

Yes in My Backyard: Mobilizing the Market for Secondary Units



Authors

Karen Chapple, Jake Wegmann, Alison Nemirow, Colin Dentel-Post

Cover Photos

Top left - Virginia Ave, Berkeley. Structure designed by Daniel Smith & Associates.

Source: Robert Silvey, <http://www.robertsilvey.com/notes/2008/04/michael-searle.html>

Top right - 934 Delaware St., Berkeley.

Source: Karen Ling, *The Daily Californian*

Bottom left - Converted garage unit.

Source: <http://www.flickr.com/photos/harthillsouth/2735757672/sizes/z/in/photostream/>

Bottom right - Car share parking at the North Berkeley BART.

Source: <http://www.panoramio.com/photo/1945499>

Key Support

Acknowledgments: This research was funded by a grant from the University of California Transportation Center.

The authors gratefully acknowledge the assistance they received from planning, transportation, and housing staff in Richmond, El Cerrito, Albany, Berkeley, and Oakland, as well as Helaine Kaplan Prentice and Michelle Thong from the Center for Community Innovation.

The Center for Community Innovation (CCI) at the Institute for Urban & Regional Development (IURD) at UC-Berkeley nurtures effective solutions that expand economic opportunity, diversify housing options, and strengthen connection to place. The Center builds the capacity of nonprofits and government by convening practitioner leaders, providing technical assistance and student interns, interpreting academic research, and developing new research out of practitioner needs.

University of California
Center for Community Innovation
316 Wurster Hall #1870
Berkeley, CA 94720-1870
<http://communityinnovation.berkeley.edu>

June 2012 (revised from the original version released September 2011)

Introduction: Secondary Units as Urban Infill

California's implementation of SB 375, the Sustainable Communities and Climate Protection Act of 2008, is putting new pressure on communities to support infill and affordable housing development. As the San Francisco Bay Area adds over two million new residents by 2040, infilling the core (in targeted Priority Development Areas, or PDAs) could accommodate over half of the new population, according to the Association of Bay Area Governments (ABAG). But at the same time, infill could increase housing costs and exacerbate the region's affordability crisis.¹

One potential solution is secondary units (also called in-law units or accessory dwelling units). Self-contained, smaller living units on the lot of a single-family home, secondary units can be either attached to the primary house, such as an above-the-garage unit or a basement unit, or detached (an independent cottage). Secondary units are particularly well-suited as an infill strategy for low-density residential areas because they offer hidden density, housing units not readily apparent from the street – and relatively less objectionable to the neighbors.

Recognizing the potential of secondary units as a housing strategy, California has passed several laws to lower local regulatory barriers to construction, most recently Assembly Bill 1866 of 2003, which requires that each city in the state have a ministerial process for approving secondary units.

Planners and other stakeholders see secondary units as one way to accommodate future growth: for instance, in its projections for the Grand Boulevard Initiative in San Mateo/Santa Clara counties, the Greenbelt Alliance assumes that 5% of new housing production will come from in-law units.² Yet, local regulations may impede development; a previous Bay Area study found that zoning and planning regulations, particularly onerous parking requirements, constituted the most significant barrier to secondary unit development.³

This study examines two puzzles that must be solved in order to scale up a secondary unit strategy: first, how can city regulations best enable their construction? And second, what is the market for secondary units? Because parking is such an important issue, we also examine the potential for secondary unit residents to rely on alternative transportation modes, particular car share programs.

The study looks at five adjacent cities in the East Bay of the San Francisco Bay Area (Figure 1) – Oakland, Berkeley, Albany, El Cerrito, and Richmond – focusing on the areas within ½ mile of five Bay Area Rapid Transit (BART) stations. Based on a physical feasibility analysis (using GIS, Google Earth, and fieldwork), surveys of homeowners and car share members, rent data, and interviews, we conclude:

Figure 1. The study area, including five BART stations and portions of five separate incorporated cities.



- There is a substantial market of interested homeowners; however, regulations in most cities prevent the majority from building secondary units – and thus preclude secondary units from becoming a viable infill strategy.
- The cities we studied could likely reduce parking requirements without contributing to parking problems, particularly because secondary unit tenants are less likely than other residents to own a car.
- Secondary units could accommodate a significant share of future population growth, as well as provide much of the affordable housing cities are required to build. Mobilizing the market for secondary units could help planners and policymakers avoid the political and financial difficulties associated with building high-density and affordable housing.
- Scaling up a secondary unit strategy would mean considerable economic and fiscal benefits for cities, local workers, and homeowners – increasingly important in this time of financial and fiscal crisis. Future studies should evaluate how to improve homeowner access to financing, given the current climate for mortgage lending.

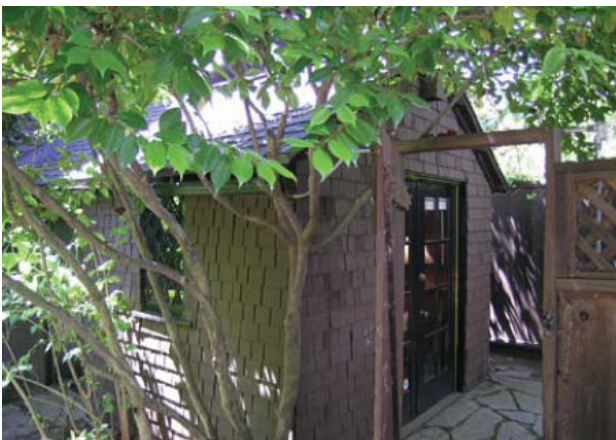
It is difficult to generalize the specific study findings to other places because regulations differ widely from city to city. However, these results strongly suggest that there is an emergent market for secondary units that would likely respond to regulatory streamlining.

This report begins with an overview of demand for secondary units. Subsequent sections then describe the barriers—regulatory, market, and parking—to scaling up this housing strategy. After a discussion of the potential impact of a secondary unit approach, the report concludes with policy implications. Five working papers associated with this report (available via <http://communityinnovation.berkeley.edu>) provide more extensive analysis and specific recommendations for each city.

The Role of Secondary Units, Past and Present

The practice of building a supplementary unit behind the main house has existed throughout the East Bay for over a century. But secondary units particularly fit the context of the region's flatlands, with their historically "blue-collar urban form."⁴ These "minimal-bungalow" districts are characterized by neat regularity, uniform land use, and little change—making them ideal for secondary unit development. Developers in the 1910s and 1920s widened the lots from 25 feet to 40 feet, created uniform setbacks, and supplied single backyard garages in order to maintain lower densities in the neighborhood. This uniformity was meant to create more predictable land values and erase the visual evidence of class struggle seen in more mixed-use, informal districts by imposing middle class values.⁵

It is difficult to determine the existing extent of secondary unit stock because of the widespread prevalence of unpermitted secondary units. However, researchers have found that this form of "shadow" housing stock accounts for a surprisingly large share of the housing market, serving as a particularly significant source of housing for low- and very-low-income households.⁶ For instance, a study of Vancouver, British Columbia estimated that from 10 to 50 percent of single-family residences house a secondary unit; a Los Angeles study focusing only on garage conversions found that they provided 2.5% of the county's housing stock; and a study of San Francisco suggested that at least eight percent of citywide housing stock is provided by illegal secondary units.⁷



Source: <http://www.berkeleyheritage.com/essays/mcgrew.html>
Arts & Crafts-era cottage designed by Maybeck, at 2601 Derby St, Berkeley.

Recent and projected changes in demographics, lifestyle preferences, and housing affordability suggest increased demand for secondary units in the near future. In particular, the aging of the U.S. population and the declining share of married-couple households and households with children are likely to have significant consequences for the housing market.⁸ Households without children and retirement-age households are more receptive to smaller lot and house sizes, and may value proximity to public transportation, work, and shopping.⁹ The overall demand for homeownership is expected to continue to decline due to the ongoing financial crisis as well as the retirement of the "baby boomers."¹⁰ Long-term unemployment, decreasing wages, and increasingly flexible work arrangements create a need for households to develop new income streams.¹¹ Since 70 to 80% of baby boomers would prefer to "age in place," many will be adapting their homes—constructing smaller spaces either for themselves or caretakers—to allow them to stay.¹²

Secondary units are also a way for homeowners to generate extra income or provide relatively low-cost rental housing.¹³ Secondary units may rent for less than other rental units because of the informal way they are often supplied and managed. For instance, federal Fair Housing law, which places restrictions on the ability of landlords to discriminate against tenants on the basis of race and certain other characteristics, does not apply to properties with four units or fewer. A study of Babylon, Long Island, found that secondary units rented, on average, for 35% less than non-secondary unit apartments, despite the secondary unit renter households being, on average, larger and including more children than the non-secondary unit renter households.¹⁴

Although demand for secondary units may be increasing, and in spite of the state enabling legislation now in place, California cities vary widely in their willingness to facilitate this form of housing. For instance, San Diego has virtually no legal secondary unit production, while Santa Cruz saw its legal secondary unit production triple after implementing a comprehensive package of zoning reforms, pre-approved designs, a how-to manual for homeowners, and a low-interest loan program.¹⁵

“

[My] neighborhood already consists of homes with attached rental units as well as multitenant units ... Those of us who purchased our [single-family] homes [at the top of the market] would benefit from adding a rental unit in order to help supplement our mortgage.

