

**Advanced Policy Analysis**

**The Real Costs of San Francisco's  
Off-Street Residential Parking Requirements:**

**An analysis of parking's impact on  
housing finance ability and  
affordability.**

**Conducted for Transportation for a Livable City  
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[Revised May 27, 2004]

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The author conducted this study as part of the program of professional education at the Goldman School of Public Policy, University of California at Berkeley. This paper is submitted in partial fulfillment of the course requirements for the Master of Public Policy degree. The judgements and conclusions are solely those of the author, and are not necessarily endorsed by the Goldman School of Public Policy, by the University of California or by any other agency.

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**Executive Summary:**  
**Realizing the Cost of Parking Requirements in San Francisco**

*“If we are to have the full use of automobiles, cities must be remade.”*  
*- Paul Hoffman, President of the Studebaker Corporation, 1939*

Since the mid-1950’s, San Francisco has required at least one parking space for each unit of housing in new residential developments (referred to as 1:1 parking). This requirement encourages one mode of transportation over others while restricting developers’ profits and neglecting the market for housing units without parking. Buyers and renters pay a price for parking, whether they see it or not. The amount of new housing that can be built is sometimes restricted by the requirement of space for parking.

A number of stakeholders play a role in the development process, including developers, lenders, the City, neighborhood groups, housing activists, and buyers and renters. Their respective motivations influence the process, driving toward an outcome that finds the least resistance from the total set of all interested parties. Given the City’s requirements and lender pressures, developers are inclined to provide 1:1 parking.

This analysis will show that the price paid for parking is about half of its relative cost to build. In other words, the return a developer receives per square unit of parking is much less than the return she receives per square unit of housing. This lower rate of return constrains a developer’s lending options and might restrict how much housing she is inclined to build. To get the same per-square foot rate of return on housing with versus without parking, a developer must get a price that is at least 27.5% more.

The City of San Francisco has several options before it that can both create buy-in from a maximum number of stakeholders as well as reflect its “transit first” policy.

Evaluating policy solutions based on a series of criteria, this analysis advocates the following:

*Short-Term Recommendations*

- Unbundle the price of parking from housing
- Eliminate the 1:1 parking minimum
- Eliminate the requirement for “independently accessible” spaces
- Encourage City CarShare in new developments as a tradeoff for less than 1:1 parking

*Long-Term Considerations*

- Lower and strengthen the maximum parking allotment where appropriate
- Implement a market-rate Residential Parking Permit Program
- Create a City-supported Development Fund

Each of these potential solutions is categorized based on political and practical feasibility and its impact on an implementation time-frame. As well, the long-term considerations require more analysis to understand how best to implement them.

Ultimately, the debate over off-street parking is about appropriate parking pricing. Standard policies in America trend heavily toward free parking – resulting in 99% of vehicle trips with free parking. “Free” parking, however, is simply parking whose costs are dispersed among the community at large. Implementing any or all of the above recommendations and considerations begins to shift the price of parking onto direct beneficiaries, making a value judgment about parking’s value as a private benefit versus a public good. This is a shift that San Francisco should make, as it allows for better market response mechanisms in parking provision and pricing, and it begins to break down the barriers to housing developments with less than 1:1 parking.

**Chapter 1:**  
**The Context**

*“Hail Mary, full of grace, help us find a parking space.”<sup>1</sup>*

*Finding parking.* Anyone who has ever visited or lived in San Francisco knows that available parking is a scarcity. And that just understates how valuable a parking space can be for many of San Francisco’s residents. For evidence of this phenomenon, one need only visit any of the city’s famed neighborhoods – the Haight, Castro, Hayes Valley, Noe Valley, the Mission, Marina, etc. – and take note of the parked up streets and (in some cases) sidewalks. Drivers can search for 10, 15, 25 minutes, sometimes in vain, just to find a coveted parking space. The time associated with finding a parking space constrains the convenience of vehicular travel around the city and is an implicit cost of driving a car in San Francisco.

*Looking back.* In the 1950’s, the United States experienced a post-World War II building boom, as families got larger and the automobile’s popularity grew. In 1956, President Eisenhower signed the Highway Defense Act into law, committing billions in federal money to the construction of new highways.<sup>2</sup> In San Francisco that same year, a master plan laid out a network of freeways crisscrossing the City, forming a grid of elevated roads connecting every corner.<sup>3</sup> All across the United States, parking requirements were also being implemented to ensure free, available parking for anyone with a car going to any destination. “In 1946, only 70 cities had parking requirements in their zoning plans; a decade later, at the dawn of the interstate age, most did.”<sup>4</sup> Americans were remaking their cities to accommodate vehicles.

*Seeing consequences.* As a result of years of minimum parking requirements, parking today is “free for 99 percent of all automobile trips.”<sup>5</sup> Indeed, “free parking is an

unstated assumption behind... minimum parking requirements.”<sup>6</sup> After fifty years of minimum parking requirements, resulting in 99 percent of automobile trips with free parking, American drivers now have a seemingly reasonable expectation of free parking, an assumption that is only realized with “at least one parking space at the place of residence and three to four spaces elsewhere.”<sup>7</sup>

*San Francisco changing.* In the mid-1950’s, San Francisco amended its planning code to require off-street parking minimums for a variety of uses, including a requirement of one parking space for every bedroom in new housing, later changed in 1975 to one parking space for a single unit of housing, regardless of size.<sup>8</sup> This requirement is known as 1:1 parking (read “one to one”). Given that much of the City’s housing stock had been built up after the 1906 earthquake, and before the proliferation of the automobile, few buildings had parking in the mid-1950’s, so the new requirement instituted a significant departure from standard building design.

*Explaining the requirement.* San Francisco’s 1:1 requirement is a minimum; the City requires *at least* one parking space for each new unit of housing and has a maximum of 1.5:1, or 50% more parking per unit of housing. In addition, the City has reduced parking minimums for senior housing (1:5) and single-resident occupancy hotels (1:20), but not for affordable housing. In the mid-1980’s, this requirement was amended to create a maximum of one parking space for four units of housing (1:4) in some areas of downtown and along the Van Ness corridor.<sup>9</sup> Today, almost all of San Francisco’s new market-rate residential developments include at least 1:1 parking.

### The Problem

*Defining.* San Francisco's off-street parking requirement, although intended as a means of assuring adequate parking for the city's residents, has had unintended negative consequences on housing finance ability and affordability. A policy designed to ensure convenience of one transportation option drives up housing prices while creating a roadblock to those developers who might choose to build more housing with a certain number of parking spaces. Housing prices cross-subsidize parking while constraining developers in the amount of housing they can build to the amount of parking a particular lot can accommodate.

*Examining.* Using a series of interviews with interested stakeholders and a review of literature, this report seeks to better understand the implications of this problem and ways in which it can be addressed.<sup>10</sup> It first lays out the array of stakeholders and their motivations and then details the available data on housing prices and costs, with respect to the provision of off-street parking. Next it examines a host of policies and projects already being implemented, and, finally, it takes the data and existing information to make a series of recommendations.

*Evaluating.* In order to effectively evaluate these recommendations, two themes emerge as important to identifying solutions that are both practically and politically feasible. The first theme is that a recommendation involves compromise among the interested stakeholders, creating buy-in. The second theme is that a recommendation reflects the transit-first values of San Francisco, as reflected in its City Charter.<sup>11</sup>

*Establishing criteria.* Using the themes outlined above, four criteria will be used to evaluate all recommendations. First, the recommendation must not be a prohibitive



barrier to most new development. This means that the City is responsive to the needs of developers and lenders, and vice versa. Next, costs and prices of off-street parking must be made more apparent to those providing and those using it. This is an important point for the next criterion that, given transparent parking pricing, the amount of parking available is responsive to market demand.<sup>12</sup> Finally, the amount of parking provided must make sense within the context of its location (i.e. proximity to transit, local amenities, etc.)

This analysis begins by looking at the stakeholders, their motivations, and their preferences.

**Chapter 2:**  
**The Stakeholders**

*“Where you sit is where you stand.”*

Housing is not just a home. For developers and lenders, housing is profit. For the City, housing is long-term economic security. For neighborhood groups, housing is good, if unobtrusive. For housing advocates, housing is good, if affordable. And for potential buyers and renters, housing is a necessity. In this mix, each stakeholder has her own motivations, and each responds in kind. To better understand the 1:1 outcome, we must examine the process for each participant.

As a useful construct, we will first look at those participants with the most at stake in the development process, including developers, lenders, and the City. They are followed by those seeking to have an impact on the process from the outside, including neighborhood groups, housing advocates, and potential buyers and renters.

**The Primary Stakeholders****Developers**

*“We don’t want to be cowboys.”<sup>1</sup>*

*Running the show.* From start to finish in a project’s creation, developers take responsibility for land purchase, project development, and building. They negotiate the divergent interests of lenders, the City, architects, and builders, and ultimately they must emerge from the entire process with a profit, ensuring their continued economic vitality and reliability as an established entity.

*Ensuring a profit.* Developers are subject to many pressures, all of which push them toward being as safe as possible in their assumptions about what will sell or rent,

and moving forward from that set of constraints. What is often interpreted as developers' insensitivity to the desires of neighborhoods or activist groups is often a product of developers' inability to locate funding for projects that fall outside a set of limitations. Projects are evaluated by their expected rate of return on a number of components, including – but not limited to – unit mix (i.e. studios versus one-bedrooms versus two-bedrooms), location of the project (i.e. high-value neighborhood or not), proximity to local amenities (i.e. grocery stores, shops, restaurants, etc.), and availability of off-street parking.<sup>2</sup> In order to ensure financial support for a project, developers are driven to make choices within these constraints with a proven track record of success.

*Playing it safe.* The “safe” choice is the conservative one. That means building as much as possible within the City's Planning Code requirements. It means developing in communities that have an established track record of successful housing. It means building the unit types that are already common in a neighborhood (i.e. smaller units closer to downtown and more-bedroom units further out). It also means building at least 1:1 parking, with almost no exceptions.

*Cutting off at 1:1.* For many developers, 1:1 parking is the impenetrable floor. Because parking is viewed not just as a commodity, but as a necessity, developers face stiff resistance from lenders and neighborhood organizations to building a development that does not guarantee a deeded off-street parking space to all residents. As a permanent component of a development (when using conventional building methods), parking cannot be built after the completion of a building, leading toward a result in which a developer is mostly concerned that a building be able to accommodate peak parking

demand in a building. New construction options allow for buildings that can respond to varying levels of demand over time, and we will learn more about those in a later section.

*Looking to the future.* By making safe choices, a developer not only increases the likelihood of receiving lower-rate construction loans on a development, but she also demonstrates forethought and financial savvy to lenders, who see these decisions within the context of a larger track record. The more solid a track record for a developer, the greater the likelihood she can get funding on future projects, as she builds a mutual trust with lending agents. This self-reinforcing cycle – developer plays it safe for financial incentives, banks reward safe choices, developer grows and seeks more financial support, banks continue to reward safe choices, etc. etc. – plays a significant role in the process that leads to 1:1 parking in San Francisco, but it is only one part of the picture.

*Dealing with the City.* Technically, San Francisco's Planning Code allows a developer the flexibility to build as much residential parking as she chooses, so long as she can make a justification. Realistically, a developer is constrained by political pressures from the City and neighborhood groups and businesses. While the City only requires that any development with greater than 1.5:1 parking (50% more parking than 1:1) demonstrate such a waiver is "necessary or desirable," developments with less than 1:1 parking often face stiff opposition from neighborhood groups and have to prove "hardship" (if required to build at least 1:1 parking) in order to be approved.<sup>3</sup> Given these constraints, a developer is likely to choose the easiest route in providing parking and build at least 1:1 and no more than 1.5:1, preferring to avoid lengthy appeals processes, endangering the likelihood of city approval as well as overextending loan periods, driving up costs to the developer.

*Physical costs of building parking.* This report will explore later the implications of the cost of building parking relative to the cost of building housing, and in relation to the market price of parking. Parking's share of costs for a new housing unit is twice as much as its share of prices.<sup>4</sup> While this would seem to indicate building 1:1 parking in the City drives down profits, most developers are unwilling to consider building a housing unit without parking, for fear that it will not sell or rent. This is a fair concern, and it will be addressed in greater detail later in this report.

### Lenders

*"I believe a unit with parking will always be more desirable than one without."*<sup>5</sup>

*Lending nationwide.* While developers are often based in a locality and build within that region, lending agencies with the greatest financial assets are typically nationwide banks applying standard requirements with little regard for local nuances. A single lender may be simultaneously financing developments in Atlanta, Boston, Chicago, and San Francisco. Without information to the contrary, lenders will generally choose to finance in a way that perpetuates standard operating procedure: the safe choice. In order to understand local markets and which developments to support, lenders use a group of advisors and/or an appraisal firm which then makes a determination of a project's financial viability, taking into account a number of factors, including the availability of off-street parking in the development.

