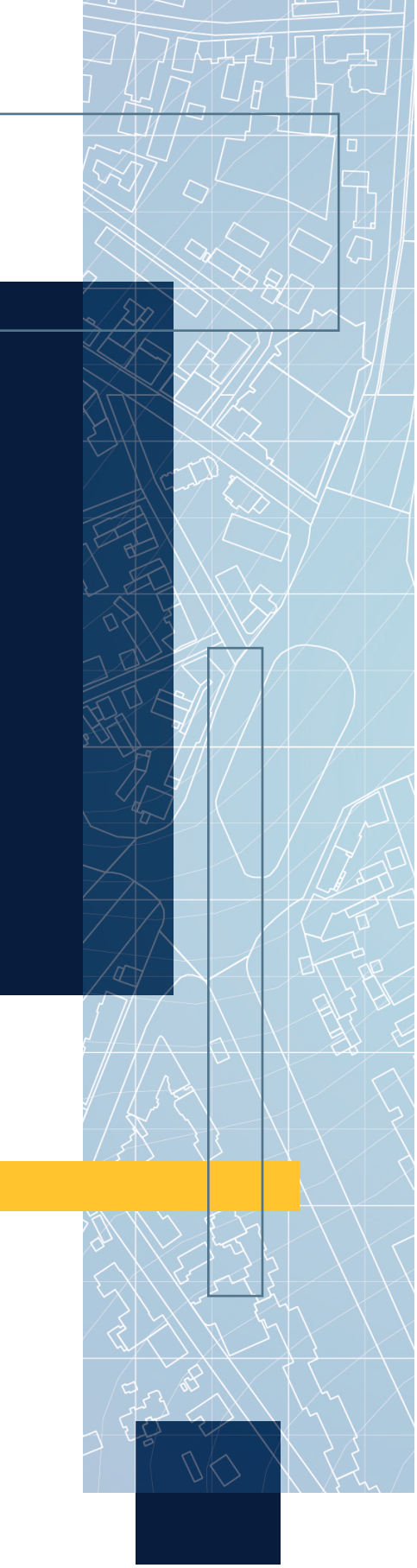


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Will Allowing Duplexes and Lot Splits on Parcels Zoned for Single-Family Create New Homes?

Assessing the Viability of New Housing Supply Under California's Senate Bill 9

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Introduction

In recent years, California lawmakers have proposed a number of legislative changes to address the state's ongoing housing shortage and affordability crisis. While the most ambitious of these efforts have not passed, momentum has increased around one solution in particular: legislation to allow modest increases in smaller-sized units in existing single-family neighborhoods. In 2020, Senate Bill 1120—which would have allowed for up to four new homes on existing single-family parcels—passed both the California Assembly and Senate, but fell short of becoming law as time ran out at the end of the session. This year, Senate President Pro Tempore Toni Atkins has introduced Senate Bill 9 (SB 9), which proposes a similar policy shift. SB 9 has now passed through the State Senate and is under discussion in the State Assembly; if approved by the Assembly, it may be poised to be the most significant housing bill coming out of California's current legislative session.

SB 9 has potential to expand the supply of smaller-scaled housing, particularly in higher-resourced, single-family neighborhoods. In this way, SB 9 builds on recent state legislation that opened up access to accessory dwelling units (ADUs) for virtually all California single-family parcels. What distinguishes SB 9 is that it allows for the development of new, for-sale homes, either on a newly subdivided lot or through the conversion of existing single-family homes into multiple units. This ability to create duplexes and/or split the lot and convey new units with a distinct title would allow property owners to pursue a wider range of financing options than are available for ADU construction to build these new homes.[1] In so doing, SB 9 could open up new homeownership opportunities at more attainable price points for prospective purchasers, who would be able to apply for a traditional mortgage to buy the home.

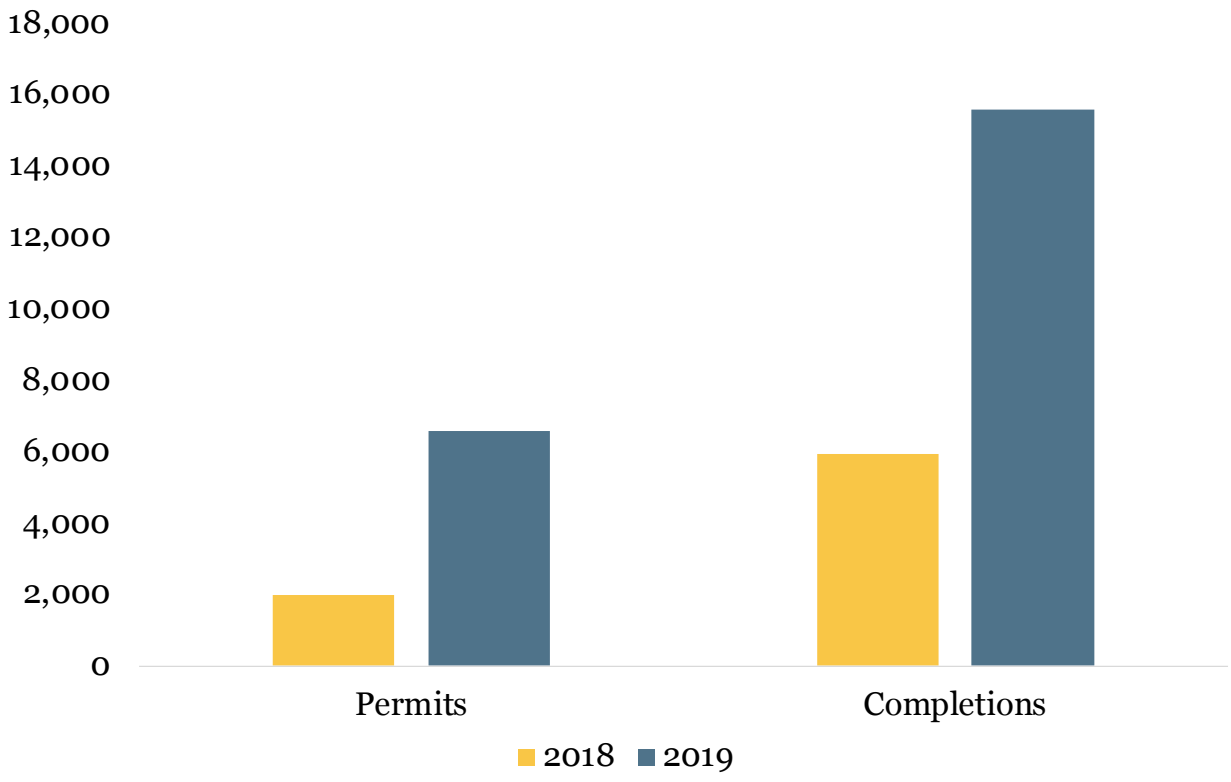
Yet, the likelihood of creating new housing and homeownership opportunities as a result of SB 9 largely depends on local context. While Senate Bill 9 does not apply to single-family parcels in historic districts, fire hazard zones, and rural areas, local market prices and development costs play a large role in determining where there is financial viability for the addition of new homes. Moreover, physical constraints, such as small lot sizes and other local regulations, can limit the number of new homes built as a result of this bill. To assess the potential impact of SB 9 on new housing supply, this analysis assesses the market feasibility of new homes as allowed by the current version of the Bill (as of July 2021).[2]