”

— North Oakland homeowner

The “Blocked Market” for Secondary Units

Zoning rules are arguably the largest contributor to what can be described as an obstructed or blocked market for secondary units. In our study, we closely examined regulations in the five incorporated cities lying within our five station areas. Under the zoning regulations currently on the books, only about one out of five of the single family residential (SFR) parcels that lie within the cities in our five station areas can accommodate a detached secondary unit.

Analytical method

We used parcel data purchased from a third-party vendor to analyze the effect of existing land use regulations on the ability of a homeowner to build a detached secondary unit in the backyard, and the effects of some reasonable changes in land use regulations. This analysis relied on three techniques: i) using Geographic Information System (GIS) software; ii) examining the parcels with Google Earth; and iii) visiting a sample of the parcels in the field and recording observations. Although we were unable to analyze the feasibility of adding other types of secondary

units (such as converted garages or converted first floors), many of the regulations have an impact on a homeowner’s ability to produce any type of secondary unit. In addition, as described in the next section, rear detached secondary units are the most common physical configuration for this type of housing.

Restrictive regulations and recommendations by city

Table 1 estimates the number of lots currently eligible to add detached rear yard secondary units under current regulations in Berkeley, El Cerrito and Oakland, as compared to the numbers that would be feasible if our recommended regulatory changes – in terms of minimum lot sizes, parking requirements, and setback requirements – were to be made. Figure 2 provides a visualization of this sharp increase in SFR parcels eligible for secondary unit development in the City of Berkeley. We next briefly summarize the most important regulatory restrictions that we found for each city.

Table 1. Secondary units that can be built under current and proposed zoning.

Station Areas	Single-Family Residential (SFR) parcels eligible for new secondary units					
	Berkeley		El Cerrito		North Oakland	
Scenario	Units	% increase over current zoning	Units	% increase over current zoning	Units	% increase over current zoning
Current zoning	1,070	N/A	244	N/A	52	N/A
With all recommended changes	1,991	86%	1,008	313%	516	892%

Figure 2. Visualization of secondary units that can be built under current and proposed zoning.



Sources: Center for Community Innovation, 2011; CoreLogic, 2010.

In Table 1, we see the number of SFR parcels currently eligible for the legal addition of a detached rear yard secondary unit under current zoning regulations as compared to what would be possible under regulations modified in the manner that we recommend. In Figure 2, we see a visualization of the number of SFR parcels in Berkeley eligible before (left) and after (right) our recommended land use changes. Note that the parcels shown above are illustrative only and do not represent specific properties that would become eligible for the addition of a secondary unit.

Berkeley: The City of Berkeley, compared to the other four cities, has lenient parking regulations. For instance, tandem parking configurations can be used to fulfill the off-street parking requirement of one space for the addition of a secondary unit (albeit via an administration process, an Administrative Use Permit, that can present some obstacles). However, Berkeley does not allow a parking space to be accommodated in the “front setback” of the lot. (See Figure 3.) In addition, a legal parking space must have a 2’ landscaped strip separating it from the lot line (also shown in Figure 3), which prevents the common sideyard driveway arrangement from satisfying the parking requirement. Berkeley also imposes a height limit of 12’ (average, not absolute) for secondary units. Finally, Berkeley has a minimum SFR lot size of 4,500 square feet for secondary unit installation, thereby effectively precluding lower-income homeowners from adding secondary units in many cases. The major zoning change we propose is eliminating the minimum lot size requirement.

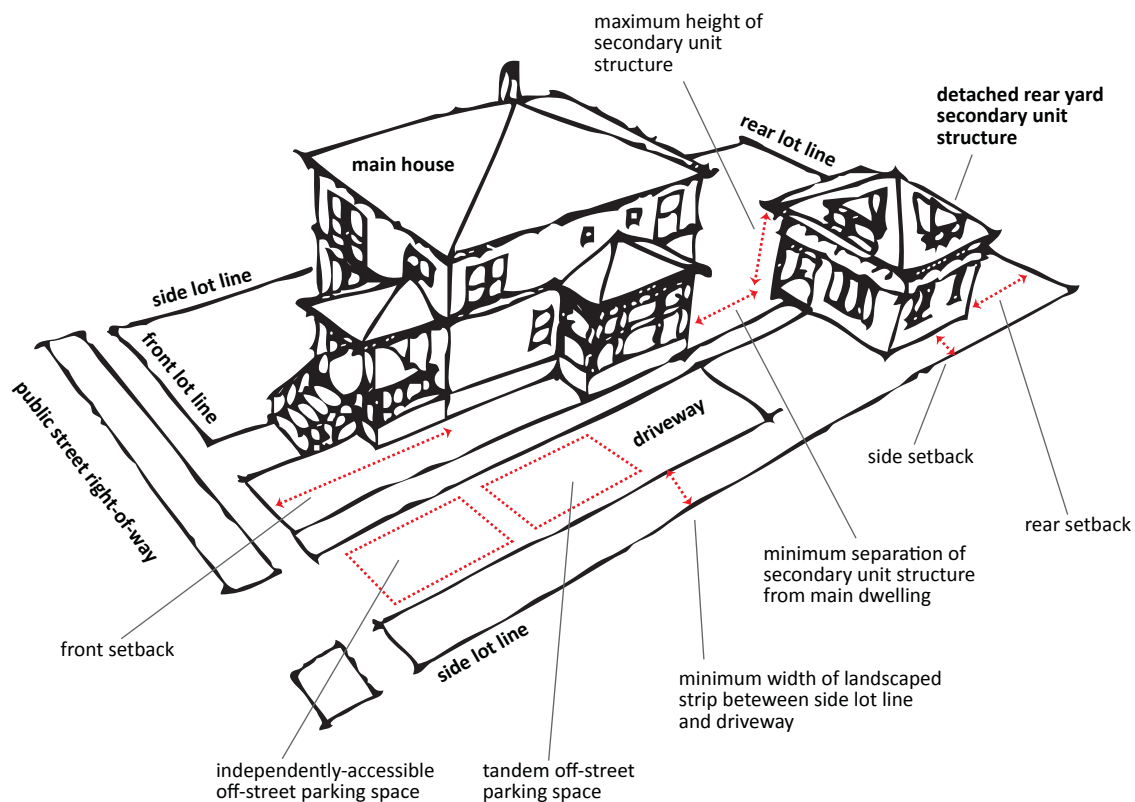
El Cerrito: Existing SFR properties that do not comply with existing parking requirements for the main unit lose their “grandfathered” status and must come into conformance with parking requirements upon the addition of a secondary unit. Figure 4 illustrates the parking configurations allowed in the study cities. The end result is that owners of all flatlands SFR properties essentially must

already have or install a two-car garage or carport in order to add a secondary unit, something that is cost-prohibitive at best and physically impossible at worst. Only 24% of the SFR properties that we visited already had a garage and/or carport sufficient to meet this requirement. In addition, El Cerrito requires secondary units to be set back 15-20’ from the rear lot line and 5-8.5’ from the side lot line (depending on the zoning district). We propose reducing the setback requirement and relaxing the parking requirements.

Oakland: Depending on the size of the desired secondary unit and on the particular zoning district, in many cases the required off-street parking space for the secondary unit must be independently accessible (i.e. not placed in tandem). Only 10% of the parcels that we visited could accommodate a parking space in compliance with this rule. In addition, a secondary unit must be set back 10-15’ from the rear lot line and 5-10’ from the side lot line (depending on the zoning district). Oakland’s parking and setback requirements do not accommodate the typical lot configurations common in the North Oakland station areas. We recommend reducing the setback requirement and relaxing the parking requirements.

Richmond: Because the off-street parking space required for a new secondary unit must be independently accessible (i.e. not placed in tandem with another space), in Richmond there is a strong incentive for homeowners to pave their

Figure 3. An illustration of various dimensional standards that are commonly specified in the municipal zoning ordinances for single family residential properties, and that can affect the feasibility of obtaining approval for a secondary unit. These standards vary greatly amongst the various cities within our study area.



Source: Modified from the City of Santa Cruz’s ADU Manual, available at www.cityofsantacruz.com

front yards to accommodate it. Indeed, we observed such front yard paving (with its attendant negative impacts on aesthetics, stormwater runoff, and the urban heat island effect) in the Richmond portion of the station areas. We estimated that almost half of SFR properties could accommodate a secondary unit, but 84% of these would have to pave their front yards in order to do so. In addition, Richmond is the only city out of the five we studied, other than Berkeley, to have a minimum lot size requirement for secondary units (5,000 sf). Our proposal for Richmond is to eliminate the lot size minimum and relax the parking requirements.