*Accountability to investors.* Much of what drives lenders to make the decisions they do is their accountability to their investors. Just as developers are less willing to be "cowboys" with their projects, investors are unlikely to fund "risky" projects. And in this

case, “risk” is determined by those investing in the banks, as their wealth rises and falls on the success of lending decisions. The largest lenders report to groups like state employee pension funds, which generally prefer lower- and safer-return investments to those with potentially greater but riskier returns. In this way, the “safe choice” cycle is further reinforced.

*Timeframe disjoint.* Lenders look to realize a profit two to three years after a project’s completion.<sup>6</sup> This short time-frame places tremendous pressure on developers to show that units will sell or rent quickly. Developments with at least 1:1 parking are generally presumed to sell/rent quicker than those with less than 1:1 parking (a presumption we shall soon see is not quite accurate), so developers face pressure to have at least 1:1 parking. The emphasis on short-term profit encourages a quick gain over long-term success. Given the “common sense conclusion that real estate... should be productive for generations,”<sup>7</sup> lenders’ motivation for quick gain seems to work against a building’s longer-term value. This involves a larger question of financing systems, not wholly relevant to the question of 1:1 parking.

*Striking a balance.* Out of concern of slower sales time for units without parking, many lenders are averse to considering developments with less than at least one guaranteed parking space per unit of housing. A crucial aspect to understanding this aversion is the permanence of building. Once a structure is created, making changes to it is prohibitively expensive. Because of this, most lenders will not finance a building in which some units will not have parking and, thus, the development is considered to have lost a competitive edge in the housing market. Conversely, lenders are also averse to financing a building with so much parking, and thus higher building costs, as to not

“pencil” – make a profit – in the short-term. Because the city requires “independently accessible” parking spaces, anything less than a permanent parking structure with 1:1 parking for all the housing units in the development requires a variance and, therefore, slows the development process and involves higher time, legal, and process costs.

### The City

*“Our first question [in determining whether a developer is supplying enough parking] is what the City permits.”<sup>8</sup>*

*Setting policy.* As the administrator of City Code, the Planning Department has a great deal of control over the way in which new developments are assembled and approved. The City’s 1:1 parking policy affects everything from how appraisers view parking, as evidenced in the quote above, to how architects determine the number of units in a building, to the extent of a debate over how much/little off-street parking to provide, to a developers’ willingness to build outside the established code restrictions. Recognizing its power in the development process, the City is moving to make incremental changes to an off-street parking policy that has existed since the late 1950’s.<sup>9</sup>

*The minimum and the maximum.* With a few exceptions, the City requires a minimum of 1:1 parking in new residential developments, regardless of unit size.<sup>10</sup> Further, the city allows up to 150% of the minimum parking allotment before requiring a conditional use permit.<sup>11</sup> This allowance above the minimum is much more flexible than the minimum itself. In order to provide less off-street parking than the minimum, a developer must prove “hardship,” among other things.<sup>12</sup> In order to provide *more* off-street parking than the allowed maximum, developers need only show that it “is necessary or desirable” and that “the adequacy of proposed off-street parking” will not be

“detrimental to the health, safety, convenience or general welfare” of nearby residents,” a criterion also involved in the variance approval process.<sup>13</sup> The difference between these two standards may not be explicitly clear on paper, but they are enforced in such a way that the minimum is very difficult to overcome and the maximum is not. In the words of one land development attorney, there are “no true maximums.”<sup>14</sup> This set of requirements also alters the community debate over the provision of off-street parking in new developments.

*Restricting debate.* Because the City sets 1:1 parking as a rigid minimum, developers are inclined to be flexible only with parking provisions greater than 1:1. Neighborhood groups, as well, look to the City’s 1:1 minimum as standard operating procedure, with anything below as exceptional and anything above as an available option to the developer. “Instead of seeing anything in a range from zero to 2:1 parking as debatable, neighborhood organizations, developers, and the city are restricted to debating just *how much above* 1:1.”<sup>15</sup> The city’s code plays a significant role in establishing the ground rules for this debate.

*Influencing space usage.* The City’s 1:1 minimum off-street parking requirement has altered the functions of players in the development process. According to one city planner, building “design is driven by off-street parking.”<sup>16</sup> Specifically for architects, the task of determining spatial configurations on a plot of land has sometimes been reduced to a simple formula: take the land area size and calculate the maximum number of parking spaces – this is also the number of units a developer can build on this plot.<sup>17</sup> By comparison, if a developer were not constrained by the city’s minimum, she could potentially build many more units of housing with the same number of parking spaces.



The exact outcomes of an elimination of the parking minimum and its effect on developers' choices cannot be precisely determined, but its effect on profitability and housing availability will be discussed in Chapter 4 of this report.

*Unbundling parking.* One of the fundamental points in the debate over the provision of off-street parking is the question of unbundling. Unbundling involves separating the price of an off-street parking space from the price of a housing unit. It is a popular idea among those who wish to see separate prices charged for housing and parking. Up until two years ago, it was standard procedure for condominiums to be sold with a deeded parking space and the costs rolled into one bundle. When Lisa Feldstein joined the Planning Commission two years ago, however, she required reluctant developers to unbundle parking as a condition of approval.<sup>18</sup> In the short time since this change, developers have begun to approach the Commission asking to unbundle parking. The cause of this change from reluctance to interest in unbundling – on the part of developers – is not entirely clear, but one might presume that developers have begun to realize a premium on parking priced separately from condominiums, as well as seeing increased interest from buyers who do not desire a parking space but pay less for the housing since they are not buying a space. While parking is just now being unbundled for buyers, parking for renters has long been unbundled, and a market for off-street parking is more visible in rental developments, as we shall see later.

**The Secondary Stakeholders**Neighborhood Groups

*“There aren’t enough parking spaces available in our neighborhood.”<sup>19</sup>*

*Locally focused.* Where lenders have a national view and developers have a regional perspective, neighborhood groups are finely attuned to the needs of their separate communities. They pay close attention to case-by-case issues – such as planning permit requests on specific lots – and generally less attention to citywide policy, with the exception of those policies perceived to inequitably impact their constituencies. This honed focus is both beneficial and harmful: where residents can provide useful insight into a local community, they can also act in ways that neglect the needs of the greater community’s infrastructure.

*The problem of parking.* When it comes to parking in residential developments, most neighborhood groups will oppose a development that does not have at least 1:1 parking. While some individual members may see benefits to having less parking (such as providing more variety in housing options for potential buyers/renters and additional ground-floor space for retail uses), the vast majority focus on the problem of too little parking already in the neighborhood. Perceiving that new residents of a building will own cars and park them on the streets without the availability of off-street parking, neighborhood groups oppose what they view as exacerbating an already unacceptable problem.

*No perceivable benefit.* When concerns like the availability of on-street parking and the scale of the neighborhood are at stake, neighborhood groups are disinclined to see much added value with “Smart Growth,” a term associated strongly with developments

with less than 1:1 parking and mixed use development. “Smart Growth” seeks to create walkable neighborhoods with shops, parks, and dense housing. Many of San Francisco’s neighborhoods already possess these qualities. The City’s argument in favor of “Smart Growth” – increased transit effectiveness – does not sit well with those living in neighborhoods already well-served by transit and, at the same time, overrun with parked automobiles. The single issue of the availability of on-street parking leads the concerns of neighborhood groups seeking to maintain the unique character of their surroundings.

### Housing Advocates

*“More parking equals more cars equals more road space and more cost to drivers and the city as a whole.”<sup>20</sup>*

*Overpricing housing.* Housing advocates contend that the City’s 1:1 requirement drives up the overall cost of housing. Parking does not get the same return on investment as housing and drives up development costs.<sup>21</sup> Housing advocates argue that the City’s requirement makes it more difficult for a developer to build under- or at-market rate housing, pushing her to target higher price markets.<sup>22</sup> Even with unbundling of parking, the City’s 1:1 requirement still restricts the amount of housing that can be built for a given number of off-street parking spaces and, therefore, increases prices due to a constricted overall supply of housing.

*Costing parking.* Housing advocates also claim that the City’s 1:1 minimum forces developers to build car storage for all units of housing in a city where just over 2/3 of households even own a car, creating an unnecessary burden on developers and changing the incentives of those buying or renting in that new development. They argue that should someone without a car buy a unit in a development with 1:1 parking, he is

more inclined to buy a car since the space to store it is available to him; but the costs of that extra car on the city's roads is borne by the rest of the city's residents. The idea that a person will buy a car because he has a parking space is relatively unproven, but it does leave open the question of how well new developments are suited to the interests of all potential buyers and renters.

### Buyers and Renters: The Future Residents

*“Most people know in their gut that a unit without parking is less than a unit with parking.”<sup>23</sup>*

*Investing versus occupying.* All of the housing being built is either for buyers or renters. Each of these groups is motivated by varying interests, but both face price constraints. For buyers, the “value of a deeded property is equity.”<sup>24</sup> Housing is an investment. The mortgage interest on a home can be deducted from taxes, and, if parking is purchased, its mortgage interest can be deducted as well since it is considered part of a dwelling. For renters, housing is a monthly payment of some amount, with a separately charged price for parking. As shown in Figure 1, those living in owner occupied housing are more likely to not only have more vehicles per resident but also fewer households with no vehicle than those in renter occupied housing.<sup>25</sup>

***Figure 1: Household owners are more likely to own vehicles than renters.***

Type of Housing	Total Number of Households / Residents	Total # Vehicles	Percentage of Vehicles per Household / Resident	Number of Households with No Vehicle	Percentage of Households with No Vehicle
Owner Occupied	115,315 / 318,343	178,707	155% / 56.1%	12,796	11.1%
Renter Occupied	214,385 / 438,648	186,302	87% / 42.5%	81,382	38%

*Arriving late.* Future residents of buildings under consideration currently are not an explicit stakeholder in the development process. Unlike neighborhood groups, which see proposals and debate them with the City and developer in advance of a building's construction, future residents are broadly represented by housing advocates and are only an outright stakeholder once they buy or rent a unit in a new housing development, after it has been completed. Given this disconnect between what residents may demand if they could develop the building in which they would be living and what is actually built, an argument could be made for flexibility in the provision of building amenities such as parking.<sup>26</sup>

#### All Stakeholders

*“A parking space in San Francisco is a huge commodity; you will always be able to fill it.”<sup>27</sup>*

*Outcome-driven motivations.* As each stakeholder acts in his own self-interest, the process drives to the safe outcome of 1:1 parking, with housing advocates and the City generally pushing toward 1:1 and lenders and neighborhood groups pushing for more than 1:1 parking. A number of changes could be made to this process to drive toward a range of alternative outcomes better-fitting to their settings, whether as a large downtown housing development sitting on a major transit corridor or a small, mom-and-pop building going up on a side street in the Outer Sunset. Before discussing ways to provide for better outcomes, however, it is necessary to understand the current market distortions and just what problem, if any, exists with current processes.

**Chapter 3:**  
**The Price of Parking**

*“We just provide what the market demands.”<sup>1</sup>*

99 percent of automobile trips in America involve free parking. While the implications of this policy outcome provide fodder for an entirely different analysis, this issue is introduced as a setting for understanding cost perceptions versus actual cost for something as basic as parking. San Franciscans face a higher price for parking than most jurisdictions because of a constrained supply (only 1.6 spaces for each registered vehicle,<sup>2</sup> as opposed to the typical 4 spaces for each vehicle found elsewhere). Given constraints on developable space and high land values, it is further difficult to build more parking, so the restricted supply has pushed prices even higher. However, as we shall see in Chapter Four, parking – even with its high price in San Francisco – still does not have a price that gets a similar per square foot return as housing, which has its own set of consequences.

*Determining Market Demand.* Many of the stakeholders in the development process claim to have an understanding of market demand and supply for off-street parking. Generally, the claim is that San Francisco “does not have enough parking” to meet the demand. It begs the question just what systems exist and what research has been conducted to get at the question of parking supply and demand and effects on prices. According to Jeff Tumlin, an analyst for Nelson\Nygaard Transportation Consultants, there is “little information out there” on this issue.<sup>3</sup> What little does exist, according to one city planner, rarely looks at “the effects of supply on demand,” but almost always “the other way around.”<sup>4</sup> That is to say, the concern in off-street parking requirements is always to provide enough parking for expected demand and never to understand how the

availability of that parking changes individual transportation choices. Some market price data does exist, however. It suggests that residential developments with less than 1:1 parking could not only work, they could be successful.

Figure 2 shows the data highlights from two studies and one estimate that seek to quantify the price of parking in residential developments.<sup>5</sup> The next several pages give more details on the specifics of these findings and how their conclusions can be applied to a better understanding of the price of parking and its effect on consumer choices.

