Bundling of Residential Parking in High-Quality Transit Areas

Overall effect on California petroleum use		Affects Petroleum Demand Through Intermediate Indicators:	
Magnitude	High	**Primary**	Mode Choice
Certainty	Medium-High	**Secondary**	Distance Traveled
Applicable Level of Government	State, Local		
Relevant Laws or Cases Affecting Factor	California Government Code §65470, Public Resources Code §21155 and §21064.3		
Time-Horizon	Concentrating new development in high-quality transit areas will bring new trip demand to such areas. If, by historical contexts, cities and developers add relatively few parking spaces with this new development, then the existing supply will make up a large proportion of total available parking. Parking prices will quickly increase, leading to near-term use of alternatives among new residents.		
Relevant Topics	Parking, transit, housing		
Summary	On-street parking is perceived to be a scarce resource in many areas of California. Conventional parking policy, used by many California local governments to mitigate competition for on-street parking resulting from new development, prioritizes conflict avoidance over other goals – such as reducing vehicle trips. Changes in parking policy can make transportation alternatives attractive in areas where they are likely to be more robust. The state may be able to achieve substantial reductions in fuel use simply by separating the price of parking from the price of housing in areas where high quality transit exists.		

Introduction

Most local governments in California manage parking supply through the use of minimum parking requirements. Local governments require a developer to include a specified amount of on-site parking spaces with a new building. Two unintended consequences of this parking allocation system are becoming more salient over time. The first is that the price of parking is frequently bundled into the price of other goods or services. Property owners bundle the price of parking due to consumer expectations and low market-clearing prices given supply mandates. As the price of constructing new parking increases, the price distortions from bundling become larger. The second is that hiding the cost of parking makes individuals less likely to seek alternatives to driving. These two unintended consequences from

By Juan M. Matute and Stephanie S. Pincetl

conventional parking policy can lead to additional traffic congestion while diluting public investment in transit, carpooling, walking, and bicycling infrastructure.

California's four major regions plan to concentrate 53% of their development in high quality transit areas over the next three decades. The goal of such transit-oriented development is typically to affect travel behavior and trip distances as a means to reduce regional greenhouse gas emissions. Much of this new housing product will be multi-story and require above-ground or subterranean parking structures. Such structures are more expensive per space than surface parking.

Bundled parking means that those who purchase or lease property in transit-adjacent developments may be required to pay for parking spaces they do not need. Construction cost estimates for a subterranean or structured parking space in a multifamily residence range from $25,000 or $125 per month up to $85,000 or $425 per month.

Shoup (2005, 568-569) argues that the result of bundling these high parking costs is Tiebout-like sorting. Households willing to pay this amount, regardless of whether the cost is transparent, likely place a high value on driving. Households unwilling to purchase parking at this price will seek units in buildings with limited parking supply, typically older buildings constructed before current parking requirements. However, under conventional parking policy, this choice limits car-free and car-light households to a limited set of older buildings constructed before current parking requirements. An unintended consequence of conventional parking policy and bundling is that it attracts households that place a relatively high value on driving to new housing in high quality transit areas. Such policy will inevitably lead to future increases in driving and petroleum use versus an alternative approach to parking allocation.

Policy approaches to parking allocation

While conventional parking policy is most common in California, other policy approaches may be better suited to the state's broad goals of transit oriented development and greenhouse gas reduction. Barter (2010) outlines three approaches to parking policy. Under a conventional parking policy, the local government mandates the minimum number of spaces to be included by private developments. The goal is to satiate parking demand and reduce potential conflicts that could result from scarcity and demand spill-over. Under a parking management approach, a local government actively regulates area-specific parking supply and demand through shared parking and permit parking arrangements. Active management is one option to reduce total parking supply while avoiding conflict. Market-based parking approaches seek to remedy conflicts of scarcity and spill-over through variable pricing.

Deconstructing automobile parking & alternatives

According to Shoup (1999), minimum parking requirements affect the market clearing price that drivers pay for parking, but not the cost to provide a parking space. Instead, building density and neighborhood density drive the cost to construct parking exactly where viable transportation alternatives exist.