Albany: A ballot measure passed by Albany voters in 1978, Measure D, mandates two parking spaces for every dwelling unit, including secondary units (in contrast to the other four cities).¹⁶ Only one quarter of SFR properties could accommodate the two extra spaces required for the addition of a secondary unit. In addition, Albany imposes a restrictive 12' maximum height limit on its secondary units (for comparison, Seattle's height limit is 22'). We recommend that Albany relax its parking requirements.

Other restrictions




The barriers to building secondary units do not arise solely from parking requirements or dimensional standards embedded in zoning codes. Onerous procedural

requirements also play a part. For instance, Oakland requires small project design review for secondary units over 500 square feet. In Albany, any secondary unit that requires a change to the exterior of an existing dwelling, or the construction of any new structure, is subject to a design review that includes a public hearing. For homeowners who cannot meet all of the basic requirements, an administrative or conditional use permit (AUP or CUP) or even a variance may be required. For example, El Cerrito requires a CUP for secondary units that do not meet setback, lot coverage, parking, floor area, or height limit standards. This involves a \$930 fee and public hearing. These procedural requirements, while generally modest when measured against what professional developers are accustomed to in the Bay Area, can present major deterrents to "do-it-yourself"-minded homeowners acting as amateur small-scale developers on their own behalf.

In addition, lack of financing may act as another barrier. Typically, homeowners building a secondary unit obtain a refinance-cashout or a home equity loan. In both cases, the homebuyer must qualify on the strength of her current income, and cannot factor in rental income from the new secondary unit. Further study is needed to determine how the mortgage market might be reformed to accommodate demand for secondary units.

Figure 4. Permissible and impermissible second unit parking configurations

Parking Configuration	Allowed by right in study area?			
	Albany	El Cerrito	Oakland	Richmond
No off-street parking	No	No	No	No
No garage/carport; tandem spaces in front or side driveway	No	No	No	No
No garage/carport; non-tandem spaces in rear (accessed by side driveway)	Yes	No	Yes	No
1-car garage/carport; tandem spaces in front or side driveway	No	No	No	No
1-car garage/carport; 1+ non-tandem spaces in front yard (next to front driveway)	Yes	No	No	Yes
2-car garage/carport; tandem spaces in front or side driveway	Yes	Yes	No	No
Multiple parking areas	No	Yes	Yes	No

 Parking space for primary unit, uncovered	 Parking space for primary unit, covered	 Parking space for second unit (uncovered)
---	---	---

Note: Berkeley is not included in the above diagram because parking requirements may be waived with an administrative use permit (AUP).

The Informal “Black Market” for Secondary Units

Cities’ local land use laws and restrictive practices in the financing of secondary units present a series of obstacles that contribute to a blocked market, keeping the market for housing units smaller than it otherwise might be. But secondary units, almost uniquely among housing sub-categories, also comprise a black market, where restrictive land use laws and other barriers cause such units, in many cases, to simply “go underground” and to operate without their owners’ having received zoning and/or building permits from the local jurisdiction. In this section, we summarize what we have learned about the existing market for secondary units, most (though not all) of which is a black market – one that escapes, at least partially, regulation and taxation by local governments. The operation of this black market allows us to gain some insights into how an expanded market for secondary units – an unblocked market – might be expected to function.

How we studied the black market for secondary units

We gathered quantitative data about the black market for secondary units primarily via two of our research methods: the homeowner survey and the analysis of rental advertisements. The homeowner survey solicited responses via postcards mailed to a random sample of single family residential properties in the five station areas, along with e-mails sent to neighborhood organizations representing these areas. Respondents could answer the survey either online (the choice made by the vast majority) or via mail. We received a total of 515 responses from all modes. Our best estimate of the response rate (measurable only from the postcard mailings) is 13%.

Meanwhile, we analyzed rental advertisements on Craigslist (a free website commonly used for leasing rental apartments in the San Francisco Bay Area) in order to observe the rental market for secondary units, and to contrast it against the rental market for other types of units. Our dataset included all 174 usable advertisements for secondary units observed within the rough boundaries of our study area (not limited to the station areas, but rather the entire corridor) during the months of May, June and July of 2011. The data set also included a random sample of 164 non-secondary unit advertisements observed on Craigslist during this same time period. We used this data to perform both difference of means analysis between secondary and non-secondary units, and a hedonic study (regressing rent against a variety of unit and location characteristics) of the secondary, non-secondary, and combined data sets.

The prevalence of secondary units

Our results provide evidence that the existing market for secondary units, far from being a marginal or aberrational

phenomenon, is significant in size. We found that 16% of the SFR parcels sampled have at least one secondary unit. By comparing survey results on the average date of installation with the number of annual legal secondary unit permits issued by the City of Berkeley, we estimate that upwards of 90% of the secondary units in the Berkeley flatlands lack building and/or zoning permits. Although we were unable to estimate the numbers of unpermitted units in other cities, the share is likely comparable given the similarity of building and zoning regulations.

Characteristics of existing secondary units

Most secondary units are small: 63% in the homeowner survey were reported to be either studios or one-bedroom units. The units assume a wide variety of physical formats, with the most common being a freestanding structure in the backyard (in about one third of cases). Converted first floors/basements and converted garages are also common. Few secondary units are brand-new, with only 14% having been installed within the last five years. The Craigslist rental advertisement study results show that secondary units are far more likely (11% of cases) to offer substandard cooking facilities (i.e., no stovetop range or oven) than non-secondary units (fewer than 1% of cases); this is likely a consequence of the unpermitted status of most secondary units.

Secondary unit occupant household characteristics

Secondary units are occupied by people using them as housing in 85% of cases. About 49% of the occupant households are strangers who pay rent to the home-owning household; in the remaining 51% of cases, occupants are staying for free or else are friends or family, who are likely to be receiving reduced rent. By far, the most common means by which secondary unit occupants found their housing are either already knowing the homeowner household, or Craigslist.

These results suggest that in many cases, secondary unit housing has an informal nature that likely sets it apart from other types of rental housing. For instance, the Craigslist rental advertisement analysis shows that 53% of secondary units are operated by landlords living on-site (as is required by law), as compared to just 2% of non-secondary rental units. In addition, secondary units are far more likely to share utility costs with another dwelling (presumably, in most or all cases, the main house) than other types of rental housing.

The average occupied secondary unit contains 1.5 adults but is unlikely to have children (0.2 on average). Secondary units are disproportionately likely to house young adults; the average age of the adults residing in them is 39 (as compared to 50 for the homeowner households).

Homeowners without secondary units and the “blocked market” that keeps them that way

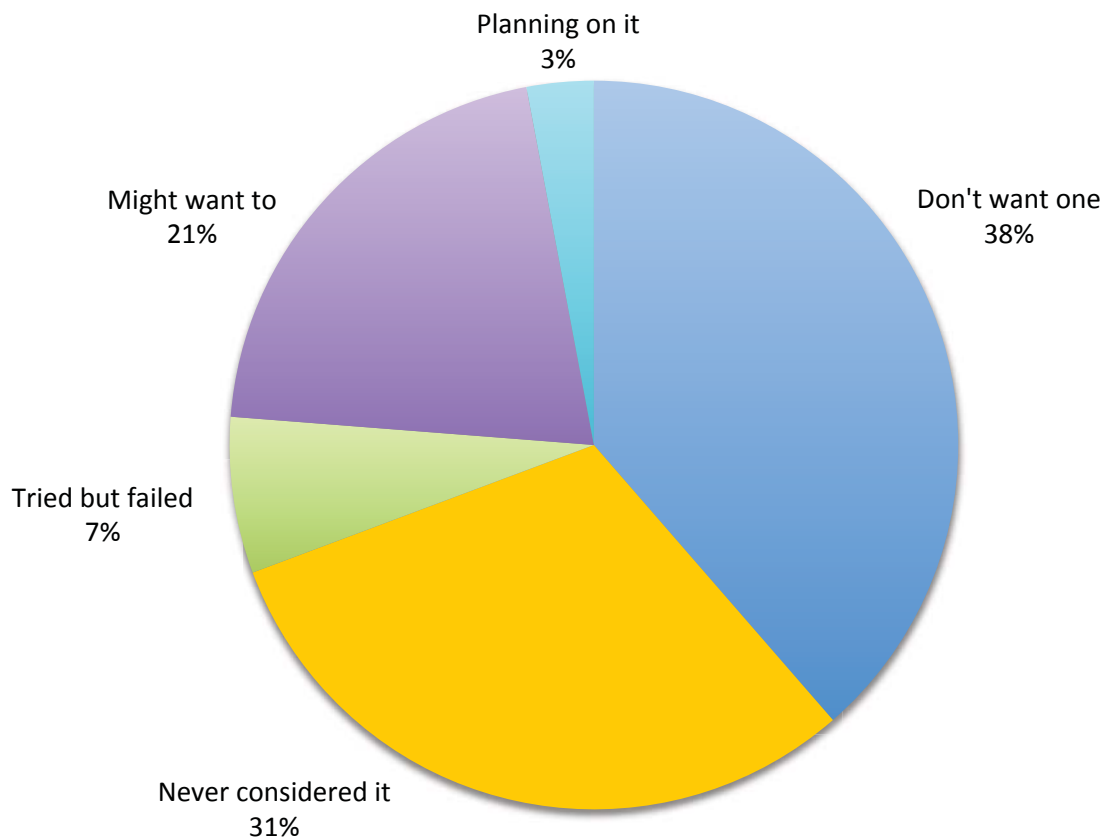
We estimate the potential size of the market for secondary units as 31% of the SFR properties that do not currently have secondary units (Figure 5). This is the proportion of homeowners who report having attempted to install a secondary unit and failed, who are considering installing one in the future, or who are actively planning to do so. Amongst homeowners who tried but failed to add an additional unit, the most commonly cited reason for their failure is an inability to provide the required number of off-street parking spaces.