**Figure 2: Research finds about an 11% price discount for housing without parking, but disagree on effect of price differential on absorption rate.<sup>1</sup>**

Study/Estimate	Price of Parking Space**	Percent of Condo Price	Price Affect on Absorption (Sales) Rate
<b>Wenyu Jia / Martin Wachs</b> (1997)	\$78,000	13%	Condos without parking sell 41 days quicker – empirically determined
<b>Sedway Group</b> (2001)	\$68,400	11.3%	Housing sells just as quickly with parking as without – no empirical evidence presented
<b>Malcolm Kaufman</b> (2000)	\$53,600	9%	Housing with parking sells quicker – based on anecdotal evidence
**All prices adjusted to reflect 2003 condominium prices, relative to years of data collected			
<sup>1</sup> More information on figure adjustment available in Appendix Three.			

### The Jia-Wachs Study

*“Although Americans rarely connect housing affordability with parking availability, the two problems are actually intimately linked.”<sup>6</sup>*

*Quantifying price.* In November 1997, a study by Wenyu Jia and Martin Wachs quantified the exact price effects of parking in new developments in several representative San Francisco neighborhoods. Using a model that held constant a number of variables – including unit size, structure, and age; architectural style; availability of off-street parking; and neighborhood median income levels and racial composition – they

determined that the availability of a parking space accounted for 13 percent of the price of a condominium and 11.8 percent of the price of a single-family dwelling unit.<sup>7</sup>

*Price effects on demand.* While this price differential alone was interesting to see, Jia and Wachs went further. They determined that 20% more San Francisco residents could afford a condominium and 24% more a house if those units did not include parking. Even more importantly, they found that condominiums with parking “took an average of forty-one days longer to sell than those without,” while the difference in sales time was not statistically associated with parking for single family homes.<sup>8</sup> This faster absorption rate (sales rate) for units without parking than those with parking contradicts the common assumptions of investors, lenders, and developers that providing units without parking makes them less desirable. This study shows that the positive effect of a lowered price of housing overcomes the expected negative effect of the availability of parking on the absorption rate.

#### Sedway Group’s Study

*“I’d be intrigued to know if successful developments with less than 1:1 parking might have been even more successful with more parking.”<sup>9</sup>*

*Reviewing results.* In 2001, the Sedway Group – a real estate and urban economics consulting group – conducted a feasibility study for the developers of a proposed residential development in San Francisco’s Rincon Hill. The developers were interested in knowing whether they should build less than or equal to 1:1 parking.<sup>10</sup> Using two different methods of analysis, Sedway determined a price differential for units with versus without parking. In one analysis, Sedway looked at the prices of units in a single development, pairing comparable units with and without parking to determine a



price differential associated with the added value of the parking spaces. They found an average 11.5% price differential – based on dollars per square foot – that ranged from 0.6% to 19.0% difference in price across five pairs. Their second analysis compared sales prices of condominiums with versus without parking over a five-year period. In that study, they found a 21.1% premium for dedicated parking. This number, however, did not control for building age, location, and unit size and number of bedrooms, among other factors. Given Sedway’s statement that “most larger-scale condominium projects developed in San Francisco since 1980 feature at least a 1:1 parking ratio,” proportionately more of the condominiums in their study without parking were likely older and – given the desire for more parking with more bedrooms – had fewer bedrooms than those condos with parking. These two factors alone could account for the discrepancy between this number and Sedway’s determination of an 11.5% discount in its other study as well as the numbers found in the Jia-Wachs and Kaufman research.<sup>11</sup> Using Sedway Group’s data and accounting for unit age and size and housing price inflation, we find that the price discount for housing without parking is likely about 11%.

*Interpreting results.* Despite evidence supporting the building of some units without parking, developers and lenders are avidly disinclined to building anything with less than 1:1 parking. The Sedway Group study serves as a case in point of this difference between empirical data and its interpretation and practical application. At the end of their analysis, Sedway advised against building less than 1:1 parking. And yet their studies could have been interpreted as supporting the case for less than 1:1 parking. As they noted, the “findings indicate that any units sold without a dedicated parking space will likely sell for at least a 10 percent discount relative to the units sold with one

parking space. These units might be absorbed at a rate comparable to the units with a parking space, but only by virtue of their lower sales price.”<sup>12</sup> Further, with Sedway’s assertion of comparable absorption rates between housing with versus without parking, the counter-argument to the investment return argument – that units without parking do not sell as quickly as those with parking; that there is not enough demand for housing without parking – is summarily dismissed. Despite this outcome, Sedway Group cites concerns about finding construction financing and says that the proposed development’s “planned condominiums will likely be hindered by the requirement of less than a 1:1 parking ratio.”<sup>13</sup> Securing financing for projects with less than 1:1 parking is indeed a barrier to development. It begs the question of whether the appropriate barrier to developing housing with less than 1:1 parking should be the lenders or the consumers.

#### Realtor’s Research

*“The lack of a parking space can be a problem, and if you buy a problem, you’re selling a problem.”*<sup>14</sup>

*Studying a problem.* Malcolm Kaufman, a real estate agent and financial analyst, sought to quantify the price of a single parking space.<sup>15</sup> Figuring a value of about \$200/month for a space to a condominium owner, he came up with an annual value of \$2,400. From there, estimating a 5% annual interest, he figured the value of that single space was \$50,000.<sup>16</sup> On a \$600,000 condo, according to Kaufman, a parking space accounts for 9.1% of the price. While his numbers indicated that a condominium would be more affordable if it did not include off-street parking, he explained that buying a parking space is an investment that pays off in tax deductions and added value when selling the condominium at a later date.<sup>17</sup> Further, as indicated by his quote above, he

believes that not having a parking space is a problem in seeking to sell a housing unit (by slower sales time), a claim that contradicts the data in the Jia-Wachs study. When asked about the Jia-Wachs results on faster sales of units without parking, he said, “I don’t believe it. I’m in the business; I don’t believe it.”<sup>18</sup>

### The Prices

*“If you can afford half a million, you can afford \$550,000.”<sup>19</sup>*

*Paying a price.* While all three of these analyses disagree on the exact price paid for an off-street parking space in a residential development in San Francisco, they do give some clarity to the price of parking in general. For just the parking space that is included in a homeowner’s development, using the figures above, she would expect to pay about \$68,000, whether she uses it or not. This price is more than a 2004 Mercedes Benz E500 Sedan,<sup>20</sup> or three well-equipped 2004 Honda Accords.<sup>21</sup> As a capital investment, the price of parking is significant, particularly when understood relative to the price of an actual vehicle, without which there is no function to a dedicated parking space.

### The Rental Market

*“Limited parking availability is not an issue.”<sup>22</sup>*

*Different but informative.* Renters have different preferences and interests than buyers in the housing market, and their vehicle usage is thus different than buyers. However, the price of parking in many rental developments has been unbundled from housing for a long time, and it is therefore possible to examine in greater detail renters’ actual demand for parking, separate from housing. Further, since almost two-thirds of the

City’s housing stock is rented,<sup>23</sup> this analysis of rental data is useful in understanding the imprecision of the City’s 1:1 requirement for most housing in San Francisco.

*Empty spaces.* Individual rental developments keep track of their parking usage, which can be done since parking spaces are rented separate of housing units. Looking at four relatively new, market-rate priced developments, none had 1:1 parking (and they averaged 0.6:1 in off-street parking provided, 40% less than the City minimum). Even with this off-street parking availability of less than 1:1, only 83% of it was rented at the time of the survey, meaning that the actual usage rate of off-street parking was about 1:2, or half of all units. Assuming a conservative 1.3 residents on average per unit, this amounts to fewer than 40% of all residents renting an off-street parking space. What’s telling about these numbers is not that the usage rates are less than 1:1, but that they are so far below 1:1.<sup>24</sup>

*Poor parking pricing.* Off-street parking generally accounts for about one-fifth of the total cost of building a unit with parking.<sup>25</sup> Knowing that, we turn our attention to the rates charged for parking to renters in our four developments. The average price is about \$200/month. Were housing getting a similar return on investment as parking, then we would expect a separate rental price of an average unit in any of these market-rate buildings of about \$800/month, since relative building costs are about four dollars of housing for every dollar of parking. Presuming a conservative rental average of

\$1,600/month/unit in any of these buildings,<sup>26</sup> that is twice the amount being charged for what we would

**Figure 3: Parking is underpriced by about 50% relative to the return on housing in today’s rental market.**

	<b>If housing gets same return* as parking in today’s market</b>	<b>If parking gets same return* as housing in today’s market</b>	<b>Actual prices</b>
<b>Parking</b>	\$200	\$400	\$200
<b>Housing</b>	\$800	\$1600	\$1600

\*Using cost and price values detailed in Chapter 4.

expect if building owners were seeking a similar investment return on their housing as they were their parking. Or, conversely, we would expect a charge for parking of \$400/month to have a return on parking similar to that of housing. Instead, we find that parking is rented at half the return on investment rate for which its paired housing rents. And this is in developments that have parking used at about a 1:2 rate, half the expected 1:1 rate from lenders and the City.

*Easily rented.* None of the residential developments surveyed reported difficulties renting units because of a lack of available off-street parking. The most parking-limited development, Post Street Towers, which opened 15 years ago with two spaces for every five units, has been “fully occupied since day one.”<sup>27</sup> One wonders why there have been no difficulties renting these units, given the limited availability of off-street parking. A number of factors help explain this phenomenon, including the preferences of renters (versus homeowners), the separation of prices for housing and parking, and the choices of occupants, given their decision-making processes when confronted with different transportation options and visible prices for each option.

**Chapter 4:**  
**The Relative Costs and Prices of Parking**

*“It just didn’t pencil to build 1:1 parking.”<sup>1</sup>*

*Costing parking.* Estimates of the cost of building parking spaces vary greatly, making it difficult to pinpoint an exact cost. This analysis uses some basic values to create a general estimate of building costs and then compares those values to an actual development. For starters, few new developments in San Francisco have surface parking; in other words, parking is in a structure, either above- or below-ground. Land value is too great in San Francisco to build surface lots for new developments. Based on interviews and building data, a reasonable hard cost estimate for above-ground structured parking in San Francisco is about \$20,000 per space, or around \$60 per square foot with each space taking up about 350 square feet.<sup>2</sup> Due to a number of additional factors, below-ground parking hard costs are at least twice as much to build as above-ground, and can rise up \$60,000-\$100,000 per space.<sup>3</sup>

*Costing housing.* In order to understand the cost of parking and its relative return on investment to housing, we must also calculate the hard cost of building housing. One researcher determined the per-square foot cost to be \$125 for high-density, high land cost development, such as in San Francisco.<sup>4</sup> For a one-bedroom unit of 800 square feet, this is \$100,000 to build each unit.

*Relative costs.* Given the above figures, above-ground structured parking is at least 16.7% of costs in a new development, and its relative costs go much higher if it is underground. In a new development along Van Ness Avenue (building .375 parking spaces to each unit of housing, some at ground level and some below), parking accounts for 24% of the total costs of housing and parking.<sup>5</sup> According to one expert, parking

generally “adds about 20% to building costs.”<sup>6</sup> Many developers prefer to build below-ground since the value of above-ground land is so high. A trade-off then occurs between a potentially higher return on above-ground land, with housing instead of parking, and the additional cost of building deeper into the ground to realize that higher return.

*Comparing investment returns.* Given a price discount of 11% for housing units without parking and relative building hard costs per square foot of housing and parking, we can determine the rate of return per square foot of the development. Since parking has a proportionately lower selling price than its cost, units with parking have a lower rate of return. The question is to what extent it makes a difference. Figure 4 compares these rates of return, assuming expenses double the building hard costs, when including architectural, planning and miscellaneous other soft costs.<sup>7</sup> Note that, in order to for a developer to get the same rate of return on a unit with parking as a unit without parking selling for \$356,000, that unit with parking must sell for \$454,250, or about \$100,000 more, which is \$32,000 more than the expected \$68,000 price premium for parking.

**Figure 4: Per square foot profit is higher on a unit without versus with parking.**

Unit with parking (800 ft <sup>2</sup> for housing, 350 ft <sup>2</sup> for parking; hard and soft costs of \$264,000)				Same unit without parking (800 ft <sup>2</sup> for housing, 11% parking discount on price; hard and soft costs of \$224,000)				Increased Profit per ft <sup>2</sup> w/out parking
Selling Price	Return per ft <sup>2</sup>	Cost per ft <sup>2</sup>	Profit per ft <sup>2</sup>	Selling Price	Return per ft <sup>2</sup>	Cost per ft <sup>2</sup>	Profit per ft <sup>2</sup>	
\$400,000	\$350	\$230	\$130	\$356,000	\$445	\$280	\$165	\$35
\$454,250	\$395	\$230	\$165	\$404,300	\$505	\$280	\$225	\$60
\$500,000	\$435	\$230	\$205	\$445,000	\$556	\$280	\$276	\$71
\$600,000	\$520	\$230	\$290	\$534,000	\$668	\$280	\$388	\$98

*Absorbing value.* A major component in understanding the rate of return is the absorption rate – the rate at which available units are sold or rented. Table 3 assumes an

equal absorption rate for units with versus without parking, an equivalence verified by the Sedway Group study. Table 4 assumes an absorption rate that is 6 months longer for units without parking as well as an interest rate on outstanding loans for these units of 20% annual interest. The empirical data from the Jia-Wachs study shows a faster absorption rate for units without versus with parking; however, developers, lenders, and realtors insist on just the opposite. Figure 5 shows that, even assuming six months' longer time to sell units without parking, the rate of return is still almost always greater for these units than those with parking.