This analysis finds that SB 9's primary impact will be to unlock incrementally more units on parcels that are already financially feasible under existing law, typically through the simple subdivision of an existing structure. Relatively few new single-family parcels are expected to become financially feasible for added units as a direct consequence of this bill. While this analysis does not attempt to measure the actual rate of uptake for adding new units to single-family parcels, it is reasonable to assume that SB 9 will modestly accelerate the addition of new units relative to the status quo by facilitating access to conventional mortgage products for multiple households able to purchase homes on newly subdivided single-family parcels.

Background

California's recent housing laws have largely failed to unlock significant housing production changes that would ease the ongoing housing and homelessness crisis. One of the state's more effective housing solutions has been recent laws removing barriers to the construction and financing of ADUs. In 2016, Senate Bill 1069 and Assembly Bill 2299 expanded the ability of homeowners to build ADUs and Junior ADUs (JADUs). Subsequent legislation (Assembly Bill 68, Assembly Bill 881, Senate Bill 13) removed other barriers to ADU development, including lowering impact fees and removing owner occupancy requirements. The impacts of this legislation are already apparent throughout the state. Published state data demonstrates that the initial 2017 ADU law had immediate impacts: California jurisdictions went from issuing 5,911 ADU permits in 2018 to 15,571 in 2019, with ADU completions following a similar upward trend, more than tripling over the same period (from 1,984 to 6,668 units) (Figure 1).[3] The ADU laws that took effect in 2019 allowing two ADUs on single-family parcels and more on multi-family parcels are already having a significant impact on gently adding density across the state in single- and multi-family properties. In early 2021, the City of Los Angeles reports processing upwards of 20,000 ADUs where ADUs make up nearly 40 percent of all housing building permits, and the City of San Jose reports that ADUs make up 38 percent of all housing building permits.[4] This progress signals the significance of easing approvals and barriers to smaller-scale, infill development in low-density areas.

Figure 1. ADU Permits and Completions in California, 2018 and 2019



Source: Chapple, K., et. al. (2020). "Reaching California's ADU Potential: Progress to Date and the Need for ADU Finance." Retrieved from: https://ternercenter.berkeley.edu/wp-content/uploads/2020/12/ADU-Brief-2020.pdf.

The early success of recent ADU legislation has prompted lawmakers to examine similar policies that would incrementally unlock more homes in low-density urban infill neighborhoods where the housing crisis is particularly acute. Such policies would also align with state climate change policies encouraging additional homes near jobs and services to reduce vehicle miles travelled. Last year, SB 1120 proposed allowing up to four units in single-family-zoned parcels throughout the state. Analysis by the Terner Center of SB 1120 found that nearly six million single-family parcels statewide would theoretically be eligible, a significant expansion of buildable area in California.[5] For example, if just 5 percent of those parcels created new two-unit structures as a result of SB 1120, that would have resulted in 597,706 new homes. That's more than five times the number of new homes that have been built in California annually since 2015.[6] However, in a session marked by the disruptions related to the COVID-19 pandemic, SB1120 ran out of time to be sent to the governor's desk, despite passing both the Assembly and the Senate.

SB 9 was introduced with nearly identical language to its predecessor, SB 1120, but as the bill has progressed through the legislative process, some important changes have been made. Most notably, properties that have developed an ADU are not eligible for the density or lot split provisions of SB 9, and jurisdictions would have the option of imposing owner-occupancy requirements for lot split applicants, where the applicant would have to make one of the units on the site their primary residence for at least one year. This owner-occupancy provision has been added to address concerns that current homeowners could be incentivized to sell to private entities interested in speculative investment on single-family parcels and to encourage use of the law to create more opportunities for California families to buy a home. The provisions also ensure the law cannot be used to divide homes occupied by renters as a measure to prevent displacement. Other new provisions have made the legislation potentially more impactful. For example, SB 9 allows more flexibility in how the lot is split. SB1120 required that both newly created lots be of equal size, potentially limiting the number of instances where new homes would be feasible. New language in SB 9 requires that one of the newly created parcels only needs to be more than 40 percent of the original parcel size. Table 1 summarizes the key provisions of SB 9 as of July 2021.