Homeowners without secondary units, by and large, do not view them negatively. This is not because they are unaware

of secondary units; indeed, 62% of respondents without secondary units reported at least one on their block, with only 8% reporting none (and the rest unsure). Of the 62% reporting at least one unit on their block, nearly two-thirds say that there is no negative impact from the secondary unit(s). Of the minority that report negative impacts, the most common complaint is on-street parking congestion, which they perceive as being aggravated by the presence of the secondary units.

Homeowners with secondary units differ little from other homeowners in reported household income, race/ethnicity, level of education, and age. Respondents with and without secondary units tend to be affluent, well-educated, mostly white (about 80%), and to have an average age of about 49.

Figure 5. Stated reasons that homeowners lacking a secondary unit on their properties do not already have one (399 total responses)



“

To add a [secondary] unit, one must have noncontiguous parking spaces. I would have to put a car in my front yard, which is probably illegal, or give up the back yard. I have an old garage/studio I would love to turn into an additional unit but [costs] and permits and parking make it difficult [to] impossible.

”

— Berkeley homeowner

The Parking Conundrum: What is the potential for alternative transportation use among secondary unit tenants?

Our zoning analysis showed – and planning officials confirmed – that parking requirements in the East Bay cities we studied are one of the most common regulatory barriers to approval of accessory dwelling units on single family lots. Most cities in the United States require property owners and developers to provide a minimum amount of auto parking for each land use on a property. The purpose of minimum parking requirements is to ensure that the demand for parking by residents and visitors of a property does not exceed the number of parking spaces available and result in high parking occupancy on the street. Most jurisdictions design their parking requirements to satisfy the maximum potential demand for free parking at every destination, and consequently most parking spaces are unused most of the time.¹⁷ Because it is oversupplied, the market price for parking in most locations has fallen to zero, shifting the costs of providing parking from drivers to developers, building owners, and their tenants and customers – and increasing construction costs by 18 percent or more.¹⁸ Despite lower auto ownership near transit, most jurisdictions (with the notable exception of Portland, Oregon) do not have explicit policies of reduced parking requirements within a given proximity of transit service.¹⁹

Is parking over- or undersupplied in East Bay transit station areas? Studies suggest that residential street parking occupancy varies with residential density and regulatory policy.²⁰ Where parking is unregulated, park-and-ride commuters and the employees and customers of nearby businesses often take advantage of available spaces on residential streets. However, even when most parked vehicles likely belong to residents, occupancy rates are very high where multi-unit apartment buildings predominate, but tend to be low where densities are lower.

The surveys of homeowners, Craigslist rental units, and car share members provide information about parking and transportation in the subregion, and particularly for secondary unit residents. The car share survey, sent via email to ZipCar and City CarShare members, garnered 275 responses (a response rate of 14%) from those who live within ½ mile of eleven East Bay BART stations with nearby car share vehicles. The following section details the findings about car ownership, parking provision, and usage of alternative transportation modes, particularly car share.

Car ownership

Residents of transit station areas own fewer vehicles, on average, than those living farther from transit.²¹ Station area residents may purchase fewer vehicles because they plan to drive less, move to station areas in greater numbers because they own fewer vehicles and desire more travel options, or reduce their vehicle ownership after moving near transit and finding they need a car less than before. Small families, low incomes, and high density all reduce the likelihood of car ownership.²² A small, affordable secondary unit in a dense neighborhood near transit would therefore be least likely to contribute significantly to neighborhood parking shortages.

Our survey showed that households occupying secondary units are disproportionately likely to have no cars at all: 23% have zero cars, versus 17% of households overall in the study areas. However, since most secondary unit households do have a car, properties with a secondary unit do generate (from both households combined) 0.8 cars more than properties without secondary units.²³ Joining car share may reduce vehicle ownership: car share members in the East Bay on average shed 0.7 cars after joining a car sharing service, and 55% of car share members do not own a car.

Parking provision

In theory, parking requirements force many properties with secondary units to provide off-street parking. However, in practice, our Craigslist survey showed that properties with secondary units do not provide an amount of off-street parking that is significantly higher than properties without secondary units. Moreover, secondary units seldom (only in 13% of cases) offer off-street parking to their tenants; and when parking is offered along with secondary units (usually for free), our survey found that it is typically not reflected in rent. On the other hand, the homeowner survey did show that people living on secondary unit properties are using off-street parking when it is available. Because parking costs are not likely to be passed on to tenants, secondary unit households have little incentive to choose alternative transportation modes.

Alternative Transportation

Car sharing has proven attractive to people with a variety of demographic characteristics, but some clear patterns emerge in terms of the populations most likely to join. Confirming previous studies, our survey shows that car share members are typically younger than the station area population as a whole, rent their homes, and are more likely to be white, middle-income, and well-educated. Household sizes are generally small, as are housing units,

but similar to those of the station area population at large. Active car share members are unlikely to own vehicles, but still about half have dedicated off-street parking spaces available. Travel patterns indicate that car share members primarily walk and use transit on weekdays, and trade bicycling for transit as their second mode on weekends. Car sharing is a supporting mode, with members reserving a vehicle about once a week.

These results suggest that car sharing members likely have many commonalities with small-scale infill housing residents given their youth, typical renter status, and small household sizes. However, the survey data also suggest that expanding car sharing in low-density station areas may be challenging given high rates of car ownership and parking space availability among the existing population. Car sharing may also be difficult to match with low-income tenants given the barriers in car sharing programs, such as the use of the Internet for booking, as well as the need to have a spotless driving record and a credit card.

In order to make car share pods economically viable, there must be an adequate customer base. Residential density is perhaps the most significant and easiest-to-observe factor in pod viability, although there is no defined threshold for a

viable density.²⁴ Low vehicle ownership rates, accessibility to transit and neighborhood amenities are important factors because they provide alternatives to driving for many trips.²⁵ Car sharing is particularly viable where other transportation modes can fill residents' needs for most trips. Pods in mixed-use neighborhoods, including both business and residential activity, benefit from demand that is less peaked and more distributed throughout the day and week.²⁶ Lastly, costly or hard-to-find parking renders car ownership a hassle and car sharing a more attractive alternative.²⁷ Although a secondary unit strategy does not offer high densities, it does bring in a new market of tenants disproportionately likely to rely on alternative transportation.

In practice, most car share members walk to pods, and are willing to walk up to one-half mile. To be supported, pods probably need 18-19 frequent users. It takes about six months to reach a sustainable level of membership, so providers prefer to expand incrementally into areas that already have some existing members. Thus, for station areas relatively underserved by car share (such as El Cerrito's), infill secondary units would likely make new pods viable.



Source: <http://www.flickr.com/photos/canadianveggie/5570458024/sizes/1/in/photostream/>

Car sharing in Vancouver, BC.

The potential impact of a secondary unit strategy

The potential market for secondary units in the “flatlands” of the study corridor

While the primary focus of this study is the five BART station areas, we extended our projections for the number of secondary units that could be potentially produced in the future to a broader region of the “flatlands” adjacent to the five station areas. This region is mostly topographically flat, richly served by transit (including AC Transit and other bus systems), and in general shares many demographic, housing stock and other characteristics with the station areas that we studied in the greatest detail. For this reason, we extrapolated our regulatory analysis inside the station areas to the broader flatlands region. We omitted hillside districts from these calculations, because hillside neighborhoods are distinct from the flatlands in terms of transportation (with much higher rates of car usage and lower rates of transit usage, cycling and walking), demographics (the hillside areas have a much higher proportion of high-income households, with fewer renter households) and topography (travel behavior and the addition of secondary units is complicated by steep slopes). While we know from conversations with city staff that hillside areas have at least some secondary units, we could not reasonably extrapolate from the station areas to the hillside neighborhoods, as we could from station areas to adjacent flatlands districts.