**Figure 5: Units without parking almost always get more per-square foot profit than those with parking, even when assuming an exceptional six-month difference in absorption rates and a 20% annual interest rate on a building loan.**

Unit with parking (800 ft <sup>2</sup> for housing, 350 ft <sup>2</sup> for parking; assumes hard and soft costs of \$264,000)				Same unit without parking (800 ft <sup>2</sup> for housing, 11 (+10) % discount on price; assumes hard and soft costs of \$224,000)				Profit Differential per ft <sup>2</sup> w/out parking
Selling Price	Return per ft <sup>2</sup>	Cost per ft <sup>2</sup>	Profit per ft <sup>2</sup>	Selling Price	Return per ft <sup>2</sup>	Cost per ft <sup>2</sup>	Profit per ft <sup>2</sup>	
\$400,000	\$350	\$230	\$130	\$320,400	\$400	\$280	\$120	-\$10
\$454,250	\$395	\$230	\$165	\$363,855	\$455	\$280	\$175	+\$10
\$500,000	\$435	\$230	\$205	\$400,500	\$500	\$280	\$220	+\$15
\$600,000	\$520	\$230	\$290	\$486,000	\$607	\$280	\$327	+\$37

*Direction of absorption.* Figure 6 shows what happens if the absorption rate for condominiums without parking is 41 days faster than units with parking, as determined by the Jia-Wachs study. The only plausible reason for this accelerated rate is the lowered overall price of housing when excluding the price of parking. As stated earlier, this lower price allows another 20% of San Francisco's residents to purchase a condominium.

**Figure 6: Units without parking lose more profit relative to units with parking when discounted for 41 days longer sales time, with a 20% annual loan interest.**



Unit with parking (800 ft <sup>2</sup> for housing, 350 ft <sup>2</sup> for parking; hard and soft costs of \$264,000; 2.25% discount for 41 days longer sale time)				Same unit without parking (800 ft <sup>2</sup> for housing, 11% discount on price; hard and soft costs of \$224,000)				Increased Profit per ft <sup>2</sup> w/out parking
Selling Price	Return per ft <sup>2</sup>	Cost per ft <sup>2</sup>	Profit per ft <sup>2</sup>	Selling Price	Return per ft <sup>2</sup>	Cost per ft <sup>2</sup>	Profit per ft <sup>2</sup>	
\$391,000	\$340	\$230	\$110	\$356,000	\$445	\$280	\$165	\$55
\$444,030	\$386	\$230	\$156	\$404,300	\$505	\$280	\$225	\$69
\$488,750	\$425	\$230	\$195	\$445,000	\$556	\$280	\$276	\$81
\$586,500	\$510	\$230	\$280	\$534,000	\$668	\$280	\$388	\$108

*Win-win.* While developers are rightly disinclined to build an entire market rate residential development without parking, these numbers make a case that even having some units without parking could generate greater profit on a per square-foot basis. In the process, developers could offer some lower-priced units of housing which would likely sell just as quickly as, if not quicker than, those without parking.

**Figure 7:** A Lot with 7,000 buildable square-feet –  
Case Study of the Parking Requirement's Impact

*Using the figures from Figure 4, we turn to a specific example in how the parking requirement impacts the availability and affordability of housing.*

On a lot of 7,000 square feet with a 60 foot height restriction, a developer would be able to build 20 parking spaces and, therefore, 20 units of housing, at 800 square feet each. Given the space constraints, she would have two floors with eight units each and a top floor with four units. For this building, selling each unit at \$500,000 (including parking), she would make a total profit of \$4.7 million.

If she could build out the unused fourth floor space, she could build 24 units of housing with the same 20 parking spaces. In this scenario, her building costs marginally increase while her selling prices increase more. Assuming the 11% price discount for the four units that sell without parking (and no sales time difference), the developer now makes a \$5.6 million profit.

If she could build even more housing without parking, she might seek to build up to the height limit, giving her another floor of housing, with eight more units. Under this scenario, again assuming the price discount for units without parking, she makes a \$7.3 million profit, or more than a 150% increase over her profit when restricted to one unit of housing per parking space.

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Developers face real restrictions on building profitability with the 1:1 parking requirement. Without a minimum, many could still be inclined to build 1:1 parking, but some would choose otherwise, and the outcomes of their decisions would serve as a future example to other developers. David Baker estimates that, without a minimum, large developments would have 10% more housing, and small- to mid-size developments 20% more housing, with the same number of parking spaces.

**Chapter 5:**  
**Current Policies Under Consideration and Implementation**

*“One size fits all never works.”<sup>1</sup>*

Stakeholders, seemingly in an unchanging debate, are actually participating in a number of policy changes already being implemented or under consideration, in San Francisco and elsewhere. These changes are allowing for better market pricing of parking, for developers, lenders, and buyers and renters. While changes are happening, however, they are meeting resistance, largely from neighborhood groups concerned about the availability of on-street parking as well as lenders concerned about the financial viability of certain requirements. Solutions to the price distortions of the City’s 1:1 minimum will be discussed in detail in Chapter 6, but these current policies are offered here to better understand ways in which the issue is currently being debated and approached.

**Unbundling**

*“The developers complained that they wouldn’t be able to sell all their parking.”<sup>2</sup>*

*Separating prices.* One of the long-standing frustrations of housing advocates was that any new housing unit would be sold with a parking space, or bundled. As discussed in Chapter 2, the City Planning Commission has begun requiring the unbundling of parking in new developments. While initially resistant to this change, developers now approach the Commission asking to unbundle their parking.<sup>3</sup> Given this about face, it would be interesting to know just what developers are able to get in today’s condominium market for unbundled parking. Those data are not available, but the

experiences of the Planning Commission and Planning Department suggest there is money to be made through unbundling – by the simple fact that, in the words of one planner, “the market is pushing unbundling through quicker than regulation.”<sup>4</sup> The drawback to a buyer in an unbundled development is that, should a developer choose to rent out the available parking spaces rather than sell them as deeded property, the buyer can not deduct mortgage interest payments on the parking from their taxes. This raises the interesting question of value systems and whether the government ought to subsidize a specific transportation preference (through mortgage payment deductions that include parking), but that question is outside the scope of this analysis.

#### Developments with Less than 1:1

*“The location made sense for less than 1:1.”<sup>5</sup>*

*Taking risks.* While developers face tremendous pressure to develop with at least 1:1 parking, some do not have an option as some areas of the City are zoned for a 1:4 maximum (one-quarter of the parking spaces in a 1:1 development). In other cases, the costs of building parking up to 1:1 don’t make financial sense given certain parameters. As the principal on a development with .375:1 parking, Pat Theophilos is a developer who recently chose not to build up to 1:1 because, in her words, “it just didn’t pencil.”<sup>6</sup> Despite modeling her proposed development’s financing structure after a successful development with a 15 year track record, however, Theophilos has struggled to land a financing partner. A big reason is the off-street parking, a third of the standard 1:1 minimum. Getting approval for the lower parking involved an approval process that went all the way to the Board of Appeals, as a nearby development objected to the low parking

provision. Given the constraints of the site, however, providing the City's required 1:1 independently-accessible spaces would have required a 10% increase in building costs. With the support of housing activists, Theophilos successfully moved her development through the City's approval process but is now hindered by the financing process.

*Rationing space.* A building on Market Street will soon have its original brick façade restored, when the 1960's-era steel cladding is stripped away. While this 115 year-old building, San Francisco's first skyscraper, will soon house a Ritz-Carlton time share,<sup>7</sup> one of its features will be that it has only 29 independently-accessible parking spaces for 113 units of housing.<sup>8</sup> This is 1:4 off-street parking, the maximum allowed in this area of downtown San Francisco. As part of an agreement including a number of variances, the project received approval to forego the city's "independently accessible" requirement and will likely use lifts and valets to accommodate up to 1:1 parking. While 1:1 is technically more than the City would otherwise permit in this zone, by using valets and lifts, parking in this luxury housing development will respond better to market prices, in a part of town where parking is especially hard to come by.

#### Not "Independently Accessible"

*"Many people would support eliminating the 'independently accessible' requirement."*<sup>9</sup>

*Changing the rules.* One of the less-discussed aspects of the City's off-street parking requirement involves the "independent accessibility" of those spaces. This requirement forces developers into having a certain amount of space for each parking spot – at least 350 square feet, including the space itself and rights of way. Despite the requirement, however, some developers have been able to get variances permitted by the

City and use lifts and valets to accommodate more vehicles in a smaller overall space. In so doing, developers have built fewer overall parking spaces (or more housing units) and still fulfilled the City's 1:1 requirement. While this may not be changing initial parking provision expectations by much, it does allow for greater flexibility and response to parking prices over time, a benefit we will discuss in more detail in Chapter 6 of this report. To the extent that developers are already working around the "independently accessible" requirement, they can pay less in building costs for the same amount of parking spaces, while also placing an additional cost on vehicle users, who must wait for a valet or attendant to park and retrieve their car anytime they wish to use it.

#### Mixed-Use Development

*"The variability in rent didn't make a huge amount of difference."*<sup>10</sup>

*No parking, "safely."* The intersection of Market and Powell, long known for its cable car turnaround and many shopping opportunities, will soon have 44 new units of housing, with no new parking. The units will occupy the top three floors of a seven-story historical building with four floors of retail. During the planning process, Tom Sullivan, a developer on the One Powell project, says the idea was to "leave the upstairs empty or for dead storage" and that "developing the upstairs as apartments [was only] marginally more profitable than dead storage." Because the developers felt it was better to have housing than storage, however, they decided to build out the space as rental units; and, given the constraints of redeveloping a historical structure, they had no place to build parking and planned to leave it without any. Because the retail space accounts for 80% of expected net operating income, there was not much difficulty securing financing for

the project, even with concerns of the housing not renting quickly without available off-street parking.<sup>11</sup> By creating a secure income stream in the retail space, the developers were able to manage building no parking and had the support of the City in the process.

### Neighborhood by Neighborhood

*“Planning does have to be neighborhood by neighborhood.”<sup>12</sup>*

*Engaging neighborhoods.* Recognizing the variability in neighborhood opinions to planning code changes, the San Francisco City Planning Department recently began approaching individual neighborhoods to implement localized changes, rather than push for citywide policy shifts. The City’s “Better Neighborhoods 2002” program was one of the first formalized outcomes of this new effort, involving a series of planning meetings with neighbors in specific communities to prepare for major anticipated shifts in transportation and land use priorities. Today the Long-Range Planning Department is using this model to enhance its “Eastern Neighborhoods,” “Downtown Neighborhoods,” and “Transit Corridors” planning efforts.<sup>13</sup> So far, these efforts appear to be effective at strengthening the Planning Department and local community’s efforts at building consensus and reducing the need for intervention in the approvals process. Specific to the provision of off-street parking, “Better Neighborhoods 2002” seeks to implement maximums lower than 1:1 in the Octavia Boulevard area and a 1:1 maximum in Balboa Park, two of its three targeted neighborhoods.<sup>14</sup> These changes have been vetted through a community planning process and been well-received in the Octavia Boulevard plan.

City CarShare

*“We are getting really positive results.”<sup>15</sup>*

*Unowned vehicles.* City CarShare is a program that began in San Francisco three years ago and now claims about 3,000 members. Members can check out vehicles that are available around the city and then pay for time and distance usage. The program has had broad appeal in its first few years, to the point now where the City Planning Commission will require that developers create a few City CarShare spaces before even consulting City CarShare staff.<sup>16</sup> A recent study of the program’s value revealed that “nearly 30 percent of members have gotten rid of one or more cars, and two-thirds stated they opted not to purchase another car.”<sup>17</sup> While the program seems to only moderately decrease the number of vehicles on the road, it is giving a significant alternative to private vehicle ownership that is leading many to own fewer or no cars. As well, one vehicle can serve many different households.