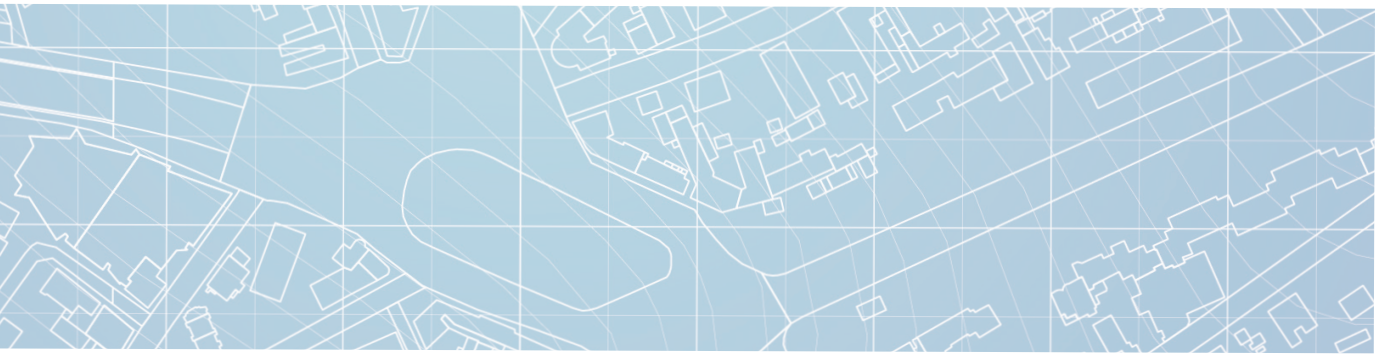


Table 1: Eligibility Criteria Proposed for Split Lots Under SB 9

Location
• The parcel, lot, or development must be located in a single-family residential zone. • The parcel cannot not be located in a historic district or be a historic property itself (as defined by the state or local county or city). • The parcel cannot be located in a high fire zone area. • The parcel must be in a city whose boundaries include some portion of an urbanized area or urban cluster as designated by the U.S. Census Bureau. • If the parcel lies in an unincorporated area, then the parcel at stake must be a legal parcel wholly within the boundaries of an urbanized area/cluster.
Parcel Size
• The parcel must be a minimum of 2,400 square feet in size. • The newly created parcel as a result of a lot split may not be smaller than 40 percent of the lot area of the original parcel. • A locality cannot impose any standards that would preclude the construction of up to two units or physically precluding either of the two units from being at least 800 square feet in floor area. • A side and rear setback of up to four feet is allowed.
Anti-Displacement
• The lot split cannot require the demolition or alteration of a housing unit currently serving moderate-, low- or very-low income household(s) or a rent-controlled unit. • The lot split cannot result in the demolition or alteration of housing that has been occupied by a tenant in the last three years or where an owner has used the Ellis Act to remove a rental unit from the market within the last 15 years. • A jurisdiction may impose an owner-occupancy restriction for lot splits, where the applicant must intend to occupy one of the housing units as their principal residence for a minimum of one year from the date of the approval of the urban lot split.
Other
• The parcel cannot have been created from a previous lot split as provided by this policy. • The same person (or another party acting on their behalf) cannot perform a lot split on adjacent lots.

Methodology

It is unrealistic to assume that under SB 9, every single-family lot would be split, or that every existing single-family home would be demolished and replaced with four new units. For example, some lots may be too small, have other existing structures or ADUs, have a history of being rented, or other physical conditions that prevent changes. Some owners may have no interest in developing their property. And finally, even if a property owner is interested in pursuing new development on their land, trying to recoup this investment with market-rate rental or sales will prove financially infeasible in many instances. To develop a better estimate of the potential impact of SB 9 on new supply, we conducted an analysis of how many new homes would be both physically eligible and financially feasible as a result of SB 9, as well as what types of development would be most likely, taking into account on-the-ground market dynamics.

We partnered with MapCraft Labs, which developed a financial feasibility model to assess market-feasible housing capacity on existing parcels with detached single-family homes. The base layer for the analysis is a parcel dataset from UrbanFootprint which includes all counties in California with populations greater than 45,000 people, and covers homes built prior to 2020.[7] This dataset includes roughly 7.5 million single-family parcels across the state. We used MapCraft's Lab analysis tool to determine what types and scales of housing development would be feasible with an approach that considers construction costs, market demand, financing, land use policies, and individual parcel characteristics.

To inform our model, several assumptions were made about market conditions and trends. For example, all properties with single-family detached land uses were assumed to conform to zoning and currently have exactly one existing unit (e.g., no ADUs). In combination with tax assessor data, we estimated the value of each existing single-family property on those parcels. MapCraft calculates standard development "pencil out" models to compute snapshots of market feasibility on every relevant parcel, both under current policies and as proposed in SB 9. These models are based on the financial evaluations conducted by developers to assess an investment's viability early in the development process by balancing the cost of developing the site with expected rental or sale income.[8] MapCraft's models of small-scale development look at financial feasibility from the perspectives of owner-occupants, owner-occupant landlords, small-scale investors, and commercial investors, with market-feasible unit potential based on a probabilistic blend of all possible development options. Financial expectations of investors and lending terms are based on conversations with industry professionals and are updated by MapCraft regularly.

MapCraft's calculations incorporate data and assumptions about current rents, sales prices, construction costs, and investors' expected return on investment rates, and are validated by ECONorthwest, a West Coast economics consultancy. MapCraft's market demand information relies on multiple sources, including CoStar, Zillow, tax assessors, U.S. Census, and transaction records. MapCraft's construction cost information is based on interviews and RS Means. Finally, the modeling relies on

assumptions about parking requirements based on previous Terner Center research, typical unit sizes, and other factors that inform development.[9]

The provisions of SB 9 would allow for a variety of development options. For this analysis we examined the most likely development scenarios as shown in Appendix B. Our business-as-usual scenario evaluates development feasibility for housing supply changes currently permissible under single-family zoning, while the alternative policy scenario considers the additional set of development options allowed under SB 9. For example, under the business-as-usual scenario, a homeowner may decide to build an ADU but would only be able to split the parcel into two lots, each with two homes, under the alternative policy scenario allowed under SB 9.

Our estimates also account for the fact that SB 9 includes anti-displacement language that prohibits alteration or demolition of renter-occupied homes. To approximate this, we used the percentage of single-family home rentals in each census tract (as determined by ACS data) to discount results for development outcomes that alter or demolish the existing structure.

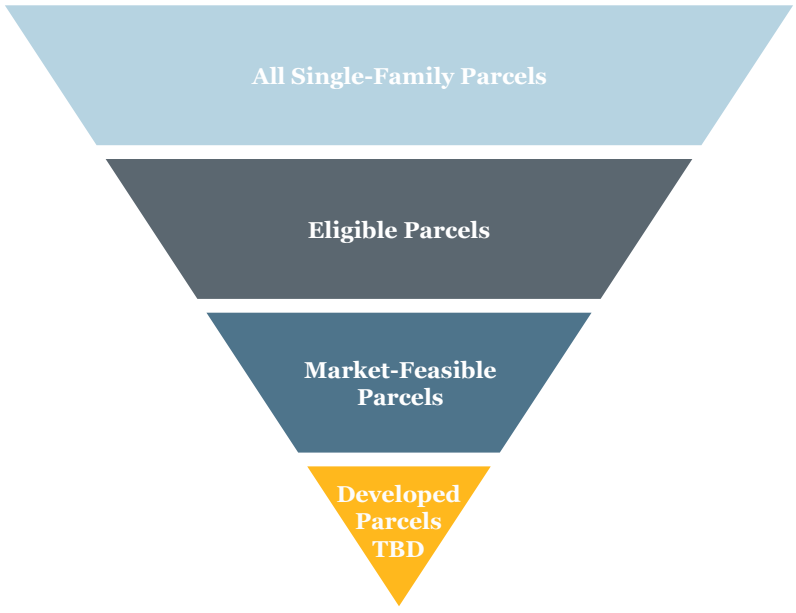
We also examined the potential impacts of owner-occupancy requirements by removing financial scenarios that assume all the new units are rentals, as well as development scenarios that require demolition of an existing structure. In addition, we assumed that owners received a 25 percent discount for the unit they occupied in split lot development scenarios.