We defined the flatlands for these purposes as the entirety of the flat-lying portions of the cities of Berkeley and El Cerrito, along with North Oakland (that portion of Oakland that lies north of the I-580 freeway, but excluding the Rockridge and Piedmont Avenue neighborhoods, which are distinct in terms of demographics, zoning regulation, and parcel configuration from the rest of North Oakland) (Figure 6). We omitted the cities of Albany and Richmond from the flatlands analysis, since the station areas within these two cities are too limited in size to be plausibly extrapolated to the entirety of the flatlands of these two cities.

Table 2 extends the analysis from Table 1 to the flatlands region as we have defined it. Making the regulatory changes assumed above leads to an increase in the number of SFR lots eligible for the addition of a detached, rear yard secondary unit by 66% in the City of Berkeley’s

flatlands, more than three-fold in the El Cerrito flatlands and nine-fold in the North Oakland flatlands. If these changes were enacted and secondary unit development encouraged, we would anticipate substantial impacts in the areas of affordability, Smart Growth, local economics, and transit ridership. These potential beneficial impacts are dealt with in turn below. For this analysis, we define the full build-out scenario as the number of units that could potentially be built in the flatlands (with zoning changes). We also reduce the full build-out scenario to account for the fact that 16% of single-family residences already have secondary units.²⁸ These projections therefore quantify the total *potential* number of backyard cottages that could be added to the flatlands. In reality, not all homeowners who could add such units will have the ability or desire to do so, even following relaxation of the land use rules that discourage them. Nevertheless, our computations provide an idea of the potential that exists from a secondary unit strategy. Furthermore, our estimates only look at one type of secondary unit, purpose-built detached cottages, and do not consider others, such as converted garages or conversions of rooms within the main house.

Affordability impacts

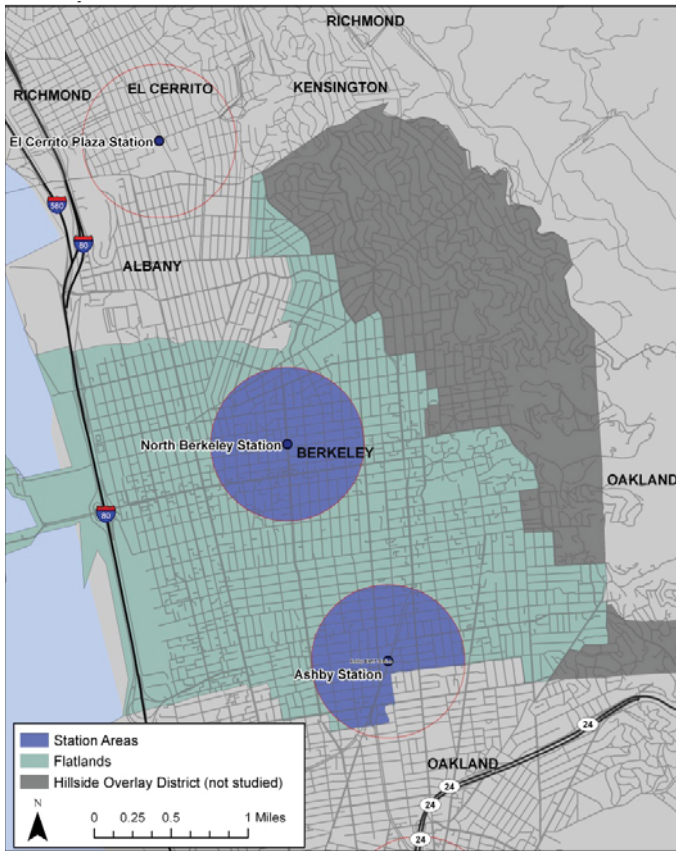
Housing affordability is a topic of constant and ongoing concern in the Bay Area region. Assuming that the unblocked market were to generally resemble today’s black market in terms of rent levels, the impacts on affordability in the study area cities would be profound.

Our projections are based on findings from our analysis of rental unit advertisements on Craigslist, which show that the average secondary unit is advertised at a rental rate that makes it affordable to a household earning 62% of Area Median Income (AMI, which was \$92,300 in 2011) for the Oakland-Fremont submetropolitan area, to which the entire study corridor belongs. The corresponding figure for non-secondary units is 68% of AMI. This contrast becomes more pronounced when one considers that higher-end non-secondary rental units are likely to eschew Craigslist altogether as a means of advertising apartments in favor of other methods, such as the use of rental brokers, glossy apartment magazines, or even private advertisements in BART stations or billboards.

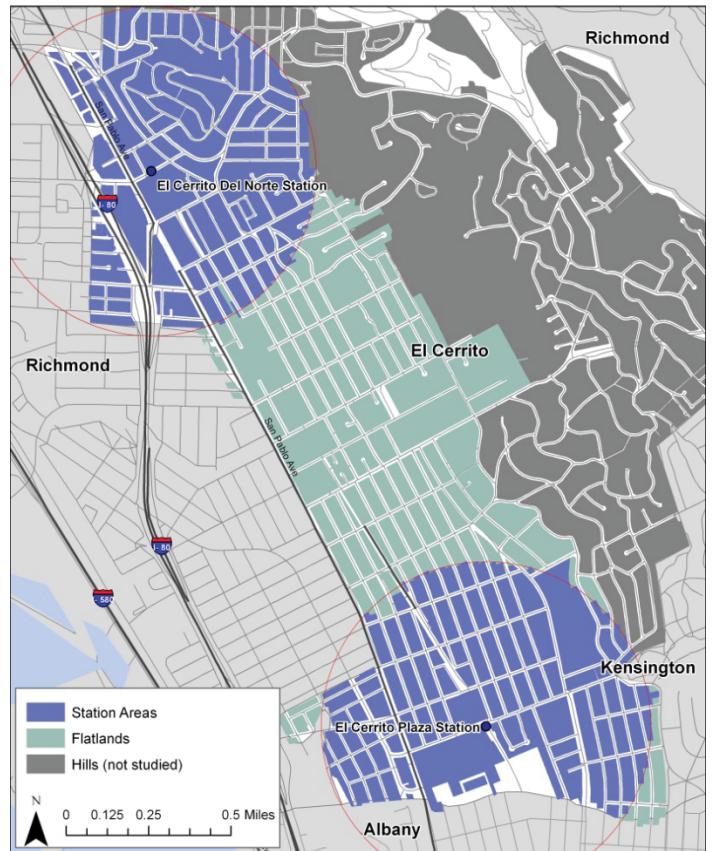
Table 2. The number of single family residential parcels eligible for the addition of a detached, backyard secondary unit under current zoning and following the implementation of our recommended land use regulatory changes in the flatlands of Berkeley, El Cerrito, and North Oakland, by city.

Flatland Neighborhoods	Single-Family Residential (SFR) parcels eligible for new secondary units					
	Berkeley		El Cerrito		North Oakland	
Scenario	Units	% increase over current zoning	Units	% increase over current zoning	Units	% increase over current zoning
Current zoning	3,628	N/A	459	N/A	229	N/A
With all recommended land use changes	6,040	66%	2,001	336%	2,289	900%