Other Cities

*“Because the requirements are less than 1:1 in New York and Washington, D.C., we are willing to finance projects with less than 1:1 parking there.”<sup>18</sup>*

*Working within maximums.* San Francisco’s 1:1 minimum is only one means of setting an off-street parking requirement. Some cities require parking spaces on a per-bedroom basis, and others require far less parking than 1:1. While developers and lenders feel strongly about providing at least 1:1 parking, they currently cannot build more than that in Washington, D.C., and are much more often restricted to less than 1:2 parking (50% of 1:1), depending on the zoning.<sup>19</sup> Fewer Washington, D.C., households



have access to a vehicle than in San Francisco,<sup>20</sup> but, as indicated by the lender in the above quote, banks and developers still support housing developments in D.C. with less than 1:1 housing in part because that is simply what the law requires. And by having such a requirement over time, a number of developments are built within its constraints and serve as “comparables” to which developers and lenders can look for evidence of the success or failure of projects with less than 1:1 parking.

*Setting maximums appropriately.* In Portland, a city with much higher vehicle ownership than San Francisco,<sup>21</sup> the minimum requirement for off-street parking in residential developments is generally 1:1. However, for those areas zoned as “High Residential,” the requirement is 1:2, as well as areas within 500 feet of a transit station.<sup>22</sup> While San Francisco has a 1:4 parking requirement in some areas, it does not have any lowered maximum for parking requirements for areas specifically near transit stations, a policy that pushes toward location-appropriate development.

**Chapter 6:**  
**Recommendations**

*“Do we have a social obligation to warehouse cars?”<sup>1</sup>*

*Returning.* We now have a better understanding of stakeholders, available data on prices, investment return disparities between parking and housing, and efforts currently underway to modernize the 1:1 requirement to better reflect market forces and individual preferences. With these things in mind, we turn our attention to specific solutions to consider as means in addressing the problems that come up with the 1:1 requirement. To recap an earlier statement of the problem, the City’s requirement has had unintended effects on housing finance ability and affordability. As well, this policy encourages one specific type of transportation use over all others.

*Financing.* Were developers allowed to build less than 1:1 without such a stringent minimum from the City, we can see where it might make sense to build more units for a given number of parking spaces than they are currently allowed to build. Some lenders would be open to this as well, given both their willingness to finance projects in cities with more stringent parking requirements and also the additional profitability that could be realized on the per-square foot basis discussed earlier.

*Buying or renting.* Housing without parking is less costly to build and, as we have seen, has a lower price to consumers. Buyers and renters who see a separate price for parking can decide whether it is a price they are willing to pay, given their own individual preferences in transportation and finances. The desire for lower-priced housing, even without parking, seems to drive the results of two of our studies that showed either a faster or similar sales rate for housing without versus with parking.

*Transit First.* San Francisco’s “Transit First” policy, which encourages building in a way that is complementary to local transit options and recommends making “alternative” forms of transportation – to the private automobile – more desirable, plays a role in how the City decides to implement any Planning Code changes. Furthermore, given the value of localized decision-making processes that shed practical light on issues such as the 1:1 parking requirement, it is recommended that the solutions below be implemented on a neighborhood by neighborhood basis. Some residents are more open to these ideas today, and others, having seen results of these policies in different neighborhoods, will then be able to respond over time and through new processes.

*Criteria.* At the introduction of this analysis, a number of criteria were established as a means for evaluating solutions. We now revisit those criteria within their thematic context.

**Themes:**

- I. Involves compromise among the interested stakeholders, creating buy-in.
- II. Reflects the transit-first values of San Francisco, as reflected in its Charter.

**Criteria:**

- Not a prohibitive barrier to most new development; the City is responsive to the needs of developers and lenders, and vice versa.
- Costs and prices of off-street parking are more apparent to those providing and those using it.
- Given transparent parking pricing, the amount of parking available is responsive to market demand.
- Parking provided makes sense within the context of its location (i.e. proximity to transit, local amenities, etc.)

*Giving timeframes.* The recommendations below are divided into short-term recommendations and long-term considerations. While a number of methods could be used to better understand political and practical viability, this timeframe construct highlights how some suggestions can be implemented with little political capital and further research while others will take more thoughtful exploration and education efforts. These recommendations flow from the analysis thus far and are offered as the most viable, value-added options in overcoming the unintended price effects of the City's current parking requirement.

**Figure 8: Suitability of recommendations to criteria**

	Not prohibitive barrier to most development	Market price for parking revealed	Parking allocation responsive to demand	Parking appropriate to location
<b>Short-term Recommendations</b>				
Unbundle Parking	√	√		
Reduce Minimum	√	√ - for developers	√	√
Eliminate "Independently Accessible" Requirement	√	√	√	√
City CarShare	√		√	√
<b>Long-term Considerations</b>				
Lower Maximum				√
Market-Rate Residential Parking Permit Program	√	√	√	√
City-Supported Development Fund	√	√	√	√

**Short-Term Recommendations**➤ Unbundle Parking Prices

While unbundling is already happening at a number of new developments around the City, and has been happening for some time at rental properties, it is not required. Since the market is already pushing toward unbundling, it might not seem necessary for the City to require this procedure. It is, however, a vital component to revealing the real price of parking to any interested buyer or renter. While housing advocates argue that some people simply do not want the parking in the first place, a further argument could be made that a revealing of prices to a consumer could alter their preferences and, ultimately, their choices. Because the market is already pushing through this reform, a change in the City's code to require unbundling would not be a prohibitive barrier to development and likely would encounter little resistance.

➤ Eliminate the Minimum

The 1950's-era policy of a minimum of 1:1 parking does not make sense within San Francisco today, given its household vehicle ownership rates and transit options. While opposition to such a change could be particularly difficult in certain areas of the city, the current minimum forces an artificial outcome on the market that is contrary not only to San Francisco's "Transit First" policy, but also the transportation choices of its residents. The initial outcome of this change may not be too large, but it would at least shift the debate among interested stakeholders as well as their motivations. Everything from the architect's method in determining number of units on a plot of land to the

arguments made by neighborhood groups and developers would be changed as a result of an elimination of the minimum.

An elimination of the minimum does not require all developers to change standard business practices, but it does allow those interested in building more housing for constrained parking to face significantly fewer barriers. This policy change also allows developers to build parking more in line with its cost – rather than being required to build parking that is subsidized by housing. It allows for better market response mechanisms to demand for parking, which can be fine-tuned to specific neighborhood characteristics.

➤ Eliminate the “Independently Accessible” Requirement

An elimination of the “independently accessible” space requirement is the City’s most readily-available tool to create a market-response mechanism for parking in new residential developments. While many complain that it allows developers to build more parking in less space (thus potentially creating even more parking than might be necessary), the benefits of such a change in policy are two-fold. First, since the price of new housing subsidizes parking costs, any reduction in the overall cost per square foot of parking (i.e. providing 1:1 parking with less space) reduces the price of parking. Second, where many developers and lenders talk about “market demand and supply” for off-street parking, few seem to know just how to impute these values. If developers were given the freedom to use valets to make up the difference between 1:2 (parking for only 50% of all housing units) and 1:1 parking, they might find that the valet is unnecessary as only 1:2 gets used anyway, or they might add only a few lifts in response to the demand they incur for off-street parking as the development reaches full occupancy.

Because an elimination of the “independently accessible” requirement does not necessarily change how much parking developers can build, it is not a barrier to most new development. Should residents have a valet parking their cars, they will see an increased price in their everyday usage, through valet costs and tips as well as time delays to get their vehicles. Since parking using valets and lifts will be more flexible over time than current city policy requirements, it will better reflect local needs.

➤ Encourage City CarShare as a Tradeoff for Less Than 1:1 Parking

City CarShare is already showing itself to be a “welcomed addition to the urban transportation sector”<sup>2</sup> The San Francisco City Planning Commission has required almost 30 new developments in the past year to include City CarShare parking spaces as a condition of approval. A handful of these cases have reduced parking requirements, but only in “affordable housing” developments, specifically targeted to low-income households.<sup>3</sup> Given the information already available on City CarShare members’ vehicle usage and ownership, it would make sense for the City to allow additional units of housing to be built for a constrained number of parking spaces when a developer agrees to set aside several of those parking spaces for City CarShare.

### **Long-Term Considerations**

➤ Lower and Strengthen the Maximum

San Francisco’s parking maximum currently resides mostly in the political realm. As discussed earlier, there is little to keep developers from building greater than 1.5:1

(50% over the 1:1 minimum), except, of course, the sheer cost of building parking relative to its potential sales price. While that caveat is quite significant given San Francisco's land costs, the maximum in allowed off-street parking could still be strengthened. The City is experimenting with lowering the maximum in the Rincon Hill and Market-Octavia neighborhoods, and it already has a 1:4 maximum along Van Ness Avenue and in parts of downtown. The concept of lowering and solidifying the maximum is already being explored in the City's Long-Range Planning Department, with the idea to implement it on a neighborhood by neighborhood basis.

Lowering the maximum runs the risk of distorting price-efficient outcomes much the same way that the 1:1 minimum does today. That is why this suggestion is offered as a long-term consideration, since it deserves more research and locally-refined implementation than this analysis has given it. As mentioned earlier, some cities around the U.S. already have maximums less than 1:1, and developers and lenders work within these constraints to build new housing. San Francisco can learn from these experiences and implement lowered maximums that ensure appropriate parking allocations given local amenities and transit.

➤ Implement a Market-Rate Residential Parking Permit Program

The strongest opposition to developments with less than 1:1 parking comes from neighborhood groups. Their concern: the availability of *on*-street parking. Neighbors figure residents in a development with less than 1:1 parking will simply opt to park on the street, rather than not own a car. This is a fair concern, and one to which the City can have almost only one response: a Market-Rate Residential Parking Permit Program.<sup>4</sup> The



City should consider a number of implementation methods, but a program that grandfathers in existing parking permit holders and charges closer to market-rate values of on-street parking to new permit buyers would most likely be successful. Further, if parking permits are fully transferable (that is, they can be sold among residents and not restricted to specific people or vehicles), then those who are grandfathered in can sell their permits at the market price, if they so choose. Neighborhoods would receive the additional permit monies in direct financial support of activities like greening of streets, traffic calming, and neighborhood revitalization.

➤ Create a City-Supported Development Fund

Since one of the biggest constraints facing developers is the availability of funds for a specific project, the City has an opportunity to loosen that constraint by acting as a lending agent through its own fund and set of criteria. The concept is that of a “progressive development fund,” which gives developers a financing option when considering a new residential project with, say, low parking allotments. Further, this fund could be used to provide critical long-term financing to relieve developers of quick-profit pressures, giving them more flexibility to build with better quality materials and to sell their new housing at lower prices.<sup>5</sup>

**Conclusion:**  
**Creating Mechanisms**

*“We need to design a regulatory structure where the marginal cost is evident.”<sup>1</sup>*

What seems most apparent from conversations with every stakeholder in the development process is that, so long as parking is underpriced and subsidized, we do not know how to deal with regulating it. The City took its first stab at parking regulations in the 1950’s, and those have only been changed a couple times since. Meanwhile, two generations have grown accustomed to certain expectations around their vehicles, and prices have a lot to do with those expectations.

All of the recommendations in this analysis go back to the price of parking. We all face a cost for parking, whether we use it or not. The question, ultimately, is what is most fair and equitable in bearing the costs of parking. When Donald Shoup discusses 99% of trips with free parking, what he is really saying is that the cost is so dispersed as to make the cost for that single trip not apparent to the person using the parking space. And yet a price must be paid, either through higher prices at the grocery store counter, a higher price for a new condominium, or a slightly smaller paycheck.

One must be willing to confront the question of whether, as a driver, one prefers to face a more accurate reflection of parking costs up front or prefers instead to spread those out among drivers and non-drivers alike. And non-drivers must decide to what extent they feel their regular contributions to free parking are providing for a societal good or subsidizing a private benefit.

If we truly get the prices right, then we have finally embarked on the path to getting the parking right.

**Endnotes****Chapter 1**

<sup>1</sup> One of many phrases spoken as a means for gaining luck at finding a parking space in San Francisco.

<sup>2</sup> Jane Holtz Kay, "A Brief History of Parking," *Architecture Magazine*, February 2001; cited online at <http://www.janeholtzkay.com/Articles/parking.html>

<sup>3</sup> Tim Redmond, "The Great Freeway Revolt," *The San Francisco Bay Guardian*, March 24, 2004; p. 21.

<sup>4</sup> Jane Holtz Kay, "A Brief History of Parking," *Architecture Magazine*; February 2001.

<sup>5</sup> Donald C. Shoup, "The Trouble with Minimum Parking Requirements," *Transportation Research Part A*; Vol. 33: 1999; p. 551.

<sup>6</sup> *Ibid*; p. 555.

<sup>7</sup> *Ibid*; p. 558.

<sup>8</sup> Telephone Interview with Rebecca Silverberg, Government and Elections Chair, San Francisco Coalition of Neighborhoods; April 19, 2004.

<sup>9</sup> Interview with Marshall Foster, Long-Range Planner, San Francisco City Planning Department; March 26, 2004.

<sup>10</sup> Appendix One gives a more detailed description of methodology.

