots in many cities present a great opportunity as land banks for future redevelopment. Urban designer Jonathan Barnett explains how land can be reclaimed from surface parking by building parking structures:

A garage can absorb five or six acres of [surface] parking while occupying less than an acre itself ... the cost of decanting the [surface] parking [into a garage] becomes the cost for the land that is made available. (*Redesigning Cities: Principles, Practice, Implementation*, Chicago: Planners Press, 2003, p. 54-55).

We can calculate the cost of recovering land from surface parking by building garages. An acre of surface parking contains about 130 parking spaces (at 330 square feet per parking space), so a six-acre lot will hold 780 spaces. If all 780 parking spaces are stacked on six levels in a garage that covers only one acre, the remaining five acres of land become available for development, without any reduction in the parking supply. If the construction cost is \$10,000 per space, the total cost will be \$7.8 million. The cost of the five vacated acres of land formerly used for surface parking is thus \$1.6 million an acre ($\$7,800,000 \div 5 \text{ acres} = \$1,560,000$), or \$36 a square foot.

Appendix E in *The High Cost of Free Parking* compares the cost of surface and structured parking.

Question from Terry Spence, AICP, Member of the Environmental Quality Advisory Council, Fairfax County, Virginia:

How can the availability of parking impact the number of single-car drivers?

Answer from author Donald Shoup:

Thanks for your succinct question.

The price of parking strongly affects travel choices, and the availability of free parking is invitation to drive to work alone. Free parking is the most common fringe benefit offered to workers in the US, and 95 percent of American automobile commuters park free at work. Almost every commuter who can choose between a private car and public transit will drive to work if there is free parking at work. Free parking at work helps explain why 91 percent of all commuters drive to work, and why 93 percent of their cars have only one occupant.

Many solo drivers who park free would drive to work alone even if they had to pay for parking. But some solo drivers who park free would carpool, ride public transit, walk, or bike to work if they had to pay for parking; these commuters drive to work alone because they can park free. Case studies and statistical models suggest that, when compared with driver-paid parking, employer-paid parking increases the number of cars commuters drive to work by about 33 percent.

Some employers offer commuters the option to take the cash equivalent of any parking subsidy offered. The choice between a parking subsidy or its cash equivalent shows that "free parking" has an opportunity cost—the forgone cash. The option to cash out a parking subsidy thus raises the effective price of commuter parking without charging for it. Commuters can continue to park free at work, but the cash option also rewards commuters who carpool, ride public transit, walk, or bike to work.

California requires many employers to offer parking cash-out. This requirement applies only to employers who rent their parking spaces from a third party, so the employer breaks even when a commuter forgoes a rented parking space and takes the cash. Case studies of employers who offer parking cash out in Southern California show that it reduced vehicle travel to work by 12 percent—equivalent to removing one of every eight cars from the road during

peak commute hours. By reducing vehicle travel, it also reduced vehicle emissions by 12 percent. Parking cash out cost the employers only \$2 a month per employee because they saved almost as much on parking as they paid in cash to commuters. Federal and state income tax revenues increased by \$65 a year per employee because many commuters voluntarily traded their tax-exempt parking subsidies for taxable cash. Employers said that parking cash out is simple and fair, and that it helps recruit and retain workers. Parking cash out thus produces benefits for commuters, employers, taxpayers, cities, and the environment. It accomplishes all these goals simply by letting commuters choose how to spend their own money.

Planning Advisory Service Report 532, *Parking Cash Out*, summarizes the research on how the price of parking affects commuting choices.

Question from Roy Lopata, Planning Director, Newark, Delaware:

Do you think that "cash in lieu of off-street spaces" systems, used by some communities to encourage quality downtown redevelopment is a hybrid form of pricing for parking? By the way, the Newark Planning Department, in addition to its traditional land-use regulatory role, administers downtown off-street parking in our community.

Answer from author Donald Shoup:

In-lieu fees allow cities to price parking, but they are mainly a new way to subsidize parking. Some cities give developers the option to pay a fee in lieu of providing the required parking spaces. The cities then use the revenue to provide public parking spaces to replace the private parking spaces that the developers would have provided. These in-lieu fees give developers an alternative to providing the required parking spaces on-site.

Chapter 9 in *The High Cost of Free Parking* explains and analyzes in-lieu fees. To learn about in-lieu programs, I surveyed planning officials in 47 cities that offer them: 24 in the United States, seven in Canada, six in the United Kingdom, six in Germany, two in South Africa, and one in Iceland. I consulted the officials who administer the in-lieu fees, and examined the fee ordinances and supporting documents.