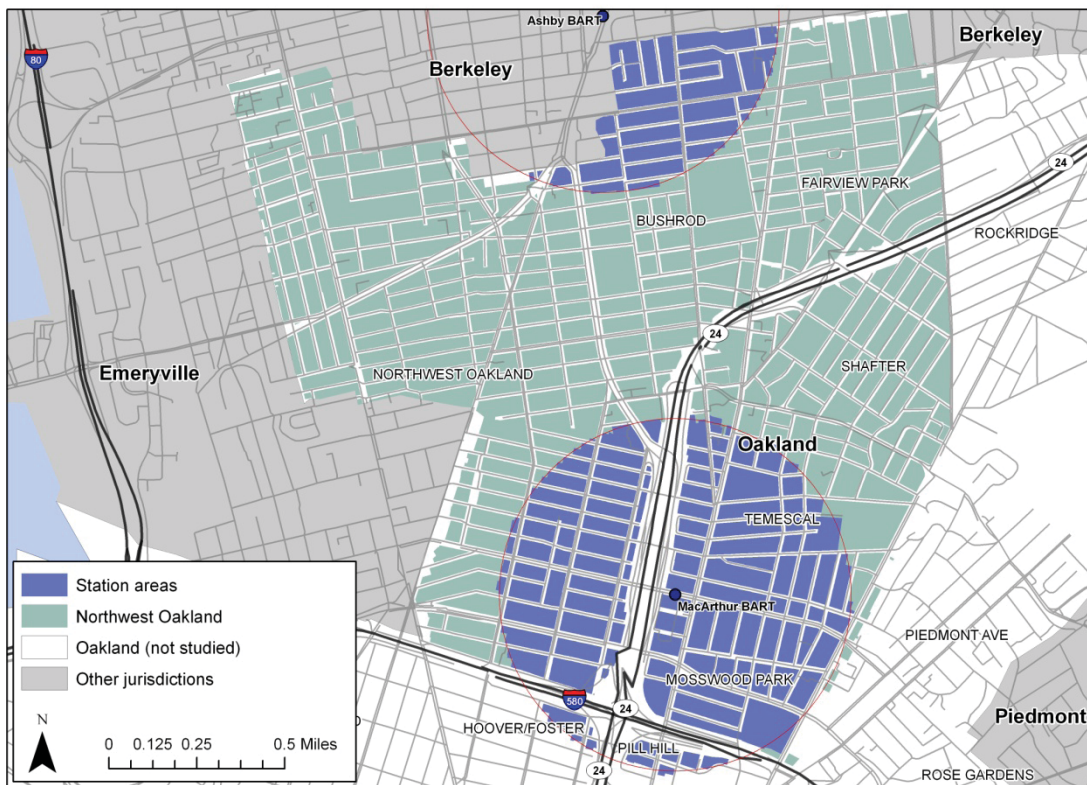
Figure 6. Station area, flatlands and hillside regions for the City of Berkeley (top left), the City of El Cerrito (top right), and North Oakland (bottom).



Sources: Center for Community Innovation, 2011; City of Berkeley, 1999.



Sources: Center for Community Innovation, 2011; CoreLogic, 2010; City of El Cerrito, 2010.



Sources: Center for Community Innovation, 2011; City of Oakland, 2011.

The Craigslist data indicates that 30% of secondary units are affordable to households in the Very Low-Income category (30% to just under 50% of AMI), and that 49% lie within the Low-Income category (50% to just under 80% of AMI). Secondary units, by contrast, are almost completely absent in the Extremely Low-Income category (under 30% of AMI), which generally corresponds to public housing and other deeply subsidized housing that serves tenants with special needs. A secondary unit strategy, by bolstering the stock of units in the Very Low-Income and Low-Income affordability categories with minimal expenditures of public funds, could therefore help to free up such scarce (and dwindling) monies for the subsidization of the lowest-income affordable developments.

A comparison of the full build-out scenario with the affordable housing production targets established for the study area cities as part of the Regional Housing Needs Assessment (RHNA) process mandated by California state law is instructive. Our estimate of the potential number of additional flatlands secondary units exceeds the RHNA targets by a factor of between roughly two and seven for the years 2007-2014 in the Very Low- and Low-Income categories for the cities of Berkeley and El Cerrito, as well as in North Oakland (if RHNA targets are adjusted to account for North Oakland's pro rata share of existing citywide housing units as of 2010).

Not only *could* additional secondary units have an important impact on affordability in the future, existing (and mostly unpermitted) secondary units already *do* make a substantial contribution to affordability. Our estimates show that if the existing stock of secondary units could be counted against RHNA targets, they would almost match or exceed the citywide RHNA targets for Berkeley, El Cerrito, and North Oakland in the Very Low- and Low-Income categories, and the total RHNA target for El Cerrito. Thus, existing, mostly unpermitted secondary units already provide a highly important, if largely overlooked, reservoir of affordable housing within the study corridor.

Experience in Marin County shows that at least in this one jurisdiction, secondary units have already made a major contribution to fulfilling RHNA obligations. For instance, the 127 legal secondary units permitted from 2000 to 2007 contributed to fulfilling almost one quarter of the 2000-2007 RHNA obligation for the unincorporated portion of the County. Marin was able to claim that most of the newly-produced secondary units were affordable by relying upon results from a survey that had been mailed out to the homeowners of the new units, which showed that 62% are rented for less than 80% of AMI (a somewhat lower proportion than what we found in our rental advertisement analysis, possibly because of the value of secondary units as tourist rentals in parts of Marin County).

Smart growth impacts

In addition to affordable housing impacts, the addition of secondary units to the study area flatlands could more broadly help the region attain its smart growth objectives by allowing cities to absorb a substantial share of the anticipated housing growth for the region within already-developed residential neighborhoods. This could both allow municipalities to offset some of the need to build expensive and time-consuming multifamily developments in designated PDAs and also reduce the amount of agricultural or wilderness land in the Bay Area lost to residential development. Our results show that the full build-out scenario for secondary units could equate to 60% of the new residential units slated by ABAG to be added to Berkeley citywide and in its PDAs from 2010 to 2040, 117% in El Cerrito, and 44% in North Oakland.

Since meeting the ABAG targets will require sustained effort on the parts of the cities involved, and since there is no one "magic bullet" strategy that can effect, on its own, all of the necessary shifts in growth patterns, a secondary unit strategy promises to be a highly useful and important element in a smart growth strategy for cities in our study area and elsewhere in the Bay Area. In addition, while multifamily housing growth tends to grind to a near-halt during cyclical economic downturns, secondary units offer at least some prospect of allowing cities to chip away at their growth targets even during slack periods in the real estate cycle, such as what the region has experienced recently.

Economic impacts

We studied two types of economic impacts that could result from increased secondary unit production: first, the stimulus to the local private economy, and second, the boost to the local property tax rolls represented by SFR properties that have had permitted, taxable secondary units added to them. Although we did not study the benefits to individual homeowners, construction of a secondary unit may not only offer a stream of rental income but also increase the value of the home. Such asset- and income-building strategies may aid homeowners with negative equity or on fixed incomes.

We estimate that the full build-out scenario in the flatlands could result in total economic activity of \$304 million in El Cerrito, \$348 million in North Oakland, and \$919 million in Berkeley. Meanwhile, our models show that this activity could generate a total of over 14,700 jobs (measured in person-years) between these three cities.

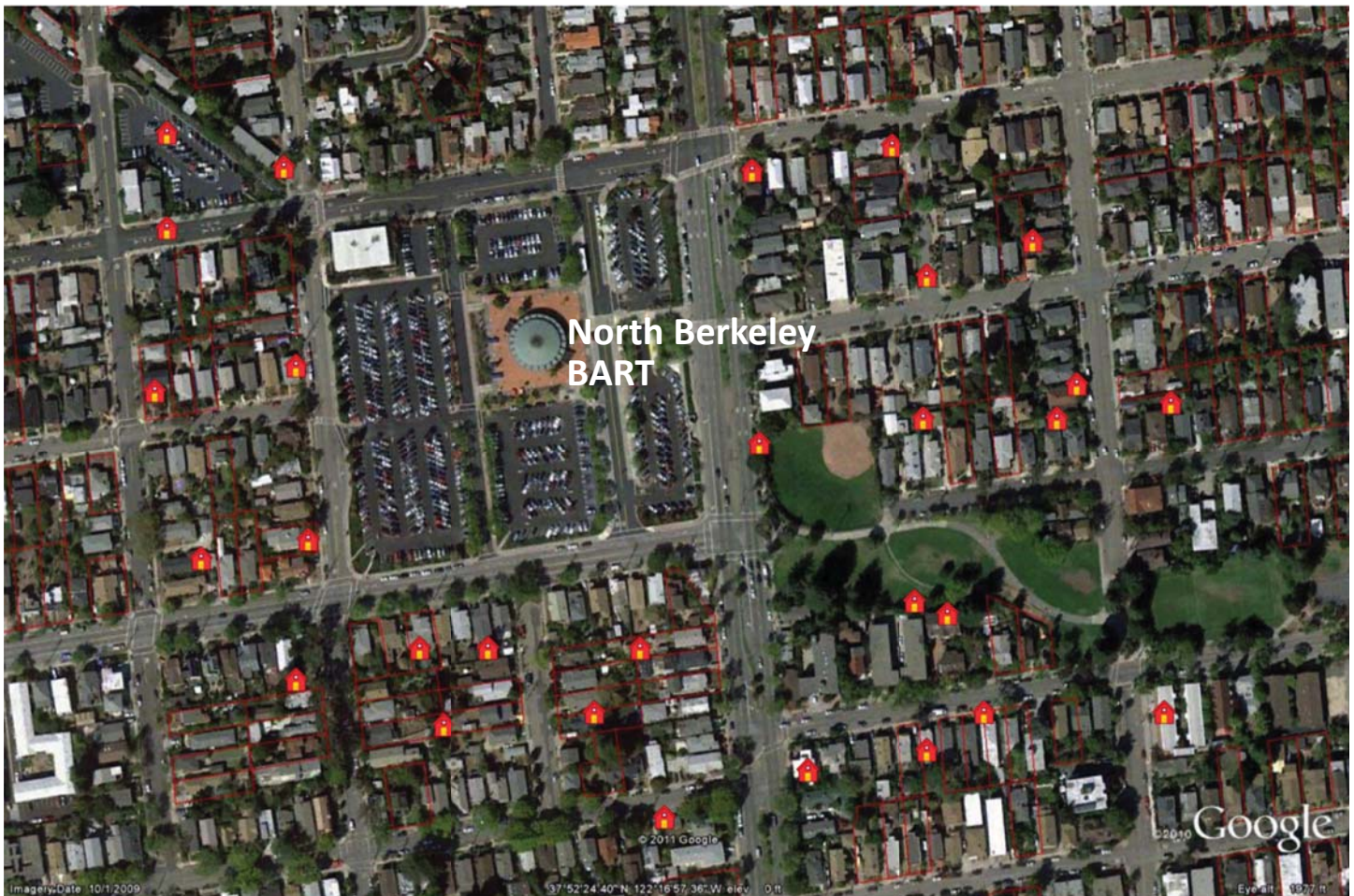
Existing secondary units and their occupants require services from cities, but for the most part they are not currently generating property taxes to support these services because they are “off the books.” We estimate the amount of foregone annual revenue at about \$300,000 in El Cerrito, \$368,000 in North Oakland, and \$700,000 in Berkeley. While it would be difficult to recapture all of this revenue, an amnesty program of the sort executed by Marin County from 2007-2008 might make it possible to garner at least some of it and to offset a portion of the funds cities are already expending on secondary units and their occupants. (The Marin program is discussed further in the next section.)