<sup>11</sup> In Section 16.102 of San Francisco's City Charter – "Transit First Policy" – paragraph 2 states that "within San Francisco, travel by public transit, by bicycle and on foot must be an attractive alternative to travel by private automobile," and paragraph 7 states that "parking policies for areas well served by public transit shall be designed to encourage travel by public transit and alternative transportation."

<sup>12</sup> This paper will not address the numerous externalities and costs to society associated with subsidized vehicular travel, part of which is the underpricing of parking. Rather, it seeks to examine merely the effect of current off-street parking requirements on housing availability and affordability.

**Chapter 2**

<sup>1</sup> Telephone interview with Mark Lacourse, Senior Vice President, Hall Financial Group; February 19, 2004.

<sup>2</sup> Telephone interview with Alan Robertson Vice President, Key Bank Real Estate Capital; February 26, 2004.

<sup>3</sup> Interview with Marshall Foster; March 26, 2004.

<sup>4</sup> These numbers will be examined in greater detail in Chapter 4.

<sup>5</sup> Telephone Interview with Alan Robertson; February 26, 2004.

<sup>6</sup> Telephone Interview with Bill White Vice President, Mercantile Investment & Wealth Management; February 13, 2004.

<sup>7</sup> Christopher Leinberger, "Financing Progressive Development," *Capital Xchange*; The Brookings institution, May 2001; p. 3.

<sup>8</sup> Telephone Interview with Rob Hensley, Managing Director, CB Richard Ellis; March 8, 2004.

<sup>9</sup> These changes will be discussed in more detail in Chapter 5.

<sup>10</sup> Per the San Francisco City Planning Code, Article 1.5, Section 150. General exceptions include, but are not limited to:

-Senior Housing (one-fifth of minimum otherwise required in an area)

-RC-4, RSD, and C-3 zoned areas, including sections of the Financial District and the Van Ness Corridor (amended to the code in the 1980's)

<sup>11</sup> Per the San Francisco City Planning Code, Article 2, Section 204.5.

<sup>12</sup> Variance Application, Planning Department of the City and County of San Francisco; from "What is a Variance?" section.

<sup>13</sup> Conditional Use Application, Planning Department of the City and County of San Francisco; from "Conditional Use Findings" section.

<sup>14</sup> Interview with Michael Yarne, Land Development Attorney, Farella, Braun & Martel LLP; February 24, 2004.

<sup>15</sup> Telephone Interview with David Baker, Principal, David Baker Architects; February 20, 2004

<sup>16</sup> Interview with Marshall Foster; March 26, 2004.

<sup>17</sup> Telephone Interview with David Baker, February 20, 2004.

<sup>18</sup> Interview with Lisa Feldstein, Commissioner, San Francisco Planning Commission; February 27, 2004.

<sup>19</sup> Telephone Interview with Peter Winkelstein, Member, Planning Association of Richmond Board of Directors; April 2, 2004.

<sup>20</sup> Telephone Interview with Shannon Dodge, Member, Transportation for a Livable City Board, January 13, 2004.

<sup>21</sup> See Chapter 4.

<sup>22</sup> Todd Litman, "Parking Requirement Impacts on Housing Affordability," Victoria Transport Policy Institute: Victoria, B.C. November 28, 1999; p. 7.

<sup>23</sup> Telephone Interview with Malcolm Kaufman, Top Producer, McGuire Real Estate; April 9, 2004.

<sup>24</sup> *Ibid*; April 9, 2004.

<sup>25</sup> See Appendix Five for more details on these numbers. The source of this data is the 2000 U.S. Census, available at [www.census.gov](http://www.census.gov), under "American FactFinder."

<sup>26</sup> Greater flexibility in parking provision is discussed in greater detail in Chapters 5 and 6.

<sup>27</sup> Telephone Interview with Peter Albert, Director, BART Station-Area Planning; February 20, 2004.

### Chapter 3

<sup>1</sup> Telephone Interview with Mark Lacourse, February 19, 2004

<sup>2</sup> "Countywide Transportation Plan; DRAFT – Parking Management," prepared by Countywide Transportation Plan subcommittee of San Francisco County Transportation Authority; September 16, 2003; p. 4.

<sup>3</sup> Interview with Jeff Tumlin, Consultant, Nelson\Nygaard Transportation Consultants; March 19, 2004.

<sup>4</sup> Interview with Joshua Switzky, Long-Range Planning, San Francisco City Planning Department; March 23, 2004.

<sup>5</sup> While some may dispute the findings of these studies, they are nonetheless research done for the purpose of determining a price of parking. The purpose of including them in this report is not to claim their values are absolutely correct but to understand that they drive us toward a clearer understanding of the effects of the City's policy on housing availability and affordability.

<sup>6</sup> Wenyu Jia and Martin Wachs, "Parking Requirements and Housing Affordability: A Case Study of San Francisco [Working Paper]," Institute of Transportation Studies: University of California at Berkeley. November 1998; p. 3.

<sup>7</sup> *Ibid*; p. 8.

<sup>8</sup> Jia and Wachs; p. 8.

<sup>9</sup> Telephone Interview with Alan Robertson; February 26, 2004.

<sup>10</sup> The Rincon Special Use District restricts new residential developments to no more than 1:2 independently accessible spaces and 1:1 with valets and lifts; per interview with Marshall Foster; March 26, 2004.

<sup>11</sup> The difference drops to 9.2% to 12.6% explained by off-street parking availability when taking the statistical coefficients determined in the Wachs/Jia study for square footage and age differentials and assuming those units without parking, when compared to those with parking, have ¾ to 1 less full bedroom and 10 to 15 years more in age; this also assumes a 4% annual increase in prices, which is conservative given the period of study, 1996-2001, and San Francisco's "red hot" housing market at the time.

<sup>12</sup> Amy Herman, Managing Director, Sedway Group; Letter to Mr. Martin Dalton and Mr. Terry Sternberg, "Re: Study Findings Regarding Condominium Parking Ratios," September 27, 2001; p. 4. This finding is important in understanding the rate of return for housing versus parking, since the price of parking relative to housing is about 11%, but the cost of building that parking relative to building housing is closer to 20%.

<sup>13</sup> *Ibid*; p. 4.

<sup>14</sup> Richard Paoli, "SF Real Estate by the Numbers: Analyst turned agent can even tell you what a parking place is worth," *The San Francisco Chronicle*, December 16, 2001; p. E3.

<sup>15</sup> Kaufman employed the cap rate method, which assumes a certain level of interest rate and projects out over time. His assumptions, explained in footnote 16, can be questioned, but his logic is sound, except that he does not take parking maintenance costs into account.

<sup>16</sup> 5% of \$50,000 is \$2,500, about the same as the \$2,400 figure Kaufman determined through the \$200/month value. Put differently, if a single parking space is worth \$50,000 as an investment, the annual return of 5% on that investment would be \$2,500, or about \$200/month.

<sup>17</sup> Telephone Interview with Malcolm Kaufman; April 9, 2004.

<sup>18</sup> *Ibid*; April 9, 2004.

<sup>19</sup> *Ibid*; April 9, 2004.

<sup>20</sup> From Mercedes Benz USA's website; online at <http://www.mbusa.com/brand/index.jsp>

<sup>21</sup> From Honda's website; online at

[http://www.hondacars.com/models/model\\_overview.asp?ModelName=Accord+Sedan](http://www.hondacars.com/models/model_overview.asp?ModelName=Accord+Sedan)

<sup>22</sup> Telephone Interview with Sophie Dembo, Manager, Post Street Towers; April 2, 2004.

<sup>23</sup> See Appendix Five for these data.

<sup>24</sup> All of the numbers included in this section are available in greater detail in Appendix Four.

<sup>25</sup> These numbers will be discussed at length in Chapter 4.

<sup>26</sup> This is less than the \$1731/month San Francisco-wide estimate by Rental Guide (as of August 2003); information available at [www.rentalguide.com/rentalmarket.html](http://www.rentalguide.com/rentalmarket.html).

<sup>27</sup> Interview with Patricia Theophilos, Senior Vice President – Chief Lending Officer, California Savings Bank; March 19, 2004.

#### Chapter 4

<sup>1</sup> *Ibid.*, explaining why her new development provides only .375:1 off-street parking;; March 19, 2004.

<sup>2</sup> To see the derivation of these numbers, go to Appendix Two..

<sup>3</sup> This assertion confirmed in interviews with David Baker, Steve Kuklin, and Steve Vettel.

<sup>4</sup> Ryan Russo, "Costs: Assessing and Communicating the Costs of Parking," information available at <http://dcrp.ced.berkeley.edu/students/russo/parking/Developer%20Manual/Costs/index.htm>

<sup>5</sup> Emails from Patricia Theophilos; March 25 & March 26, 2004.

<sup>6</sup> Interview with Jeff Tumlin; March 19, 2004.

<sup>7</sup> Doubling building costs to determine a general value of total costs for a project's development was a quick method for getting at total cost suggested by both David Baker and Steve Kuklin.

#### Chapter 5

<sup>1</sup> Presentation by Jeff Tumlin; February 25, 2004.

<sup>2</sup> Interview with Lisa Feldstein; February 27, 2004..

<sup>3</sup> *Ibid.*; February 27, 2004.

<sup>4</sup> Interview with Marshall Foster; March 26, 2004.

<sup>5</sup> Interview with Pat Theophilos; March 19, 2004.

<sup>6</sup> *Ibid.*; March 19, 2004.

<sup>7</sup> Dan Lew, "Ritz-Carlton planning time share club: 115 year-old Chronicle Building on Market Street would undergo renovation, addition," *The San Francisco Chronicle*, March 17, 2004; p. C-1.

<sup>8</sup> Interview with Michael Yarne; February 24, 2004.

<sup>9</sup> Interview with Michael Yarne; February 24, 2004.

<sup>10</sup> Telephone Interview with Tom Sullivan, Partner, Wilson Meany & Sullivan; March 10, 2004.

<sup>11</sup> *Ibid.*; March 10, 2004.

<sup>12</sup> Telephone Interview with Rebecca Silverberg; April 19, 2004.

<sup>13</sup> Interview with Joshua Switzky; March 23, 2004.

<sup>14</sup> Per Neighborhood Parking plans in the "Better Neighborhoods 2002" recommendations; available online at <http://www.sfgov.org/planning/neighborhoodplans/index.htm>

<sup>15</sup> Telephone Interview with Annie Bourdon; April 23, 2004.

<sup>16</sup> *Ibid.*; April 23, 2004

<sup>17</sup> Robert Cervero, "San Francisco City CarShare: Second-Year Travel Demand and Car Ownership Impacts," University of California, Berkeley; July 2003; p. 1.

<sup>18</sup> Telephone Interview with Bill White; February 13, 2004.

<sup>19</sup> Per the "District of Columbia Municipal Regulations," only residential uses in "R-5-A" and "C-1" zones can be 1:1; all 16 other residential zone-types are 1:2, 1:3 or 1:4. Information available online at [http://dcoz.dc.gov/info/reg/chapter21\\_pdf.shtm](http://dcoz.dc.gov/info/reg/chapter21_pdf.shtm)

<sup>20</sup> Per the 2000 U.S. Census, 36.9% of Washington, D.C.'s households do not have a vehicle whereas 28.1% of San Francisco's households do not have a vehicle.

<sup>21</sup> 14.0% of Portland's households do not have a vehicle, compared to San Francisco's 28.1%.

<sup>22</sup> Per Portland's Zoning Code, available online at

[http://www.planning.ci.portland.or.us/zoning/ZCTest/200/266\\_parking.pdf](http://www.planning.ci.portland.or.us/zoning/ZCTest/200/266_parking.pdf)

#### Chapter 6

<sup>1</sup> Interview with Lisa Feldstein; February 27, 2004.

<sup>2</sup> Robert Cervero, “San Francisco City CarShare: Second-Year Travel Demand and Car Ownership Impacts,” University of California, Berkeley; July 2003; p. 1.

<sup>3</sup> Telephone Interview with Annie Bourdon; April 23, 2004.

<sup>4</sup> A brief description of a Market-Rate Residential Parking Permit Program is in Appendix Six.

<sup>5</sup> Christopher Leinberger, “Financing Progressive Development,” *Capital Xchange*: May 2001. Available online at: <http://www.brookings.edu/printme.wbs?page=/es/urban/capitalxchange/article3.htm>

#### Conclusion

<sup>1</sup> Interview with Michael Yarne; February 24, 2004.

#### Appendix 6

<sup>1</sup> “Traffic engineers usually recommend a vacancy rate for curb parking of at least 15 percent to ensure easy parking access and egress.” Donald Shoup, “The Trouble with Minimum Parking Requirements;” p. 12.

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Vettel, Steve. Land Development Attorney, Morrison & Foerster LLP. February 26, 2004.

Wachs, Martin. Director, UC-Berkeley Institute of Transportation Studies. March 17, 2004.

Weaver, Dan. Member, OMI (Oceanview, Merced Heights, Ingleside) Neighbors in Action. April 9, 2004.