Planning officials reported that in-lieu fees provide several benefits for both cities and developers. These benefits fall into seven categories:

1. *Flexibility.* Developers gain a new option. If providing all the required parking spaces on-site would be difficult or too expensive, developers can instead pay the in-lieu fee.
2. *Shared Parking.* Public parking spaces built with the in-lieu revenue allow shared use among different sites whose peak parking demands occur at different times (a bank and a bar, for example), and fewer spaces are needed to meet the combined peak parking demands.
3. *Park Once.* When all businesses have individual parking lots, they want only their customers to park there. Once customers have left the store, the owners want them out of the lot as soon as possible, requiring the customers to drive to another private lot in order to make a second stop in a nearby business. Shared public parking allows drivers to park once and visit multiple sites on foot, thereby reducing vehicle traffic and increasing foot traffic.
4. *Historic Preservation.* Parking requirements can discourage adaptive reuse of historic buildings if the additional parking spaces required for a new use are difficult to provide on-site. By removing the requirement for on-site parking spaces, in-lieu fees make it easier to restore historic buildings and rehabilitate historic areas. The owner of an old brownstone, for instance, may want to rehabilitate it and turn it into a restaurant, but cannot because it lacks the required parking. Without the in-lieu option, the building may stay unused, or — worse yet — be torn down and replaced by a parking lot. With the in-lieu option, the building is restored and the neighborhood gets a new place to eat.
5. *Consolidation.* Some cities also allow developers and property owners to pay in-lieu fees to remove the existing required parking spaces. This option consolidates scattered parking spaces, assists infill development, improves urban design, and encourages conversion of parking lots to higher-and-better uses that provide more services, yield more revenue, and employ more people. All property owners, not just developers, can use more of their land for buildings and less for parking.
6. *Fewer Variances.* Where providing the required parking is difficult, developers often request variances to reduce the parking requirements for their sites. These variances weaken the general plan, require administration, and create unearned economic windfalls for some developers but not others. By making fewer variances necessary, in-lieu fees allow cities to create a level playing field for

all developers.

7. Better Urban Design. Parking requirements typically result in surface parking lots for smaller buildings that cannot support their own parking garages. Because in-lieu fees allow stores to meet their parking requirements without on-site parking, they allow continuous storefronts without "dead" gaps created by parking lots. Developers can undertake infill projects without assembling large parcels for on-site parking, and architects have greater design freedom. The public parking structures consume less land than would be required if each site provided an on-site parking lot, and cities can place the structures where they interfere least with vehicle and pedestrian circulation. To improve the streetscape, some cities dedicate the first floor of public parking structures to retail uses. The in-lieu policy thus contributes to a better looking, safer, and more walkable city.

Planners in most of the surveyed cities said that the in-lieu fees have become a form of administrative relief for developers who find it difficult to provide the required parking on site. In practice, the in-lieu fees give developers an alternative to providing expensive on-site parking spaces, and the shared public parking gives downtown the park-once advantages of shopping malls.

In response to your question about in-lieu fees and pricing, the city can charge for parking in the public spaces financed by the in-lieu fees. One common practice in public parking garages financed by in-lieu fees is to offer one or two hours of free parking, and to charge for any additional time parked. So I would add the ability to price parking to the previous seven advantages that I listed.

By putting an official dollar value on the cost of parking spaces, the in-lieu fees produce an unintended side effect: they reveal the cost of satisfying the off-street parking requirements. The cost of providing the required parking is usually bundled into the total cost of development with no separate accounting, but the in-lieu fees put the cost of required parking spaces out in the open. We can therefore use the in-lieu fees to estimate the cost of satisfying a city's parking requirement. This estimate can be called the "parking impact fee" implicit in the off-street parking requirement. The simplest way to explain a parking impact fee is to calculate it for one land use — office buildings.

The parking impact fee imposed by a parking requirement depends on (1) the number of parking spaces required, and (2) the in-lieu fee per space.

To see how a parking requirement and an in-lieu fee are equivalent to an impact fee, consider the in-lieu program in Palo Alto, California. Palo Alto requires four spaces per 1,000 square feet of floor area, and in 2002 its in-lieu fee was \$50,994 per space. A developer who provides no parking must pay the city an in-lieu fee of \$203,976 per 1,000 square feet of office space ($\$50,994 \times 4$), or \$204 per square foot ($\$203,976 / 1,000$).