Transit ridership impacts

Transit system ridership impacts from secondary unit build-out are fairly minimal, owing in part to how secondary units modestly increase densities over a large area rather than creating dramatic increases in station areas or along arterials served by bus lines. We estimate that full

station-area secondary unit build-out would boost BART ridership at the five stations that we studied by about 1.0% and AC Transit systemwide ridership by about 0.4%. The full secondary unit build-out in the flatlands would result in ridership increases of about 3.0% for the five BART stations and 1.3% for the entire AC Transit bus system.

The new secondary unit residents would also be disproportionately likely to become members of car sharing services. If we make a conservative estimate that 25% of the new tenant households would include one car share member apiece, and use the car sharing industry standard that 20 active members support one car share vehicle, the full built-out scenario could bring 108 new car share vehicles to the study corridor. This is a major boost compared to the approximately 55 cars currently operated in the study corridor by City CarShare, one of the two large car share providers active in the Bay Area. In addition, secondary unit residents could help assure the viability of the expansion of car sharing to locations where it currently does not exist, such as the Del Norte BART station area.



Source: Google Earth

This photo shows the number of secondary units that could be built around the North Berkeley BART station if (1) the minimum lot size were eliminated and (2) the 31% of homeowners interested in building did so.

Note: locations of secondary units shown are hypothetical; these parcels may not be able to accommodate a unit.

Policy recommendations and next steps

Our research demonstrates that the regulatory barriers to secondary unit production are formidable. While these barriers may have arisen from a sincere and well-intentioned desire to protect the character of low-scale, residential neighborhoods, they have greatly limited the production of secondary units. In short, they have helped block the market for secondary unit housing.

With most housing sub-types, a blocked market simply squelches production altogether. Secondary units, however, are different. Because they can assume many forms and be hidden from the street, and because they help fill a structurally undersupplied need – low-income housing for small households in desirable locations in an expensive region – the blocked market for this housing fuels a black market that escapes regulation and taxation. Paradoxically, overzealous regulation can lead to secondary units that deviate more blatantly from the goals underpinning land use controls than if more modest regulations were adopted that reflected widespread practices in the black market. Most importantly, modest regulations would be more likely to foster compliance with the health and safety standards embodied in building codes.

How, then, should cities in the study area proceed to “unblock” the market for secondary units? We recommend the following:

- 1. Make it as easy as possible to install secondary units “as of right.”** Wherever possible, permissions that require administrative procedures, such as Administrative Use Permits (AUPs) or Conditional Use Permits (CUPs), should be converted to “as of right.” Policymakers should recognize that such procedures pose a higher barrier to homeowners (acting on their own behalf as amateur developers) than to professional developers. In addition, procedures that currently require variances should be rethought as well – anecdotally, we heard from city staff in Berkeley and El Cerrito that variances tend to present almost insurmountable obstacles to most homeowners.
- 2. Reform the land use controls that currently limit the legal secondary unit market to a small fraction of SFR properties.** These vary by city but can include i) minimum lot size requirements; ii) requirements to bring the existing house into conformance with parking regulations when a secondary unit is added; iii) oversized setback requirements that exceed the 4’ needed for basic life safety access, and that fail to reflect typical parcel dimensions; and iv) rules that prevent easy garage conversions.
- 3. Relaxing parking requirements.** Our results show that an inability to fit required parking onto an SFR lot is one of the leading reasons that homeowners either give up on secondary unit development altogether or proceed without permits. We suggest making parking compliance easier by i) allowing tandem parking; ii) allowing front setback parking; and iii) doing away with covered parking requirements where they exist. Cities may also want to consider eliminating off-street parking requirements altogether for secondary units in certain strategic locations, as the City of Seattle did within its designated Urban Villages (even though Seattle’s rail system is far more limited than BART).
- 4. Provide a menu of alternatives for those who cannot otherwise meet parking requirements.** Actions that homeowners could pursue as an alternative to off-street parking provision could include i) demonstrating sufficient proximity to a transit station or car share pod; ii) installing bike parking; iii) agreeing to a restriction to the issuance of on-street parking permits for secondary unit tenants if inside a Residential Permit Parking (RPP) district; iv) accepting enforceable affordability restrictions in exchange for a waiver of parking requirements; and v) paying an in-lieu fee to a city-controlled fund that subsidizes new car sharing pods, operates a neighborhood Transportation Demand Management (TDM) program, purchases bulk bus passes, etc.
- 5. Encourage the growth of car sharing in moderate-density neighborhoods.** This can be part of a broader “Smart Growth” strategy that also benefits secondary unit development, and could be furthered by i) reserving on-street spaces for car share pods; ii) subsidizing expansion of car sharing pods into new areas; iii) encouraging new innovations such as distributed car sharing; or iv) educating homeowners about car sharing options during points of interaction with the city in the course of obtaining permits.
- 6. Supplement deregulation of secondary unit installation with active encouragement.** The City of Santa Cruz is well-known for its efforts to encourage the legal production of new secondary units. While local officials interviewed suggest that zoning changes (in particular, the liberalization of parking restrictions) were the single most important factor behind its success, they also emphasized the importance of taking positive steps towards encouraging secondary units as well as ceasing to discourage them. In the case of Santa Cruz, these steps included: i) creating an easy-to-follow “how-to” manual for homeowners, available online; ii) hiring architects to design secondary unit prototypes with advance approval from the building department; iii) establishing a loan fund (discussed below); and iv) conducting community workshops in order to educate homeowners about the possibilities of secondary units and to generally “change the conversation” concerning them. These programmatic actions were paid for via funds from an external grant. In addition, Santa Cruz subsequently instituted waivers of certain planning fees in exchange for affordability commitments from homeowners, enforced with an annual certification.

7. **Establish a secondary unit amnesty program.** The case of Marin County shows that a well-conceived initiative can produce solid results. In this case, the primary impetus for Marin’s amnesty program was a desire to deal with an existing code enforcement backlog of secondary units, and also to receive RHNA credit for affordable secondary units. Factors underlying Marin’s success (which resulted in the legalization of 60 previously unpermitted secondary units over a two-year period) included: i) a limited duration for the program coupled with fee reductions and regulatory concessions available only for that limited time, to give homeowners a strong incentive to act; ii) extensive coordination with utility providers, many of whom also offered reduced connection fees during the amnesty window; iii) identification of staff for participation in the program who displayed the flexible and creative mindset needed on a day-to-day basis for an amnesty program to succeed; and iv) the creation of an internal “firewall” between planning staff running the amnesty program and code enforcement staff, so that homeowners were assured that unsuccessful permit applications would not be reported to code enforcement except in cases of imminent threats to health and safety.²⁹

8. **Set up a loan fund for secondary units.** While reforming mainstream home finance industry practices towards secondary units is generally beyond the power of local governments, cities do have the potential to “step into the breach” and help fill the financing gap for their local citizens by establishing revolving loan funds that are specifically equipped to deal with secondary units. We learned from interviews that the City of Santa Cruz’s revolving loan fund, operated as a partnership with a local credit union, was one of the few areas of Santa Cruz’s secondary unit policy efforts that did not meet with success. The loans came with affordability restrictions, and were offered at a time when mortgages were easily obtainable by

homeowners. We were also informed, however, that if Santa Cruz’s loan program or a variant thereof were to be resurrected amidst today’s much tighter lending environment, it would likely be much more successful.