White, Bill. Vice President, Mercantile Investment & Wealth Management. February 13, 2004.

White, Kate. Executive Director, San Francisco Housing Action Coalition. January 12, 2004.

Winkelstein, Peter. Member, Planning Association of Richmond Board of Directors. April 2, 2004.

Yarne, Michael. Land Development Attorney, Farella, Braun & Martel LLP. February 24, 2004.

**Appendix One – Methodology**

This analysis incorporates interviews and follow-up correspondence with four lenders, three developers, three city planners, two land use attorneys, four housing advocates, three neighborhood organization representatives, two realtors, and one transportation policy consultant. It further involves a review of available literature on off-street parking requirements and their impact on housing finance ability and affordability, making use of analytical work by Donald Shoup, Todd Litman, and Ryan Russo.

To better understand parking usage in residential developments, this analysis also involves a survey of four rental properties in the city, located in the Civic Center/Union Square, Nob Hill, South of Market, and South Beach neighborhoods. Since sale properties do not have usage data for parking, they could not be surveyed within the time context of this analysis.

This analysis further uses data from three different studies to better understand prices for parking in new developments, including: a 1997 study by Wenyu Jia and Martin Wachs of the Institute for Transportation Studies that analyzed 1996 sales data and controlled for variables including unit size, unit structure, unit age, architectural style, off-street parking availability, neighborhood median income level, and neighborhood racial compositions; a 2001 study by the Sedway Group, a private real estate and urban economics consulting group, including both an analysis of five paired units in a specific building and an analysis of sales data from 1996-2001; and a computation in 2000 by realtor Malcolm Kaufman that treated parking as an investment where monthly willingness to pay for parking equaled the return on the parking space

purchase as an investment. The data from each of these studies was then adjusted to allow for easy comparison across studies.

This analysis also takes the numbers provided from a few different sources and does simple averaging to achieve some reasonable numbers for building costs of housing and parking. It does not presume the numbers to be applicable to all new developments and uses them only as a basis for comparison. In order to avoid overstating costs, numbers were used conservatively. As a way of checking available estimates against practicable numbers, the specific data from 740 Van Ness were not used in the estimates but later revealed as a way to show both the credibility of the estimates as well as their potential understatement of true costs of parking.

Recommendations were gleaned from the interviews and reading. All of them were tested for political feasibility during interviews with interested stakeholders. In so doing, they are presumed to withstand the rigors of the stated criteria as well as potential political opposition.

### **Appendix Two – Derivation of Per-Square Foot Hard Costs for Parking**

In order to achieve as fair and generalized a value as possible in parking per-square foot building hard costs, this study took cost estimates from several sources and averaged them. Hard costs for building above-ground parking ranged widely from a low of about \$15,000 to a high of \$30,000 per space. And underground parking (which was not included in this analysis) was estimated to run upwards of \$60,000+ per space. Below are the figures and their sources, as well as the average and per square-footage values.

<b>Source</b>	<b>Hard Cost to Build a Single Above-Ground Parking Space in S.F.</b>
Jeremiah Simpson	\$15,000
David Baker	\$20,000
Ryan Russo study	\$22,500
Steve Kuklin (avg.)**	\$30,000
<b>AVERAGE</b>	<b>\$21,875</b>
<b>Source</b>	<b>Square-Footage needed per space in an above-ground garage</b>
Steve Kuklin (avg.)**	370
Jeremiah Simpson	325
<b>AVERAGE</b>	<b>348</b>
<b>Hard cost per square foot:</b>	<b>\$62</b>
**Steve Kuklin's cost is an average of a range from \$20,000-40,000 per above-ground space, and his square-footage estimate is an estimate of a range of 340-400 square feet per space.	

### **Appendix Three – Information on Adjusted Values from Three Parking Price Analyses**

Each of the analyses was conducted during a different time period. The Jia-Wachs study was conducted in 1997, using 1996 sales data. The Sedway Group's study surveyed sales data from 1996-2001, not adjusted for inflation and controlled only for off-street parking availability. Malcolm Kaufman's research was done in 2000.

This appendix will not show all the mathematical figures, but will explain how the values from these different studies were compiled for a useful cross-comparison.

The simplest conversion was Malcolm Kaufman's research, which was adjusted for inflation between 2000 and 2003. This was done using the inflation calculator available at the Bureau of Labor Statistics website, available at [www.bls.gov](http://www.bls.gov).

The Jia-Wachs conversion was also fairly simple. Given that the price of a condominium at the time of their study was about half of the average price in today's market (today's price, \$605,000, found through Malcolm Kaufman's "2003 in Perspective" edition of *Pulse of the Market*), it made sense to simply double the price discount of parking they had uncovered in 1997. While the price of parking may or may not have accelerated as much as housing during the dot-com boom of the late 1990's, it seemed to be the safest choice to presume it grew in price as much as housing.

Sedway Group's study involved a more complex conversion. First of all, because their study did not control for unit age or number of bedrooms, and knowing that – as confirmed by all three study's authors – units in today's market with parking are generally newer and larger than those without parking, the Sedway study had to be controlled for variance in age and size. Jia-Wachs gave dollar figures on impact of square-footage and unit age, and these were adjusted at an annual 4% rate (conservative

given the spike in housing prices at the time of Sedway Group's study). Assuming  $\frac{3}{4}$  to 1 full bedroom difference (at 180 square feet for a bedroom) in unit size and 10 to 15 years difference in age, a range of percentage difference was uncovered that was remarkably similar to the Jia-Wachs range, but over a time period of 6 years.

After controlling for size and age, the annual discount was adjusted by taking a linear expectation of difference (between 1996 and 2001, with 1996 being half, or  $\frac{7}{14}$ , of 2003, 1997 being  $\frac{8}{14}$  of 2003, 1998 being  $\frac{9}{14}$ , etc.) and finding an average across all six years in 2003 dollars. This linear expectation probably slightly overstates the price discount since actual housing prices went up quickly from 1996 to 2000, and then leveled off between 2001 and 2003.

The dollar and percentage differences were calculated separately of each other, but, remarkably enough, they almost aligned perfectly with the average price of a condominium in today's market of \$605,000.

What was most surprising in the readjustment of values was how, using some simple techniques to control for elapsed time and expected differences in housing age and size, all three analyses came up with percentages and prices, each calculated separately, that aligned quite closely to the expected price of a condominium in today's housing market. And, further, the evidence on absorption suggested that a bigger expected price differential results in faster absorption for units without parking, although that is based on differences among empirically-determined figures in the Jia-Wachs study and anecdotally-stated results by Sedway Group and Malcolm Kaufman.

**Appendix Four – Table of Parking Usage Data from Four Market-Rate Rentals****PARKING USAGE DATA from FOUR MARKET-RATE DEVELOPMENTS**

<b>Development</b>	<b>Total # of Units*</b>	<b>Estimated Number of Residents**</b>	<b>Total # of Pkg. Spaces</b>	<b>Total # Spaces Used</b>	<b>Monthly Rate per Space</b>	<b>% Avail Spaces Used</b>	<b>% Spaces Used per Unit</b>	<b>% Spaces Used per Resident</b>
1045 Mission	278	362	245	179	\$150	73.1%	64.4%	49.4%
Avalon @ Nob Hill	185	241	102	93	\$225	91.2%	50.3%	38.6%
Post St Towers <sup>†</sup>	248	323	100	70	\$200	70.0%	28.2%	21.7%
Rincon Towers	320	416	186	182	\$230	97.8%	56.9%	43.8%
<b>AVERAGE</b>	<b>258</b>	<b>336</b>	<b>159</b>	<b>131</b>	<b>\$202</b>	<b>83.0%</b>	<b>49.9%</b>	<b>38.4%</b>
<b>Off-Street Parking Provision Rate -&gt;</b>			<b>.60:1</b>					
*20% "Below Market Rate" (BMR) included in Total # of Units. BMR units are those accessible to people with 50% of San Francisco median income – while building managers did not track specific rates of parking usage by those in BMR versus not in BMR, they did respond that they would expect there to be little or no difference between the two groups.								
**Estimated Number of Residents = (Total # of units)*1.3								
<sup>†</sup> Post St. Towers had only 20 spaces in the building and 50-80 available in an adjacent parking garage.								



## **Appendix Five – Census Data on Vehicle Ownership by Household Tenure**

Data available at [www.census.gov](http://www.census.gov)

### **H15. TOTAL POPULATION IN OCCUPIED HOUSING UNITS BY TENURE [3] -**

**Universe: Population in occupied housing units**

**Data Set: Census 2000 Summary File 3 (SF 3) - Sample Data**

NOTE: Data based on a sample except in P3, P4, H3, and H4. For information on confidentiality protection, sampling error, nonsampling error, and definitions see <http://factfinder.census.gov/home/en/datanotes/expsf3.htm>.

	<b>San Francisco County, California</b>	
Total population in occupied housing units:		756,991
Owner occupied		318,343
Renter occupied		438,648

U.S. Census Bureau  
Census 2000

### **H44. TENURE BY VEHICLES AVAILABLE [15] - Universe: Occupied housing units**

**Data Set: Census 2000 Summary File 3 (SF 3) - Sample Data**

NOTE: Data based on a sample except in P3, P4, H3, and H4. For information on confidentiality protection, sampling error, nonsampling error, and definitions see <http://factfinder.census.gov/home/en/datanotes/expsf3.htm>.

	<b>San Francisco County, California</b>	<b>Imputations</b>
<b>Total:</b>	329,700	<b>Total Number of Vehicles Available</b>
Owner occupied:	115,315	<b>Owner Occupied - 178,707</b>
No vehicle available	12,796	<b>Renter Occupied - 186,302</b>
1 vehicle available	46,921	
2 vehicles available	40,167	<b>Percent Households w/ No Vehicle</b>
3 vehicles available	11,446	<b>Owner Occupied - 11.1%</b>
4 vehicles available	2,811	<b>Renter Occupied - 38%</b>
5 or more vehicles available	1,174	
Renter occupied:	214,385	<b>Percent Population with Vehicles</b>
No vehicle available	81,382	<b>Owner Occupied – 56.1%</b>
1 vehicle available	91,605	<b>Renter Occupied – 42.5%</b>
2 vehicles available	32,850	
3 vehicles available	6,136	
4 vehicles available	1,471	
5 or more vehicles available	941	

U.S. Census Bureau  
Census 2000

**Appendix Six – Market-Rate Residential Parking Permit Program**

A Market-Rate Residential Parking Permit Program (MRPP) involves charging prices for on-street parking that more accurately reflect the value of that space. Currently, residents of San Francisco pay \$29 per year for a sticker that allows them to park in restricted areas for more than the limited time. MRPP is most evident in its price, which varies locally and is adjusted to affect demand, which currently overwhelms some neighborhoods' availability of on-street parking.

Under MRPP, prices are adjusted to achieve demand levels that create approximately 85% on-street parking occupancy.<sup>1</sup> For those neighborhoods with high on-street parking occupancy rates, the prices of permits would be much higher than for those neighborhoods with relatively plentiful on-street parking. Prices could be set such that, say, Nob Hill residents might pay \$1,000/year for a parking permit while Outer Sunset residents might pay just the current \$29 annually. Alternatively, a parking meter system could be implemented that varies charges by time of day, locality, and length of stay. This allows for even more flexibility than an annual or monthly parking permit but is based in the same concept of appropriate on-street parking.

MRPP could also be implemented to curb use of parking during evenings and weekends. As the current system exists, it is generally enforced between 8AM and 6PM, Monday through Friday (sometimes until 9PM and on Saturdays, as well). For residents, however, parking in a neighborhood is generally most needed in the evenings and weekends – when they are home. The current system primarily serves those residents choosing to store vehicles on the streets during the day, the time at which those same streets are probably most needed by visitors, or others conducting business, depending on

the neighborhood. MRPP can include nights and weekends as a means to achieving more appropriate pricing of on-street parking.

As a new tax, MRPP could only be implemented by a vote on a citywide ballot. Under State Law, the City is only allowed to levy fees that cover costs, which is ostensibly what the current \$29 annual fee already does. The neighborhood activists interviewed for this project (who ranged from a “parking advocate” to those more opposed to parking minimums) all stated their support for MRPP, which indicates that it might fare well at the ballot box. Given a “grandfathering” clause, it could gain additional support, since those already living in a neighborhood could continue to use on-street parking with no substantial increase in costs from this change.

MRPP would be most effective in its effect on potential residents of a neighborhood, who would see a shift in relative prices for their varying transportation options. With transparent on-street parking prices, potential residents would be able to take their transportation costs into account when making a housing decision. Those that did decide to live in an area with high on-street parking prices would then have made a choice reflective of their individual preferences.

**Endnotes****Chapter 1**

<sup>1</sup> One of many phrases spoken as a means for gaining luck at finding a parking space in San Francisco.