The parking requirement and the in-lieu fee together are therefore equivalent to an impact fee of \$204 per square foot of office space. In-lieu fees do not impose any burden on urban development; they merely give developers a new option that can reduce the burden of meeting a parking requirement. Parking requirements impose the burden on development, and the in-lieu fees quantify it. Normally, the cost parking is hidden in the overall cost of development, but the in-lieu fees expose the extraordinarily high cost of providing all the required parking spaces.

As with most impact fees, it is not clear exactly who pays for the required parking, but someone has to — landowners, investors, workers, developers, and users of real estate. It is clear that drivers don't pay, and it would be a mistake to assume that, because drivers don't pay, nobody pays. The cost of parking doesn't cease to exist just because drivers park free. Given the high cost of required parking spaces, and their harmful consequences, planners should not uncritically assume that the demand for parking automatically justifies off-street parking requirements. Demand depends on price, but planners rarely think about the price drivers pay for parking, or what the required spaces cost.

Drivers park free for 99 percent of their trips, and parking requirements that satisfy the existing demand for parking will satisfy the demand for free parking, no matter how much it costs. In-lieu fees unveil the high cost of free parking.

Question from Randy Nicholson, Comprehensive Planning Manager, Town of Hilton Head Island, South Carolina

Because of our seasonal market, we always struggle with parking standards. We have "maximum" parking standards to reduce pervious areas and provide additional greenspace. Developers tell us tenants go where parking is convenient for customers. Developers try to provide more spaces than our standards allow. Why would developers give up parking, knowing the tenant may just move down the street where the parking is plentiful and

his customer parks out front?

P.S.: Developers of Bethesda Row in Maryland, a poster child for CNU, notes they were successful because most of the parking was provided by Montgomery County. The developer's website notes:

Public Parking

There are 17 public garages or lots with over 6,600 spaces and 766 on-street meters within walking distance of the movies, shops and restaurants. Garage and lot public parking is FREE on Saturdays, Sunday and holidays. On the street, parking is FREE on Sundays and holidays only. Remember, be sure to read all signs and check the meter color code system. Copper meters have a one-hour time limit, blue meters have two hours and silver meters have nine or more hours.

Private Parking

Paid parking lots operated by Federal Realty are located on Bethesda Avenue behind the Rio Grande Cafe and in the old Giant parking lot, as well as on Elm Street by Jaleo.

Valet Parking

Many restaurants offer valet parking for a reasonable fee.

Answer from author Donald Shoup:

I can suggest several possible strategies to deal with requests to provide more parking than the city allows for a development. The city can require developers who want to provide more than the required number of spaces to:

1. *Pay the city a fee for each additional space.* This will test the strength of the developers' desire to provide more parking.
2. *Put all their parking underground.*
3. *Reduce parking demand before they are allowed to increase their parking supply.* For example, a development's owners could be required to offer free transit passes to every employee as a condition for increasing the parking supply. The free transit passes may reduce parking demand by enough so the developer would not want to increase the parking supply. Hotels could be required to offer free transit passes to all guests.
4. *Unbundle all parking in the development.* That is, the developer's owners would have to charge tenants separately for parking. Employers would have to charge employees for parking. Hotels would have to charge guests separately for parking. For example, Bellevue, Washington, requires downtown office buildings with more than 50,000 square feet to identify the cost of parking as a separate line item in all leases, with the minimum monthly rate per space not less than twice the price of a bus pass. Because the price of a bus pass was \$72 a month in 2003, the minimum price of a leased parking space was \$144 a month. This lease rate for parking does not increase the overall cost of occupying office space in a building because the payment for the office space itself declines as a result. In other words, unbundling separates the rent for offices and parking, but does not increase their sum. Bellevue's unbundling policy makes parking cash out easy for employers and profitable for commuters. If more cities require unbundled parking in leases, many more employers will be able to offer parking cash out, and many more commuters will carpool, ride the bus, walk, or bike to work.

Here is a link to a PAS report on how employers can offer parking cash out:
www.planning.org/bookservice/description.htm?BCODE=P532

Question from Mike Brusseau:

Our firm was hired to evaluate the impacts at build-out of a small, somewhat isolated coastal community in New York. The community contains roughly 6,000 residents and has a traditional "Main Street" business district.