Building density drives the number of parking spaces per acre and their cost. As developers attempt to fit a greater number of parking spaces on a fixed-sized lot, the price per space increases. Surface parking spaces are cheapest to construct, but their applicability is limited to servicing single story buildings that occupy less than three-fourths of a parcel.

Above-ground structured parking is expensive relative to surface parking, but less expensive than subterranean parking. However, above-ground parking can reduce the number of usable building floors in areas with height limits. Above-ground parking can also present a challenge to pedestrian-oriented design. Subterranean parking, arguably the most desirable construction type for denser neighborhoods, is the most expensive. Each additional level of underground parking results in a nonlinear increase in excavation costs.

Neighborhood density drives the viability of alternatives to driving and parking. In general, the number of trip-ends per acre correlates positively with building density. This is a natural extension of the definition of density - more usable building square footage per acre. Fundamentally, trip-making is a function of space and time: individuals seek to move between two discrete points in space at a discrete time. Because more individuals travel to and from a high-density acre than a low-density acre, it's more probable that a two or more individuals will seek to make similar trips at similar times. Group trips can be served by carpools and transit, which serve a larger share of trips to denser areas than sparser areas. Walk and bicycle trips become more viable when trip origins and destinations are concentrated, as is the case in high-density areas. Diversity of land use is also important, as much travel is between disparate uses. Relatively few trips are directly between residences, and most daily travel begins or ends at a residence. Parking and alternatives to driving are also substitutes, and demand for alternatives such as car share increases with parking prices.

Minimum parking requirements limit density. Shoup (1999) found that parking requirements, rather than floor-to-area ratios and height restrictions, can limit building density on a parcel. Cutter (2010) found that minimum parking requirements act independently of other zoning restrictions to indirectly cap density, significantly increasing the area of Los Angeles County dedicated to parking.

Manville, Beata, and Shoup (2013) contend that by treating vehicle density as an inevitable effect of population density, minimum parking requirements restrict population density in order to accommodate vehicles. In their study of residential parking requirements in the U.S.'s two largest cities, they found that although the average Los Angeleno is poorer than the average New Yorker, he or she is more likely to have a vehicle because Los Angeles housing is more likely to include a parking space. Those living in the ten densest census tracts in Los Angeles have 2.5 times the vehicles per person than those in New York City's ten densest tracks. This is despite average per-capita income in the city's densest ten census tracts being $9,300 in Los Angeles and $36,500 in New York.

By requiring parking for all residential units, policymakers in Los Angeles implicitly seek to subsidize vehicle ownership among all households, especially low-income households. Such policy is counter to the goal of transit-oriented development: to promote density near high quality transit service in order to enhance automobility alternatives. As Manville, Beata, and Shoup (2013) state, "When local governments require on-site parking with all new housing, they make room for vehicles in the name of fighting congestion. This approach is unlikely to work."

Past parking requirements reduce market-clearing parking prices in denser areas, even after an area transitions to market allocation of parking. While a local government can change its parking policy from conventional to market-based allocation, it cannot directly affect its previously-mandated parking supply. A transition to market allocation, through unbundling and eliminating or capping parking requirements, will only apply to new building supply. The obdurateness of existing parking infrastructure floods neighborhoods and districts with parking supply. These past spaces were not created based on market demand, but rather as

an ancillary cost of constructing a building's primary use. Owners of existing parking can participate in a neighborhood parking market as prices increase. The result is that neighborhood parking prices will lag parking construction costs for some time.

Relevant Legislation

California law defines unbundled parking as "renting a parking space for the residential units separately from the residential units, or [allowing the developer to pay] a fee to the appropriate local transit management fund to cover one-half of the cost to provide a parking space" (Government Code §65470(d)(12)). As of this writing, only one section of California Code references unbundled parking. SB 310 (2011) amended Government Code § 65470 to establish a Transit Priority Project Program, an infrastructure financing district to reimburse developers of housing projects that meets certain affordable housing and sustainable transportation conditions. Among the sustainable transportation conditions is a requirement for unbundled parking and that the project be located in a high quality transit area.