<sup>2</sup> Jane Holtz Kay, "A Brief History of Parking," *Architecture Magazine*, February 2001; cited online at <http://www.janeholtzkay.com/Articles/parking.html>

<sup>3</sup> Tim Redmond, "The Great Freeway Revolt," *The San Francisco Bay Guardian*, March 24, 2004; p. 21.

<sup>4</sup> Jane Holtz Kay, "A Brief History of Parking," *Architecture Magazine*; February 2001.

<sup>5</sup> Donald C. Shoup, "The Trouble with Minimum Parking Requirements," *Transportation Research Part A*; Vol. 33: 1999; p. 551.

<sup>6</sup> *Ibid*; p. 555.

<sup>7</sup> *Ibid*; p. 558.

<sup>8</sup> Telephone Interview with Rebecca Silverberg; April 19, 2004.

<sup>9</sup> Interview with Marshall Foster; March 26, 2004.

<sup>10</sup> Appendix One gives a more detailed description of methodology.

<sup>11</sup> In Section 16.102 of San Francisco's City Charter – "Transit First Policy" – paragraph 2 states that "within San Francisco, travel by public transit, by bicycle and on foot must be an attractive alternative to travel by private automobile," and paragraph 7 states that "parking policies for areas well served by public transit shall be designed to encourage travel by public transit and alternative transportation."

<sup>12</sup> This paper will not address the numerous externalities and costs to society associated with subsidized vehicular travel, part of which is the underpricing of parking. Rather, it seeks to examine merely the effect of current off-street parking requirements on housing availability and affordability.

**Chapter 2**

<sup>1</sup> Telephone interview with Mark Lacourse; February 19, 2004.

<sup>2</sup> Telephone interview with Alan Robertson; February 26, 2004.

<sup>3</sup> Interview with Marshall Foster; March 26, 2004.

<sup>4</sup> These numbers will be examined in greater detail in Chapter 4.

<sup>5</sup> Telephone Interview with Alan Robertson; February 26, 2004.

<sup>6</sup> Telephone Interview with Bill White; February 13, 2004.

<sup>7</sup> Christopher Leinberger, "Financing Progressive Development," *Capital Xchange*; The Brookings Institution, May 2001; p. 3.

<sup>8</sup> Telephone Interview with Rob Hensley; March 8, 2004.

<sup>9</sup> These changes will be discussed in more detail in Chapter 5.

<sup>10</sup> Per the San Francisco City Planning Code, Article 1.5, Section 150. General exceptions include, but are not limited to:

-Senior Housing (one-fifth of minimum otherwise required in an area)

-RC-4, RSD, and C-3 zoned areas, including sections of the Financial District and the Van Ness Corridor (amended to the code in the 1980's)

<sup>11</sup> Per the San Francisco City Planning Code, Article 2, Section 204.5.

<sup>12</sup> Variance Application, Planning Department of the City and County of San Francisco; from "What is a Variance?" section.

<sup>13</sup> Conditional Use Application, Planning Department of the City and County of San Francisco; from "Conditional Use Findings" section.

<sup>14</sup> Interview with Michael Yarne; February 24, 2004.

<sup>15</sup> Telephone Interview with David Baker; February 20, 2004

<sup>16</sup> Interview with Marshall Foster; March 26, 2004.

<sup>17</sup> Telephone Interview with David Baker; February 20, 2004.

<sup>18</sup> Interview with Lisa Feldstein; February 27, 2004.

<sup>19</sup> Telephone Interview with Peter Winkelstein; April 2, 2004.

<sup>20</sup> Telephone Interview with Shannon Dodge, January 13, 2004.

<sup>21</sup> See Chapter 4.

<sup>22</sup> Todd Litman, "Parking Requirement Impacts on Housing Affordability," Victoria Transport Policy Institute: Victoria, B.C. November 28, 1999; p. 7.

<sup>23</sup> Telephone Interview with Malcolm Kaufman; April 9, 2004.

<sup>24</sup> *Ibid*; April 9, 2004.

<sup>25</sup> See Appendix Five for more details on these numbers. The source of this data is the 2000 U.S. Census, available at [www.census.gov](http://www.census.gov), under “American FactFinder.”

<sup>26</sup> Greater flexibility in parking provision is discussed in greater detail in Chapters 5 and 6.

<sup>27</sup> Telephone Interview with Peter Albert; February 20, 2004.

### Chapter 3

<sup>1</sup> Telephone Interview with Mark Lacourse, February 19, 2004

<sup>2</sup> “Countywide Transportation Plan; DRAFT – Parking Management,” prepared by Countywide Transportation Plan subcommittee of San Francisco County Transportation Authority; September 16, 2003; p. 4.

<sup>3</sup> Interview with Jeff Tumlin, March 19, 2004.

<sup>4</sup> Interview with Josh Switzky, March 23, 2004.

<sup>5</sup> While some may dispute the findings of these studies, they are nonetheless research done for the purpose of determining a price of parking. The purpose of including them in this report is not to claim their values are absolutely correct but to understand that they drive us toward a clearer understanding of the effects of the City’s policy on housing availability and affordability.

<sup>6</sup> Wenyu Jia and Martin Wachs, “Parking Requirements and Housing Affordability: A Case Study of San Francisco [Working Paper],” Institute of Transportation Studies: University of California at Berkeley. November 1998; p. 3.

<sup>7</sup> *Ibid*; p. 8.

<sup>8</sup> Jia and Wachs; p. 8.

<sup>9</sup> Telephone Interview with Alan Robertson; February 26, 2004.

<sup>10</sup> The Rincon Special Use District restricts new residential developments to no more than 1:2 independently accessible spaces and 1:1 with valets and lifts; per interview with Marshall Foster; March 26, 2004.

<sup>11</sup> The difference drops to 9.2% to 12.6% explained by off-street parking availability when taking the statistical coefficients determined in the Wachs/Jia study for square footage and age differentials and assuming those units without parking, when compared to those with parking, have  $\frac{3}{4}$  to 1 less full bedroom and 10 to 15 years more in age; this also assumes a 4% annual increase in prices, which is conservative given the period of study, 1996-2001, and San Francisco’s “red hot” housing market at the time.

<sup>12</sup> Amy Herman, Managing Director, Sedway Group; Letter to Mr. Martin Dalton and Mr. Terry Sternberg, “Re: Study Findings Regarding Condominium Parking Ratios,” September 27, 2001; p. 4. This finding is important in understanding the rate of return for housing versus parking, since the price of parking relative to housing is about 11%, but the cost of building that parking relative to building housing is closer to 20%.

<sup>13</sup> *Ibid*; p. 4.

<sup>14</sup> Richard Paoli, “SF Real Estate by the Numbers: Analyst turned agent can even tell you what a parking place is worth,” *The San Francisco Chronicle*, December 16, 2001; p. E3.

<sup>15</sup> Kaufman employed the cap rate method, which assumes a certain level of interest rate and projects out over time. His assumptions, explained in footnote 16, can be questioned, but his logic is sound, except that he does not take parking maintenance costs into account.

<sup>16</sup> 5% of \$50,000 is \$2,500, about the same as the \$2,400 figure Kaufman determined through the \$200/month value. Put differently, if a single parking space is worth \$50,000 as an investment, the annual return of 5% on that investment would be \$2,500, or about \$200/month.

<sup>17</sup> Telephone Interview with Malcolm Kaufman; April 9, 2004.

<sup>18</sup> *Ibid*; April 9, 2004.

<sup>19</sup> *Ibid*; April 9, 2004.

<sup>20</sup> From Mercedes Benz USA’s website; online at <http://www.mbusa.com/brand/index.jsp>

<sup>21</sup> From Honda’s website; online at

[http://www.hondacars.com/models/model\\_overview.asp?ModelName=Accord+Sedan](http://www.hondacars.com/models/model_overview.asp?ModelName=Accord+Sedan)

<sup>22</sup> Telephone Interview with Sophie Dembo;

<sup>23</sup> See Appendix Five for these data.

<sup>24</sup> All of the numbers included in this section are available in greater detail in Appendix Four.

<sup>25</sup> These numbers will be discussed at length in Chapter 4.

<sup>26</sup> This is less than the \$1731/month San Francisco-wide estimate by Rental Guide (as of August 2003); information available at [www.rentalguide.com/rentalmarket.html](http://www.rentalguide.com/rentalmarket.html).

<sup>27</sup> Interview with Pat Theophilos; March 19, 2004.

#### **Chapter 4**

<sup>1</sup> *Ibid.*, explaining why her new development provides only .375:1 off-street parking; March 19, 2004.

<sup>2</sup> To see the derivation of these numbers, go to Appendix Two..

<sup>3</sup> This assertion confirmed in interviews with David Baker, Steve Kuklin, and Steve Vettel.

<sup>4</sup> Ryan Russo, "Costs: Assessing and Communicating the Costs of Parking," information available at <http://dcrp.ced.berkeley.edu/students/russo/parking/Developer%20Manual/Costs/index.htm>

<sup>5</sup> Emails from Pat Theophilos; March 25 & March 26, 2004.

<sup>6</sup> Interview with Jeff Tumlin; March 19, 2004.

<sup>7</sup> Doubling building costs to determine a general value of total costs for a project's development was a quick method for getting at total cost suggested by both David Baker and Steve Kuklin.

#### **Chapter 5**

<sup>1</sup> Presentation by Jeff Tumlin; February 25, 2004.

<sup>2</sup> Interview with Lisa Feldstein; February 27, 2004..

<sup>3</sup> *Ibid.*; February 27, 2004.

<sup>4</sup> Interview with Marshall Foster; March 26, 2004.

<sup>5</sup> Interview with Pat Theophilos; March 19, 2004.

<sup>6</sup> *Ibid.*; March 19, 2004.

<sup>7</sup> Dan Lew, "Ritz-Carlton planning time share club: 115 year-old Chronicle Building on Market Street would undergo renovation, addition," *The San Francisco Chronicle*, March 17, 2004; p. C-1.

<sup>8</sup> Interview with Michael Yarne; February 24, 2004.

<sup>9</sup> Interview with Michael Yarne; February 24, 2004.

<sup>10</sup> Telephone Interview with Tom Sullivan; March 10, 2004.

<sup>11</sup> *Ibid.*; March 10, 2004.

<sup>12</sup> Telephone Interview with Rebecca Silverberg; April 19, 2004.

<sup>13</sup> Interview with Joshua Switzky; March 23, 2004.

<sup>14</sup> Per Neighborhood Parking plans in the "Better Neighborhoods 2002" recommendations; available online at <http://www.sfgov.org/planning/neighborhoodplans/index.htm>

<sup>15</sup> Telephone Interview with Annie Bourdon; April 23, 2004.

<sup>16</sup> *Ibid.*; April 23, 2004

<sup>17</sup> Robert Cervero, "San Francisco City CarShare: Second-Year Travel Demand and Car Ownership Impacts," University of California, Berkeley; July 2003; p. 1.

<sup>18</sup> Telephone Interview with Bill White; February 13, 2004.

<sup>19</sup> Per the "District of Columbia Municipal Regulations," only residential uses in "R-5-A" and "C-1" zones can be 1:1; all 16 other residential zone-types are 1:2, 1:3 or 1:4. Information available online at [http://dcoz.dc.gov/info/reg/chapter21\\_pdf.shtml](http://dcoz.dc.gov/info/reg/chapter21_pdf.shtml)

<sup>20</sup> Per the 2000 U.S. Census, 36.9% of Washington, D.C.'s households do not have a vehicle whereas 28.1% of San Francisco's households do not have a vehicle.

<sup>21</sup> 14.0% of Portland's households do not have a vehicle, compared to San Francisco's 28.1%.

<sup>22</sup> Per Portland's Zoning Code, available online at

[http://www.planning.ci.portland.or.us/zoning/ZCTest/200/266\\_parking.pdf](http://www.planning.ci.portland.or.us/zoning/ZCTest/200/266_parking.pdf)

#### **Chapter 6**

<sup>1</sup> Interview with Lisa Feldstein; February 27, 2004.

<sup>2</sup> Robert Cervero, "San Francisco City CarShare: Second-Year Travel Demand and Car Ownership Impacts," University of California, Berkeley; July 2003; p. 1.

<sup>3</sup> Telephone Interview with Annie Bourdon; April 23, 2004.

<sup>4</sup> A brief description of a Market-Rate Residential Parking Permit Program is in Appendix Six.

<sup>5</sup> Christopher Leinberger, "Financing Progressive Development," *Capital Xchange*; May 2001. Available online at: <http://www.brookings.edu/printme.wbs?page=/es/urban/capitalxchange/article3.htm>

**Conclusion**

<sup>1</sup> Interview with Michael Yarne; February 24, 2004.

**Appendix 6**

<sup>1</sup> “Traffic engineers usually recommend a vacancy rate for curb parking of at least 15 percent to ensure easy parking access and egress.” Donald Shoup, “The Trouble with Minimum Parking Requirements;” p. 12.