Market-feasible capacity is not a forecast of future production.

While this analysis identifies the number of market-feasible units, in most cases these market-feasible units will take years to be developed, and some may never get built. This analysis considers the market feasibility of redevelopment on each eligible single-family parcel in isolation, and assumes that every property owner is maximizing the economic potential of their lot. However, that is not the case for several reasons.

First, the most economically feasible use does not consider the motivations and preferences of individual property owners. Any change in use requires the cooperation of the owner, either to sell the site or to redevelop it themselves. The economics

Figure 2: Production Funnel



may suggest that the highest value of a house may be to tear it down and rebuild it into a much larger house, but if a homeowner prefers a small house or the existing architecture, they're not going to rebuild. Converting a house to a duplex and renting out half may be most profitable for a homeowner, but that will not happen if that homeowner is uninterested in living more closely with others in what was formerly "their" space or in becoming a landlord or homeseller. Even when a property owner does wish to redevelop their site, they may lack the upfront capital and sophistication to initiate the process; and then may be unable to access financing due to a low credit score or other underwriting barrier.

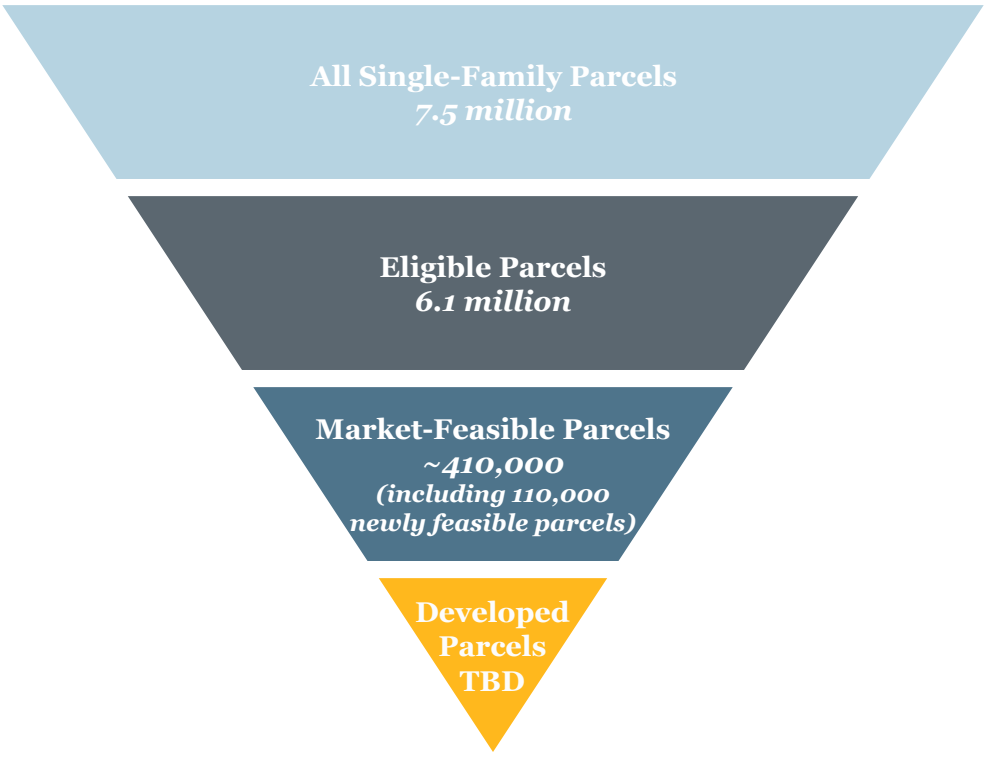
In addition, redevelopment does not happen instantaneously; it requires homeowner awareness and interest, available construction industry capacity, a suitable financing ecosystem and viable routinized business models for development in order to proceed. State ADU laws, for example, have taken several years to ramp up as awareness, delivery models, industry and local agency capacity have adapted to law changes. It is reasonable to assume that it may take years for that capacity to fully emerge in California if SB 9 becomes law.

Findings

SB 9 could enable the creation of over 700,000 new homes that would otherwise not be market feasible.

Under our business-as-usual scenario, we estimate 1,800,000 new ADUS/JADUS are currently market-feasible and could be built under today's zoning laws across California's 7,500,000 existing single-family housing parcels. With SB 9, we estimate that approximately 700,000 additional new units would become market-feasible, representing a 40 percent percent increase in existing development potential across California's single-family housing parcels.

Figure 3: Parcel Development Funnel (Total Numbers)



SB 9 would enable the development of more units on 410,000 single-family parcels, of which only 110,000 parcels would become newly feasible.

Overall, SB 9 would change the development feasibility of a relatively small number of parcels. First, the conditions stipulated by the legislation limit the number of parcels that can utilize the bill's provisions, as illustrated in Figure 3. For example, the bill's current limitations on new development in high fire hazard areas, historic districts, non-urbanized areas, and existing renter homes removes approximately 1.4 million existing single-family homes from consideration.[10] Of the 6.1 million remaining parcels, the majority would not be affected because of an absence of physical capacity or financial feasibility. However, on 5.4 percent of current single-family parcels, SB 9 would enable new development. For 110,000 single-family parcels (1.5 percent of total single-family parcels), SB 9 would enable new development where none was financially feasible before, and for another 300,000 parcels, SB 9 would allow for more units than under our business-as-usual scenario.

For the majority of single-family properties, we find the most financially viable outcome is not to pursue any development whatsoever, both under our business-as-usual scenario and under our SB 9 scenario.

Under our assumptions about today's regulations, market conditions, and development alternatives, we found that doing nothing was the most likely option for California's single-family parcels: development is not feasible for 80 percent of parcels (Figure 4). If SB 9 passed, 110,000 parcels would be newly developable, causing the share of infeasible parcels to tick down slightly to 78 percent. The primary benefit of SB 9 comes from allowing slightly more units on parcels where development already makes sense and in opening up any added units to homeownership opportunities through the ability to legally subdivide those parcels.