Public Resources Code §21155 establishes the areas in which certain developments, known as transit priority projects, can be eligible for streamlined environmental review. The first area, a high-quality transit corridor, is within one-quarter mile of a bus route providing service every fifteen minutes or less during peak service. The second such area is the land within one-half mile of a major transit stop: a rail transit station, a ferry terminal, or intersection of two high quality transit corridors specified in a regional plan (Public Resources Code §21064.3).

Decisions about parking policy are typically left to local governments. In recent years, the California legislature has twice attempted to restrict local discretion over parking policy in high quality transit areas. Assembly Bill 710 (2011) attempted to limit parking to one space per thousand square feet of nonresidential property and one space per residential unit in high quality transit areas. Opponents of AB 710 argued that a one-size-fits-all approach eliminates local government discretion and that the bill would reduce incentives to construct affordable housing (Senate Governance and Finance Committee, 2011). In response to the 2011 defeat of AB 710, Nancy Skinner introduced AB 904, which maintained parking-related incentives for developers of affordable housing units. Cities and the American Planning Association opposed the bill, and it did not pass the Senate Government and Finance Committee.

Estimate of Effects on Petroleum Use

While policymakers can do very little to change the historical supply of parking, future policy changes can affect overall parking supply in areas with viable alternatives. This section evaluates the potential effects of a parking policy change for high quality transit areas in California, specifically:

- eliminating parking requirements for residential units located in high quality transit areas,
- requiring that developers sell or lease parking separately from housing units (unbundling), and
- restricting or prohibiting new residents' use of on-street parking spaces.

Shoup (2005, 570) estimates that a price of $150 per month for a single residential parking space will reduce new car VMT by 15%, and median car VMT by 90%. Shoup offers a

varied estimate as the proportional cost of parking relative to the other fixed costs differs. All drivers pay insurance and registration, but drivers of newer, more valuable cars are likely to pay more for those costs. Additionally, loan payments for a new car will exceed those for an older (median) car. Unbundled residential parking costs are more significant to the driver of an older (median) car than to the driver of a newer car, regardless of their economic circumstances.

Shoup also estimates that average drivers of median cars will reduce VMT by 60% at $100/month and 30% at $50/month. These reductions are borne primarily from shedding vehicles, not from a reduction in travel per vehicle. Thus, the estimates provide insight into the aggregate effects of parking unbundling rather than an individual case.

Transit availability affects California travel behavior. California's 925,777 households living within one-half mile of an existing transit station have an average of 1.278 cars available (Center for Neighborhood Technology, 2013). This is lower than the statewide average of 1.85 vehicles available per household. Workers living near transit stations are 3.21 times more likely to commute by foot, bike, or transit than those not living near transit stations. Many housing units in transit-rich areas predate minimum parking requirements or are located in cities that limit parking supply, such as San Francisco. Thus, some of these housing units have fewer parking spaces available per resident.

Statewide, the policy effects amount to about 4.5% of existing VMT, and a roughly equivalent reduction in fuel use. The analysis makes several assumptions:

- Unbundled parking in high quality transit areas costs $150 per space per month, or approximately $30,000 per space in purchase price
- 50% of households moving to new housing in high quality transit areas are "new car" type households - meaning that the household's fixed automobile costs are high relative to the cost of parking. Shoup (2005, 570) estimates that unbundling leads to a 15% VMT reduction from such households.
- 50% of households moving to new housing in high quality transit areas are "median car" type households, meaning that the household's fixed automobile costs are low relative to the costs of parking. Shoup (2005, 570) estimates that unbundling leads to a 90% VMT reduction from such households.
- Projected growth and percentage of new housing units in high quality transit areas are from each region's Regional Transportation Plan/Sustainable Communities Strategy
- Per capita VMT in high quality transit areas averages 75% of regional per capita VMT
- Results are above and beyond effects of concentrating new households near transit alone
- Residents of new developments are prohibited from using on-street parking spaces