Our client has asked us to investigate such things as impacts to: water, sewage disposal, emergency services, the local school district and street system, the environment, housing stock, and others. One issue that has arisen is the potential impact of projected residential growth on the availability of and demand for parking in the downtown. That is, there is a shortage of parking. Since the business district and community are somewhat isolated, it is anticipated that the introduction of new residents, by itself, will increase activity in the downtown, thereby exacerbating the parking shortage. (We understand we can easily estimate new parking demand needed to serve future stores and industries based on the community's off-street parking requirements outlined in its Town Code, but we have been asked to address the parking issue from a different perspective.)

We have conducted some research, and have not identified an acceptable way by which to project the number of new parking spaces needed in the downtown to serve the estimated increase in population in the community.

Do you have any suggestions in terms of a suitable methodology or could you point us toward resources that may be helpful? One avenue we considered involves trying to find information about the average number of trips per week per household for groceries, dining, recreation, parks and entertainment, library, town hall, etc.

Answer from author Donald Shoup:

I cannot recommend an acceptable way to project the number of new parking spaces needed in the downtown to serve the estimated increase in population in the community. And I strongly advise against trying to load the cost of downtown parking onto the cost of new housing.

Trying to impose the cost of commercial parking in the downtown onto the cost of new housing outside the downtown exemplifies one of the worst tendencies in American urban planning. Cities try to make everyone except drivers pay for parking. Cities require off-street parking spaces because the market supposedly fails to provide enough of them. But the market fails to provide many things at a price everyone can afford. It fails to provide affordable housing for many families, for instance, and those who argue for affordable housing usually find themselves in an uphill battle. But cities have without a second thought imposed planning requirements to ensure affordable parking. Rather than charge fair market prices for on-street parking, cities require ample off-street parking for every land use. As a result, most of us drive almost everywhere we go.

Parking profoundly affects the markets for both transportation and land, but is treated as an afterthought, and the idea of adding downtown parking to the existing off-street parking requirements for suburban housing is dangerous nonsense. Off-street parking requirements increase the cost of housing, subsidize cars, distort transportation choices, encourage sprawl, burden low-income households, damage the economy, and degrade the environment. Off-street parking requirements are a disease masquerading as a cure. In city planning, free parking has become more important than affordable housing.

Parking requirements bundle the cost of parking spaces into the cost of dwelling units, and therefore shift the cost of parking a car into the cost of renting or owning a home — making cars more affordable but housing more expensive. The higher the parking requirement, the higher the cost of housing. When the U.S. Census Bureau surveyed owners and managers of multifamily rental housing to learn which governmental regulations made their operations most difficult, parking requirements were cited more frequently than any other regulation except property taxes.

Parking requirements are now firmly ensconced in planning practice, but experience suggests that future planners may regret them. Urban planners had a habit in the 1950s and 1960s of hurling themselves with gusto into implementing some truly bad ideas. High-rise public housing projects were once state-of-the-art, but many cities have demolished them. Urban renewal (which Jane Jacobs compared to bloodletting) was once the best hope of downtowns, but most cities have abandoned it in favor of historic preservation. Similarly, some cities have shifted from minimum parking requirements to parking caps, and other cities may follow. Consider also these 180-degree turns in transportation planning.

In the 1950s, many cities created one-way street systems to speed traffic through downtowns, and in the 1990s converted them back to two-way streets to calm traffic. Similarly, in the 1950s, many cities eliminated on-street parking in downtowns to reduce congestion, and built off-street parking to replace it. In the 1990s, a common strategy was to restore on-street parking to calm traffic, and to redevelop off-street parking lots to increase downtown density. We do eventually recognize our mistakes, and we may some day condemn off-street parking requirements just as we now condemn the public housing and urban renewal disasters of the 20th century.

I don't know if your client is the city or the developer, but I would urge the city to abandon the unwise notion of trying to load the cost of downtown parking onto the cost of new housing elsewhere in the city. Chapter 5 in *The High Cost of Free Parking* discusses how parking requirements drive up the cost of housing, and it presents ample evidence to use in the case you ask about.

Question from Stephen J. Kerlin, AICP, Director of Planning and Economic Development, Town of Ashland, Massachusetts:

Our community of 15,000 has a hamlet-style downtown. There are municipal parking lots for 125 plus spaces in this area. Nevertheless, there is no required parking requirements downtown. We are in the process of rezoning downtown into a mixed use environment with greater density with upper story usage. We need to establish some

minimum requirements for parking without infringing on current businesses and their lack of off-street parking. Any thoughts?