Figure 4. Likely Parcel Feasibility By Number of Feasible Units

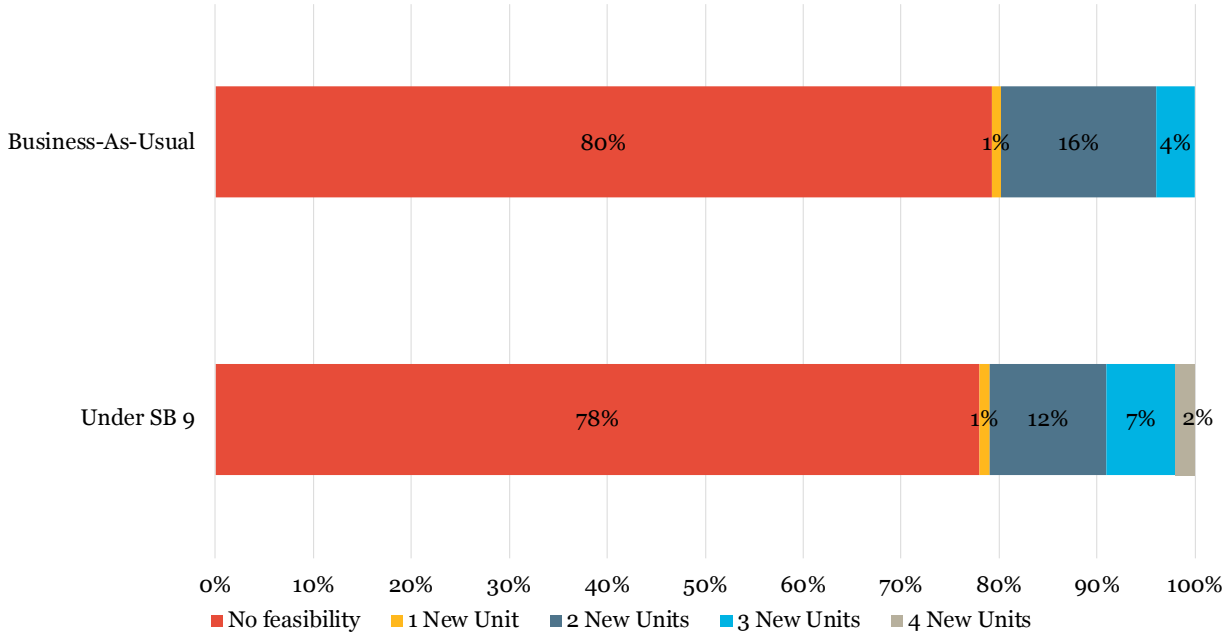
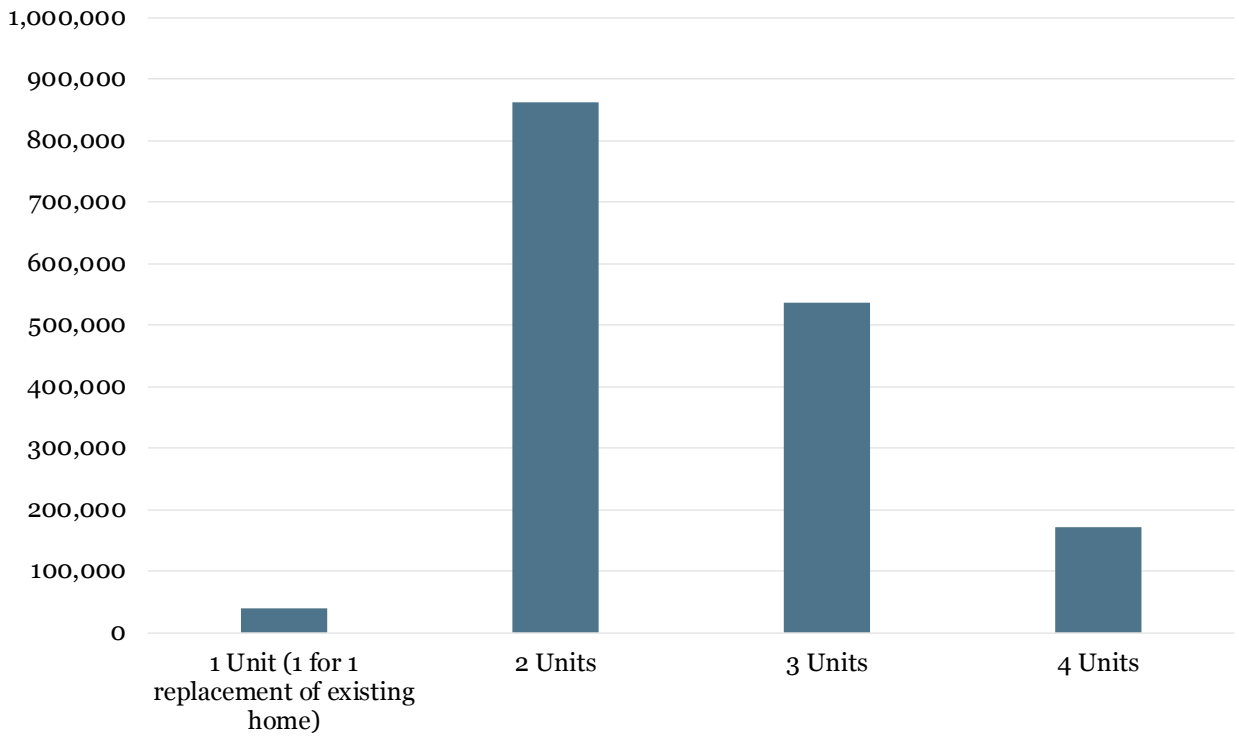


Figure 5. Estimates of Parcels with Feasible Capacity Under SB 9



SB 9 is unlikely to lead to significant demolition of the existing stock.

We found that nearly 97 percent of single-family homes would be retained under SB 9's provisions, either without any modification or with less intensive development (e.g., subdividing the existing structure to enable a duplex conversion). In many places, existing zoning allows homes to be demolished and replaced with larger single-family homes, which we found was the most financially attractive scenario on 1 percent of all single-family parcels under our business-as-usual scenario. Under SB 9, the likelihood of tearing down a single-family home and replacing it with a larger single-family home falls by half to 0.5 percent due to other viable development opportunities.

While SB 9 would provide a boost in three- and four-unit feasibility, duplexes would be the most dominant form of financially-feasible development.

The majority of viable development opportunities should SB 9 be enacted would result in two units per existing lot (Figure 5). Duplexes comprise an important block of this new capacity, accounting for 35 percent of all new units, two thirds of which would be in converted existing single-family homes. SB 9 would also enable a somewhat higher total number of feasible units by allowing greater uptake of three- and four-unit development.

There is wide regional variation in market-feasible units.