Table: Estimate of unbundling policy effects on future VMT

Region	Region-wide: percent commuting by transit, bicycling, and walking	Workers living within ½ mile of transit station: percent commuting by transit, bicycle, or walking	Future housing units expected in HQTAs	Projected reduction in regional VMT due to residential unbundling in HQTAs
Los Angeles	8.2%	20.7%	610,441	4.1%
Sacramento	5.4%	14.4%	103,700	5.3%
San Diego	6.8%	12.8%	267,735	8.5%
San Francisco	15.6%	33.0%	373,278	5.6%
Four Major Regions	9.6%	25.6%	1,355,153	5.0%

Note: Reduction percentage is versus projected future VMT
Source: Center for Neighborhood Technology TOD Database

The above analysis is sensitive to the proportion of new households that are "new car" households. For instance, if only 10% of new households in high quality transit areas are "new car" households, then the percentage jumps to 7.9% of future four-region VMT.

Managing the Transition to Unbundled Parking

Assuming that unbundling is possible for analysis is much easier than actively managing the transition to unbundled parking and market allocation. Many practical barriers impede a smooth transition to unbundled parking. This section addresses those barriers and strategies to overcome them.

First, unbundling is most applicable to multi-family residences, and is an unlikely policy mechanism for detached single-family residences. For single-family residences, land and improvements are bundled—as a parcel. Unbundling parking would require unbundling the parcel: separating land from improvements or garages from other improvements.

Even in multi-family residences, unbundling will require changes to real estate practices. Parking areas in most multi-family residential buildings are considered common areas, owned by a distinct legal entity. With apartment buildings, building ownership is not divided, and a single legal entity owns the land, parking, and housing units. In such a case, a property owner or manager could choose to lease parking spaces separately from a housing unit. Indeed, this practice is frequent in buildings with greater demand for parking than available spaces.

In condominiums and housing cooperatives, a distinct legal entity typically owns the on-site parking. Often, the board that governs this entity grants a unit owner or shareholder the exclusive use of a parking space. Such arrangements are recorded in the proceedings of the legal entity, usually a co-op board or homeowners' association. Unbundling parking spaces would require that over-the-counter market transactions be tracked informally between parties or in the official proceedings of the legal entity.

Another option to unbundle parking from housing units would be to develop air-space maps that define ownership of individual parking spaces. These maps, like those that delineate the boundaries of housing in multi-story condominiums, would allow the county to record the transfer of fee simple ownership of individual parking spaces. Surveying parking air-space could become common practice for future developments in high quality transit areas. A homeowners' association would likely maintain ownership of parking lanes.

Those involved in residential lending, and particularly title insurers, would likely prefer the air-space map and county-recording arrangement as this would enable them to lend using parking spaces as collateral, as they do with other real property. If parking values are low relative to housing values, individual owners may not seek debt-backed acquisition of parking spaces, obviating some of the need for official transaction recording. It's possible that a private sector alternative could emerge to track ownership and clear transactions could emerge.

Another challenge of the transition to unbundled parking is managing how parking pricing affects demand for on-street parking spaces. In some denser areas of California, overnight on-street parking is restricted to an area's residents through the use of a preferential permit system. Residents may pay a processing fee for use of permits. The amount of any processing fee is likely to be substantially lower than cost of unbundled parking offered by area apartments and condominiums.

Cities have two options to manage the spillover demand from unbundled properties. The first is to charge use a market-based allocation system for publicly-owned parking in high quality transit areas. Cities would either meter public parking or conduct an auction for the annual right to park. Prices would eventually increase to the cost of constructing new on-site parking, less a premium for convenience and security. The second option, which protects incumbent residents, would be to legally restrict residents of a building or unit that offers unbundled parking from on-street parking permit eligibility. Such prohibition could be possible with property-level deed restrictions or by changing a city's official policy and grandfathering incumbent residents.

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