Answer from author Donald Shoup:

A hamlet-style downtown sounds delightful, and I hope you can preserve it. But I don't think off-street parking requirements will help. Quite the opposite. Off-street parking requirements will reduce the land available for both shops and housing, and will increase the cost of adding housing.

Developers, landowners, and merchants all have ample incentives to provide enough parking for their customers and tenants. To preserve your downtown while increasing density, I suggest requiring better parking *design* rather than more parking *spaces*.

The market gives developers a strong incentive to provide adequate parking because lenders may be unwilling to finance projects with inadequate parking and tenants may be unwilling to rent space in them. But the market provides little incentive to improve parking design. Developers are more likely to spend money on a marble-veneered lobby (which will increase the value of the building) rather than on landscaping the parking lot (which will increase the value of the whole neighborhood). If you have an urban design framework guiding the character of the built environment, quality-based parking requirements can reinforce the desired character of each neighborhood.

Quality-based requirements can be quite simple. Here is an ordinance that prohibits parking lots from dominating the streets in commercial districts:

No parking shall be located between the building and the front property line. On corner lots, no parking shall be located between the building and either of the two (2) front property lines. (City of SeaTac, Washington)

More ideas about improving the design of parking are included in Chapter 3 of *The High Cost of Free Parking* and in an article, "Quantity versus Quality in Off-Street Parking Requirements," forthcoming in the *Journal of the American Planning Association*.

But I understand that citizens will worry about how higher density will increase the demand for parking. What can you do to ensure that this increased demand will not create a parking shortage? I suggest that you consider these two policies: (1) charge performance-based prices for curbside parking, and (2) return the revenue to pay for added public services. These two policies can improve parking and increase the economic vitality of your downtown.

Performance-based parking prices

Performance-based prices will balance the varying demand for parking with the fixed supply of spaces. We can call this balance between demand and supply the Goldilocks principle of performance-based parking prices: The price is too high if many spaces are vacant, and too low if no spaces are vacant. When a few vacant spaces are available everywhere, the prices are just right. If prices are adjusted to yield one or two vacant spaces in every block (about 85 percent occupancy), everyone will see that curbside parking is readily available. No one can say that performance-based parking prices will drive customers away if most curbside spaces are occupied all the time.

Prices that produce an occupancy rate of about 85 percent can be called performance-based for three reasons. First, curbside parking will perform efficiently. Most spaces will be occupied, but drivers will always be able to find a vacant space. Second, the transportation system will perform efficiently. Cruising for curbside parking will not congest traffic, waste fuel, and pollute the air. Third, the economy will perform efficiently. The price of parking will be higher when demand is higher, and this higher price will encourage rapid parking turnover. Drivers will park, buy something, and leave quickly so that other drivers can use the spaces. For parking, transportation, and economic efficiency, cities should set prices to yield about an 85 percent occupancy rate.

Local revenue return

Performance-based prices for curbside parking can yield ample public revenue. If the city returns this revenue to pay for added public spending on the metered streets, residents and local merchants will support the performance-based prices. The added funds can pay to clean and maintain the sidewalks, plant trees, improve lighting, bury overhead utility wires, remove graffiti, and provide other public improvements.

Put yourself in the shoes of a merchant in an older business district where curbside parking is free and customers complain about a parking shortage. Suppose the city installs meters and charges prices that produce a few

vacancies. Everyone who wants to shop in the district can park quickly, and the meter money is spent 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 if they can find a space. Returning the meter revenue generated *by* the district *to* the district *for* the district can convince merchants and property owners to support the idea of performance-based prices for curb parking.

Performance-based prices will improve curb parking by creating a few vacancies, the added meter revenue will pay to improve public services, and these added public services will create political support for performance-based prices. And curb parking will always be free if there is no shortage at a zero price.

Redwood City, California, sets performance-based prices to achieve an 85 percent occupancy rate in its downtown, and it returns the parking revenue to pay for added public services in the downtown. Once the merchants and property owners understood that the downtown would receive its meter revenue, they strongly supported the policy, and the city council adopted the program unanimously. Here is a link to the ordinance: <http://shoup.bol.ucla.edu/Redwood%20City.pdf>.

Here is a link to a short article on how parking meters with local revenue return have sparked a commercial revival in Old Pasadena: <http://shoup.bol.ucla.edu/SmallChange.pdf>.

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