The amount of new market-feasible units varies by region. Los Angeles County resulted in the most new market-feasible units under SB 9 with approximately 126,000 new homes. While significant, Los Angeles County also comprises both the most single-family parcels and SB 9 eligible parcels (Table 2). Analyzing new market-feasible units per eligible single-family parcel finds that Yuba, El Dorado, Sutter, and Nevada counties would see the most new market-feasible potential per parcel, although the overall number of new feasible units is relatively low compared to larger counties. Many coastal California counties exhibited higher than average per parcel unit ratios, such as Marin, Santa Cruz, San Luis Obispo, and Santa Barbara counties, signaling that rents and sales prices there could support new homes resulting from SB 9. Meanwhile, most Central Valley counties, such as Fresno, Merced, Kern, and Stanislaus, showed below average potential for new homes per parcel, reflecting lower financial feasibility. For a list of all county results, see Appendix A. At the city level, the state's most populous jurisdictions were all below average for market-feasible units per parcel, as shown in Table 3.

Owner-occupancy requirements would have a limited negative impact on the market feasibility of development pursuant to SB 9, but they could have a much larger impact on actual delivery of units under SB 9.

SB 9, as currently written, allows jurisdictions to impose owner-occupancy requirements for lot split applicants, but not for duplex conversions. Our analysis finds that, if every jurisdiction imposed owner-occupancy requirements, the total financially feasible units enabled by SB 9 would decrease by roughly 6 percent, or approximately 40,000 units. This limited impact reflects the fact that our model indicates only 10 percent of new units under SB 9 would be attributable to lot splits.

While the owner-occupancy requirement would have only a modest impact on the financial viability of new units, it may have a significant effect on the number of owners willing to actually pursue new development on their properties. By preventing owners from splitting a lot unless they plan to live there themselves for at least a year, or from allowing a developer to take on development involving a lot-split pursuant to SB 9, the owner-occupancy requirement may reduce the number of homes that will result from SB 9.

Shifts in construction costs and rental and sales prices could change development feasibility.

In addition to assessing the potential impact of SB 9 using current market conditions, we also ran a sensitivity analysis to examine the potential impact of SB 9 under different market scenarios. Our analysis found that a 10 percent decrease in construction costs could increase the amount of market-feasible units by 5 percent, or roughly 36,000 more units than the 700,000 baseline impact of SB 9. Local and state policymakers should therefore also consider policies that could help reduce the costs of production to enable policies such as SB 9 to work more effectively in more places. In the opposite direction, we found that a 10 percent increase in construction costs lowers development feasibility by 4.5 percent, or by approximately 32,000 units. Our

Table 2. SB 9-Eligible Parcels and Market-Feasible New Units by Largest Counties

County	Total single-family parcels	SB 9-eligible parcels	Parcels where SB 9 would increase the number of market-feasible units	Parcels where SB 9 changes feasible outcome from no net new units to 1+ net new units*	Total market-feasible new units if SB 9 is enacted**	Total market-feasible new units divided by SB 9 eligible lots
Los Angeles	1,441,000	1,210,500	79,500	18,000	127,000	0.10
San Diego	554,500	398,500	28,500	9,000	54,500	0.14
Orange	557,000	486,000	26,500	8,500	47,000	0.10
Riverside	563,000	483,000	36,500	10,000	62,500	0.13
San Bernardino	493,000	385,000	32,000	8,000	56,500	0.15
Santa Clara	331,000	319,500	22,000	8,500	40,000	0.13
Alameda	306,500	277,000	16,000	3,500	25,000	0.09
Sacramento	369,500	360,500	25,000	5,000	40,500	0.11
Contra Costa	263,500	239,000	20,000	7,500	38,000	0.16
Fresno	203,500	186,000	5,500	500	10,500	0.06
Statewide totals (excluding counties with pop. under 45,000)	**7,470,500**	**6,182,500**	**410,000**	**111,500**	**714,000**	**0.12**

*Note: This is a subset of the parcels where SB 9 would increase the number of market-feasible units.
**Note: Market-feasible new units are rounded.

Table 3. SB 9-Eligible Parcels and Market-Feasible New Units by Most Populous California Cities*

City	Total single-family parcels	SB 9-eligible parcels	Parcels where SB 9 would increase the number of market-feasible units	Parcels where SB 9 changes feasible outcome from no net new units to 1+ net new units**	Total market-feasible new units if SB 9 is enacted	Total market feasible new units divided by SB 9 eligible lots
Los Angeles	447,500	355,000	23,000	6,000	37,500	0.11
San Diego	203,500	133,000	7,000	3,000	13,000	0.10
San Jose	168,500	168,000	10,500	2,500	16,000	0.10
San Francisco	94,500	93,500	6,500	500	8,500	0.09
Fresno	104,000	104,000	2,000	100	4,000	0.04
Sacramento	116,500	116,000	6,500	800	9,500	0.08
Long Beach	59,500	58,500	3,000	200	3,500	0.06
Oakland	66,500	51,000	3,000	100	3,500	0.07
Bakersfield	87,500	87,500	5,000	2,000	9,000	0.10
Anaheim	43,000	36,000	2,500	1,000	4,000	0.11

*Note: This is a subset of the parcels where SB 9 would increase the number of market-feasible units.
**Note: Market-feasible new units are rounded.

model also analyzed sensitivity to changes in rental and sales prices. We found that a 10 percent increase in prices resulted in an 8 percent increase in market-feasible units, or roughly 57,000 more units.

Policy Implications

A significant amount of land in California has historically been designated for single-family homes, limiting the development of a greater diversity of urban infill housing options in jurisdictions across the state. Solving California's housing crisis—let alone tackling the challenges of climate change and residential segregation—requires policies that intensify land use in these communities. California's statewide ADU laws were a step in the direction of gently adding more density to simultaneously address the housing, climate, and equity challenges faced by the state. But, in other ways, California lags behind other states in its land use regulations and dogged resistance to changing single-family zoning. For example, the state of Oregon recently required jurisdictions to allow multifamily housing—either two or three units—on all single-family parcels. Some cities have gone even further, such as Portland and Minneapolis, both of which have voted to loosen allowable homebuilding on single-family parcels. While many cities in California—including Los Angeles, San Diego, San Jose, Sacramento, Berkeley, and Oakland—are exploring similar options, SB 9 could play an important role in enabling the construction of a significant amount of new house options that are smaller-scale, more cost-effective, more varied, and inclusive across the urban areas of the state.

Our analysis shows that approximately 700,000 new, market-feasible homes would be enabled under SB 9. But despite the concerns of some of its detractors, SB 9 will not lead to the overnight transformation of residential neighborhoods. Differential owner preferences and limited applicability means that only a share of that potential is likely to be developed, particularly in the near term as awareness and capacity expands. As such, while important, the new units unlocked by SB 9 would represent a fraction of the overall supply needed to fully address the state's housing shortage.