9. **And whatever you do, “know your market!”** In the 1980s, various state governments established secondary unit loan programs, targeting elderly homeowners, to encourage them to “age in place” in their current homes. These efforts were largely unsuccessful, mostly because senior citizens had difficulty with the bureaucratic complexity of the programs and the stresses of managing a construction project and selecting tenants, as well as a reluctance to take on debt, even with generous terms.³⁰ The authors of one review of these programs concluded that efforts to spur secondary unit installation would have been much more productively aimed at younger homeowners (including the so-called “young old”), and would still have managed to better serve the needs of the elderly (by, for instance, facilitating the aging in place of younger homeowners with secondary units over the longer term). The lesson from this cautionary tale is that a program with a well thought-out policy rationale can fail if it is not well-matched to the appropriate target market. It is our hope that the information that we have provided about the market for secondary units can be helpful to cities in appropriately tailoring secondary unit production and amnesty programs to local needs.

Despite nearly three decades of efforts to scale up secondary unit construction as an infill housing strategy, obstacles remain. This study shows how to mobilize the market by reducing regulatory barriers and increasing use of alternative transportation modes. Saying “yes, in my backyard” is not only an important strategy in the infill toolkit necessary to deal with climate change, but also a new imperative as we adjust to the new realities of the housing market.

“

My wife and I reduced our cars from two to one when we moved into this house. She is able to commute into [San Francisco] on BART so we don’t need a second car. Our block, located one block from the BART station, is an ideal location to allow secondary units. For this reason, secondary units should be encouraged by city policy and parking requirements for such units should be eliminated within a short distance to the BART station.

”

— North Oakland homeowner

Notes

1. Association of Bay Area Governments, *Sustainable Communities Strategy Preferred Scenario – Jobs Housing Connection Draft* (Oakland, CA: ABAG, 2009).
2. Grand Boulevard Initiative, *Economic & Housing Opportunities Assessment*, prepared by Strategic Economics, FTS, and Urban Explorer for the San Mateo County Transit District, C/CAG, the Silicon Valley Community Foundation, and MTC, 2010.
3. San Francisco Development Fund, *Small Solutions: Second Units as Affordable Housing. An Evaluation of the Double Unit Opportunity Program of the San Francisco Development Fund*. (San Francisco: San Francisco Development Fund, 1988).
4. Paul Groth, "Workers'-cottage and minimal-bungalow districts in Oakland and Berkeley, California, 1870-1945," *Urban Morphology* 8.1(2004): 13-25.
5. Ibid.
6. William C. Baer, "The Shadow Market in Housing," *Scientific American* 255.5 (1986): 29-35.
7. P. H. Hare, *Accessory Units: The State of the Art, Volumes 3 and 4, Summary of Experience With Accessory Units in the US and Canada*. (Washington, DC: Patrick H. Hare Planning and Design, 1991); S. Chavez & J.Quinn, "Substandard Housing Garages: Immigrants In, Cars Out," *Los Angeles Times*, May 24, 1987; San Francisco Planning & Urban Research, *Building More Secondary Units: A Painless Way to Increase the Supply of Housing* (San Francisco: SPUR, 2001).
8. G. S. Masnick, "The new demographics of housing," *Housing Policy Debate*, 13.2 (2002): 491-527; D. Myers & J. Pitkin, J., "Demographic Forces and Turning Points in the American City, 1950-2040," *The ANNALS of the American Academy of Political and Social Science*, 626.1(2009), 91 -111; Chris Nelson, *Resetting the Demand for Multifamily Housing: Demographic & Economic Drivers to 2020* (2010). Presentation accessed at <http://www.nmhc.org/Content/ContentList.cfm?NavID=111>
9. D. Myers & E. Gearin, "Current Preferences and Future Demand for Denser Residential Environments," *Housing Policy Debate*, 12.4 (2001): 633-659.
10. D. Myers & S. Ryu, "Aging Baby Boomers and the Generational Housing Bubble: Foresight and Mitigation of an Epic Transition," *Journal of the American Planning Association*, 74.1(2007): 17-33.
11. Sylvia A. Allegretto, *The State of Working America's Wealth*, 2011 (Washington DC, Economic Policy Institute, 2011).
12. N.J. Chapman & D.A. Howe, "Accessory Apartments: Are They a Realistic Alternative for Ageing in Place?" *Housing Studies*, 16.5(2001): 637-650; M. Gellen, *Accessory apartments in single-family housing*. New Brunswick N.J.: Center for Urban Policy Research, 1985; P.H. Hare, *Accessory Units: The State of the Art, Report I, Summary of Experience With Accessory Units in the US and Canada* (Washington, DC: Patrick H. Hare Planning and Design, 1989); J. Koppen, *Effect of the Economy on Housing Choices* (Washington D.C.: AARP, 2009); K. Lawler, *Aging in Place: Coordinating Housing and Health Care Provision for America's Growing Elderly Population* (No. W01-13). Joint Center for Housing Studies and Neighborhood Reinvestment Corporation (2001).Myers & Pitkin (op.cit.); D.P.Varady, "Which elderly home owners are interested in accessory apartment conversion and home-sharing," *Journal of Housing for the Elderly*, 6.1(1990), 87-100.
13. T.K. Rudel, "Household change, accessory apartments, and low income housing in suburbs," *The Professional Geographer*, 36.2(1984): 174-181; M.E. Ruud & V. Nordvik, "From the Kitchen Floor to the Basement-Sharing Arrangements in two Centuries," *Housing, Theory and Society*, 16.4(1999): 192-200; D. Varady, "Factors affecting middle-income elderly interest in accessory apartment conversion," *Journal of Architectural and Planning Research*, 5.1(1988): 81-87.
14. Rudel (1984). The Babylon study does not attempt to compare the number of bathrooms, square footage, or other characteristics of secondary unit housing versus non-secondary unit rental housing available in the town; it therefore does not provide direct evidence that secondary unit housing is being provided at a cheaper price, normalized for housing quality, than non-secondary unit housing. It does provide strong evidence, however, that secondary unit rental housing offers a lower-priced housing package than otherwise commonly exists in the town apart from subsidized rentals.
15. M. Antoninetti, "The Difficult History of Ancillary Units: The Obstacles and Potential Opportunities to Increase the Heterogeneity of Neighborhoods and the Flexibility of Households in the United States," *Journal of Housing For the Elderly*, 22.4(2008): 348-375.
16. Properties built before 1958 are grandfathered, i.e., do not have to provide two extra spaces.
17. D.C. Shoup, *The High Cost of Free Parking* (illustrated edition.), (Chicago, IL: American Planning Association, 2005); R.W. Willson, "Suburban Parking Requirements: A Tacit Policy for Automobile Use and Sprawl," *Journal of the American Planning Association*, 61.1(1995):29-42.
18. Shoup, op.cit.

19. City of Portland, Title 33, *Planning and Zoning Code, Chapter 33.266 Parking and Loading*, 2010, Retrieved from www.portlandonline.com/bps/index.cfm?a=53320
20. E. Deakin et al., *Old Road, New Directions: A Plan for Adeline*, U.C. Berkeley CP 218 Studio Report, 2010.
21. J. Holtzclaw, R. Clear, H. Dittmar, D. Goldstein & P. Haas, "Location Efficiency: Neighborhood and Socio-Economic Characteristics Determine Auto Ownership and Use - Studies in Chicago, Los Angeles and San Francisco," *Transportation Planning and Technology*, 25.1(2002):1-27; H.S. Kim & E. Kim, "Effects of Public Transit on Automobile Ownership and Use in Households of the USA," *Review of Urban and Regional Development Studies*, 16.3(2004): 245-262; P. Schimek, "Household Motor Vehicle Ownership and Use: How Much Does Residential Density Matter?" *Transportation Research Record: Journal of the Transportation Research Board*, 1552.1(1996):120-125.
22. Holtzclaw et al., op.cit.
23. Properties with secondary units have considerably higher variability in the number of cars generated than do properties without secondary units. In other words, this mean is skewed by extreme cases with multiple cars. This suggests a need for flexible policy tools that can address the particularities of specific cases.
24. A. Anton, personal interview (December 21, 2010).
25. Anton, op.cit.; J. Williams, personal interview (January 19, 2011).
26. City Carshare, *Bringing Carshare to Your Community*, Long Guide, 2005. Retrieved from http://www.citycarshare.org/download/CCS_BCCtYC_Long.pdf
27. City Carshare, op.cit.; Williams, op.cit.
28. Note that in the previous version of this report, published in September 2011, we conservatively assumed that only a small share of households would want to build backyard cottages, while in this version we analyze the full build-out potential.
29. Interview with Marin County planner.
30. Joan Retsinas & Nicolas P. Retsinas, "Accessory apartment conversion programs," *Journal of Aging and Social Policy* 3.1 (1991): 73-89.