Policymakers should consider complementary strategies to ensure that this legislation is effective. These strategies could include outreach to make sure that homeowners are aware of and understand the opportunities allowed by recent policy changes, either through SB 9 or existing ADU laws, and the expansion of more robust financing options to moderate- and low-income owners who wish to add new units to their parcels. Increasing housing production in single-family zoned areas is also not the only policy shift that is needed. Policymakers should add additional tools to boost supply overall, including by expanding permissible residential development on commercial property and by further reducing local barriers to new housing through expedited approval processes for conforming projects and reform of the local regulatory barriers and fees.

APPENDIX A

Appendix Table 1. County-Level Results

County Name	Existing SFR Lots	SFR Lots Eligible for SB 9	Additional Lots with 1+ Unit Capacity Under SB 9	SB 9 Net Change in Market-Feasible Units*	SB 9 Net Units Per Eligible Lot
Alameda	306,306	276,795	3,633	25,000	0.09
Butte	65,020	32,720	47	3,000	0.09
Contra Costa	263,303	238,957	7,438	38,000	0.16
El Dorado	57,386	19,133	583	4,500	0.24
Fresno	203,474	185,908	564	10,500	0.06
Humboldt	35,672	22,560	93	2,500	0.11
Imperial	33,036	27,002	76	1,500	0.06
Kern	216,321	174,219	2,226	14,500	0.08
Kings	29,045	26,784	87	1,500	0.06
Lake	27,095	10,257	60	1,000	0.10
Los Angeles	1,441,148	1,210,729	18,130	127,000	0.10
Madera	35,785	22,474	1,196	4,500	0.20
Marin	60,998	46,841	2,163	9,500	0.20
Mendocino	19,350	8,949	90	1,500	0.17
Merced	55,676	51,972	106	2,500	0.05
Monterey	75,348	55,097	845	6,000	0.11
Napa	31,248	25,890	1,108	5,000	0.19
Nevada	43,090	5,618	199	1,500	0.27
Orange	557,820	485,756	8,730	47,000	0.10
Placer	125,458	94,273	1,448	13,000	0.14
Riverside	562,935	482,821	10,149	62,500	0.13

APPENDIX A

Appendix Table 1. County-Level Results (Continued)

County Name	Existing SFR Lots	SFR Lots Eligible for SB 9	Additional Lots with 1+ Unit Capacity Under SB 9	SB 9 Net Change in Market-Feasible Units*	SB 9 Net Units Per Eligible Lot
Sacramento	369,605	360,485	5,006	40,500	0.11
San Benito	12,747	9,940	740	2,500	0.25
San Bernardino	492,806	385,243	7,848	56,500	0.15
San Diego	554,502	398,386	9,015	54,500	0.14
San Francisco	94,400	93,514	486	8,500	0.09
San Joaquin	164,796	147,577	2,159	14,000	0.09
San Luis Obispo	75,016	53,068	1,229	8,500	0.16
San Mateo	151,508	134,531	3,112	17,000	0.13
Santa Barbara	91,540	75,399	1,506	10,000	0.13
Santa Clara	331,232	319,319	8,527	40,000	0.13
Santa Cruz	54,817	43,522	1,422	8,000	0.18
Shasta	55,366	25,997	402	3,500	0.13
Solano	110,592	105,962	684	8,500	0.08
Sonoma	124,610	103,452	2,688	16,500	0.16
Stanislaus	123,922	116,754	1,542	9,500	0.08
Sutter	24,707	19,357	1,111	4,000	0.21
Tehama	18,504	7,903	35	500	0.06
Tulare	104,235	86,679	1,096	6,000	0.07
Tuolumne	25,386	995	1	100	0.10
Ventura	184,033	135,836	1,604	14,500	0.11
Yolo	43,761	40,940	550	4,500	0.11
Yuba	16,743	13,064	2,016	4,500	0.34
Statewide Total	**7,470,342**	**6,182,678**	**111,746**	**714,100**	**0.12**

+Note: Parcels that could have feasibly built ADUs or JADUs in a pre-SB 9 scenario are not included in the "New Market-Feasible Lots Under SB 9" category in this table, even if our analysis found that under SB 9, they could now feasibly build three or four units. As a result, per lot averages of new feasible units will yield results higher than four units per lot.
*Note: Market-feasible new units are rounded

APPENDIX B

Specific Modeling Assumptions

The following assumptions were incorporated into MapCraft's analysis of SB 9.

Allowed Prototypes

The prototypes in the following tables were evaluated on each site.

Appendix Table 2. Prototype Options When SB 9's Lot Split Provision Is NOT Used

Keep Existing Structure	Demo Existing Structure
Do nothing	*Build new single-family residence (SFR)*
Add detached ADU (DADU)	*Build new SFR + detached ADU (DADU)*
JADU conversion + DADU	*Build new SFR + DADU + JADU*
Convert to duplex	Build duplex
Convert to duplex + DADU	Build duplex + DADU
Convert to duplex + DADU + JADU	Build duplex + DADU + JADU

Italicized indicates outcomes that are possible in the business-as-usual scenario under current single-family zoning, without SB 9.

Appendix Table 3. Prototype Options When Using SB 9's Lot Split Provision

Keep Existing Structure		Demo Existing Structure and Create Two Lots
Subdivided Lot with Existing Structure	**New Lot**	Build two new SFR
Do nothing	SFR	Build two new SFR + ADU
Add detached ADU (DADU)	SFR	Build two new SFR + JADU + ADU
JADU conversion	SFR	Build two new duplexes
JADU conversion + DADU	SFR	
Duplex conversion	SFR	
Do Nothing	SFR + ADU	
Add detached ADU (DADU)	SFR + ADU	
JADU conversion	SFR + ADU	
JADU conversion + DADU	SFR + ADU	
Duplex conversion	SFR + ADU	
Do nothing	SFR + JADU + ADU	
Add detached ADU (DADU)	SFR + JADU + ADU	
JADU conversion	SFR + JADU + ADU	
JADU conversion + DADU	SFR + JADU + ADU	
Duplex conversion	SFR + JADU + ADU	
Do nothing	Duplex	
Add detached ADU (DADU)	Duplex	
JADU conversion	Duplex	
JADU conversion + DADU	Duplex	
Duplex conversion	Duplex	

For new-built duplex prototypes, MapCraft evaluated both stacked and side-by-side variations at a variety of scales. Also, four scales of single-family prototypes were tested. In total, 652 pro formas were evaluated on each parcel.

Data Inputs

The parcel data for this analysis was provided by UrbanFootprint and includes approximately 7.5 million parcels: all parcels with single-family dwellings in California counties with populations greater than 45,000 people.

For the purposes of this work, all properties with single-family detached land use were assumed to currently have one existing unit (i.e., no ADUs) and single-family zoning that limited development of multiple primary units. To support the assumption, UrbanFootprint scanned zoning in a sample of cities, finding that the vast majority of parcels with single-family homes are zoned for single-family. UrbanFootprint's parcel data included information on each lot and the single-family homes on those lots. In combination with tax assessor data, the value of each existing single-family property was estimated in the second quarter of 2020.

To be realistic about the policy constraints that limit development under current policies and SB9, MapCraft relied on coarse zoning-like limitations interpolated from homes built in each tract between 2005 and 2020. MapCraft assumed that developments on a parcel would need to conform to the 90th percentile of height, FAR, and lot coverage of other recently built homes in the same census tract. In other words, MapCraft assumed that plexes would be held to the same bulk restrictions as newer single-family homes.

MapCraft's financial calculations incorporated data and assumptions about early 2020 rents, sales prices, construction costs, and investors' expected return rates, which were validated by ECONorthwest and Economic & Planning Systems, two West Coast economics consultancies. Early 2020 data was used given the volatility of both the rental and for-sale prices during the COVID-19 pandemic. MapCraft's market demand information relied on multiple sources, including CoStar, Zillow, tax assessors, U.S. Census, and transaction records. MapCraft's construction cost information was based on interviews with cost observations localized based on RS Means. Financial expectations of investors and lending terms were based on MapCraft's conversations with industry professionals. Finally, the modeling relied on assumptions about parking requirements, typical unit sizes, development fees, and other factors that inform development. The Terner Center provided input on parking and fees that were incorporated into the analysis.

Tenancy-Based Eligibility Restrictions

SB 9 prohibits demolition or alteration of renter-occupied housing. To address this, Mapcraft used the percentage of single-family rentals in each tract (per the U.S. Census) to discount results for outcomes that require demolition of the existing structure.

SB 9 also allows jurisdictions to impose certain owner-occupancy requirements. Mapcraft tested the impact of this provision by running bookend scenarios at two extremes: 1) no jurisdictions impose owner-occupancy restrictions, and 2) all jurisdictions impose

owner-occupancy restrictions. To model the owner-occupancy requirement, Mapcraft disallowed all-rental valuation options and prototype options that required demolition of the existing structure. Mapcraft also tested the imposition of a risk premium threshold that eliminates any second split lot prototypes that do not generate residual land values that exceed the reduced value of the original property by 25 percent.

Notably, the results do not estimate the number of owner-occupants that may pursue development given an owner-occupancy requirement.

Lot Splitting Limitations

MapCraft used the following assumptions in modeling the ability of a parcel to split into two lots:

- Lots smaller than 2,400 square feet cannot be split.
- In cases where the existing structure is retained, the lot must have at least 4,000 sq ft of unbuilt area (after deducting the footprint of the existing structure from the lot size).

Parking Provision

MapCraft used Terner Center's California Residential Land Use Survey to help define parking delivery minimums. Even if a jurisdiction's code or SB 9 eliminates parking requirements, demand for parking may still exist, and developers will still provide parking. MapCraft assumed that developers will provide at least the parking ratios shown in Appendix Table 4.

Appendix Table 4. Assumptions of Minimum Demanded Parking for New Construction

	Within ½ Mile of High-Capacity Transit	Not Near High-Capacity Transit
Small Units (2 Bedrooms or Fewer)	0.5 stalls/unit	1 stall/unit
Large Units (3+ Bedrooms)	1 stall/unit	2 stalls/unit

In prototypes where a small unit is added without a lot split or demolition of the existing structure, MapCraft assumed that no new parking spaces will be added.

Relaxed Zoning Restrictions

SB 9 prohibits local jurisdictions from imposing zoning standards on two-unit developments or newly split lots that would physically preclude the construction of up to two units, or that would preclude units from being at least 800 square feet. To reflect this, MapCraft increased the existing zoning restrictions on FAR, lot coverage, and impervious coverage. FAR was relaxed by increasing the allowed FAR by one quarter, lot coverage was relaxed by one quarter up to 75 percent coverage, and impervious coverage was increased one quarter up to 90 percent coverage.

ENDNOTES

1. It is often difficult for a homeowner to finance an ADU. Few loan products exist to finance ADU construction, and those that are available often do not go far enough to cover the costs of development. See https://ternercenter.berkeley.edu/research-and-policy/reaching-californias-adu-potential-progress-to-date-and-the-need-for-adu-finance/.

2. Senate Bill 9: Housing development approvals, April 27, 2021. https://leginfo.legislature.ca.gov/faces/billVersionsCompareClient.xhtml?bill_id=202120220SB9

3. Chapple, K., et. al. (2020). "Reaching California's ADU Potential: Progress to Date and the Need for ADU Finance." Retrieved from: https://ternercenter.berkeley.edu/wp-content/uploads/2020/12/ADU-Brief-2020.pdf.

4. 2021 Casita Coalition Best Practices Webinar Series. https://www.youtube.com/playlist?list=PLRPPog7f6IzVUuadN9ED5HztZGU_tgY32

5. Garcia, D., Tucker, J. & Schmidt, I. (2020). "Single-Family Zoning Reform: An Analysis of SB 1120." Terner Center for Housing Innovation, UC Berkeley. Retrieved from: https://ternercenter.berkeley.edu/wp-content/uploads/2020/12/Single-Family_Zoning_Reform_An_Analysis_of_SB_1120.pdf.

6. On average, California added roughly 100,000 new homes each year between 2015 and 2019. California Industry Research Board, "Housing Production in California, 2005-2019".

7. The following counties are not included: Calaveras, Siskiyou, Amador, Lassen, Glenn Del Norte, Colusa, Plumas, Inyo, Mariposa, Mono, Trinity, Modoc, Sierra, and Alpine.

8. For more information on the financial dynamics of development decisions, see our 2019 brief "Making it Pencil: The Math Behind Housing Development".

9. Mawhorter, S. & Reid, C. (2018). Terner California Residential Land Use Survey. Berkeley, CA: University of California, Berkeley. Retrieved from: https://californialanduse.org/.

10. Historic areas were determined using National Park Service data, which does not include local or state historic designations.

ABOUT THE TERNER CENTER

The Terner Center formulates bold strategies to house families from all walks of life in vibrant, sustainable, and affordable homes and communities. Our focus is on generating constructive, practical strategies for public policy makers and innovative tools for private sector partners to achieve better results for families and communities.

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