

A TURNER CENTER REPORT - JUNE 2024

Making Missing Middle Pencil: The Math Behind Small-Scale Housing Development

AUTHOR:

DAVID GARCIA, TURNER AFFILIATE

CO-AUTHORS:

IAN CARLTON, MAPCRAFT

LACY PATTERSON, MAPCRAFT

JACOB STRAWN, MAPCRAFT

BEN METCALF, TURNER CENTER

In 2023, Turner Center published *Making It Pencil: The Math Behind Housing Development* to help policymakers understand how financial feasibility is determined for large-scale, for-rent midrise apartment buildings.¹ However, much of the recent attention among state and local land use reformers has been focused on unlocking smaller scale housing in lower-density neighborhoods, including accessory dwelling units (ADUs), duplex (two-unit) apartment buildings, and fourplex (four-unit) apartment buildings. These smaller apartment types are often collectively referred to as “missing middle” housing. States such as California, Oregon, and Montana have approved legislation that requires cities to plan for such housing. Cities including Minneapolis, Minnesota, and Portland, Oregon have also proactively implemented new rules to catalyze this kind of housing growth.

In this paper, we employ the same methodology used in our 2023 *Making It Pencil* report to examine the development characteristics of missing middle projects. Using a series of project pro forma case studies across four California markets, we find that many missing middle housing types are not financially feasible. Four-unit ownership buildings are the hardest to build.

Even so, this housing stock can play an important role in opening pathways for entry-level homeownership or for unlocking naturally affordable rental options in neighborhoods where such affordability may be lacking. Local and state policymakers are overdue in critically examining state and local requirements that limit missing middle housing, such as lot size regulations, parking requirements, and insurance requirements.

Methods

This work builds on the real estate fundamentals described in our *Making It Pencil* report and examines these fundamentals in the context of small-scale missing middle development. We worked with the real estate financing modeling firm MapCraft to develop case study pro formas for four distinct missing middle housing types: a for-sale duplex, a for-sale fourplex, a rental fourplex, and a rental ten-unit building. Mapcraft conducted their analysis in 2022 and therefore the findings from this report are based on the market realities from that year. We focused on the same four geographic areas as our updated *Making It Pencil* analysis: the East Bay and South Bay in the San Francisco Bay Area, the westside of Los Angeles, and the core of Sacramento.

We selected these types because recent legislative and/or land use reforms support them. Legislation such as Senate Bill (SB) 9² and SB 10³ in California have expanded the types of housing allowed in neighborhoods that have previously been restricted to single-family-only zoning. However, such reforms have been generally limited to two- and fourplex buildings. We included the ten-unit types in order to examine how much more feasible such projects might be with a higher number of units.

To understand how missing middle development models vary from traditional multifamily development, MapCraft interviewed 17 individuals across California, Oregon, and Texas with experience developing and/or constructing such projects. In some instances, these individuals were able to share specific cost and revenue assumptions and/or detailed project-level proformas.

Missing Middle Development – What’s Different from Traditional Multifamily Apartment Development?

Builders active in missing middle development differentiate themselves from traditional, larger-scale housing developers. Interviewees described themselves as more akin to small businesses as well as specialists in navigating their city’s zoning codes. They also often identify as activists trying to break down barriers to housing access. Interviewees described success in building missing middle housing as often hard won, relying on the builder’s ability to resolve a host of seemingly arbitrary rules preventing this development type. They often consider themselves to be mission-driven, providing for a segment of the housing market that is undersupplied, even if more traditional forms of development, such as single-family homes, would be more financially lucrative for them.

These developers work in a market segment that requires site-by-site problem-solving. Multifamily apartment developers constructing buildings in infill locations (i.e., unused or underused sites within an urban area) must overcome similar obstacles, but missing middle builders face additional challenges because the small-scale nature of the work makes it more difficult to attract capital and hire service providers.

The following section looks at various aspects of missing middle development to understand how they might differ from the development of larger multifamily housing projects.

Site Selection

In interviews for this project, missing middle developers said that they often find sites through real estate relationships, knowledge of properties within communities that meet certain requirements, as well as outreach to property owners in the vicinity of their other development projects. The goal is often to find willing sellers with smaller properties that are in walkable areas, have good access to existing utilities and infrastructure, have the appropriate zoning, and have minimal environmental concerns or title concerns, such as easements. In some instances, developers seek sites that require rezoning because they can pay less for the site and use their specialized skills navigating the entitlement process to adjust the zoning and create new site value. However this approach often elongates the timeline and complicates the ability to bring in institutional capital.

Interviewees told us that they also seek lots with less-valuable structures (e.g., a single-family home that requires significant upgrades) or empty lots in communities with higher home or rental prices. Given this, in our pro formas, we used land prices at the lower end of the market in each of our regions to reflect costs for what might be considered “teardown” lots attractive to missing middle developers. These prices were observed in 2022 and are described below in Table 1.

Table 1. Missing Middle Prototype Pro Forma Land Value Assumptions

	East Bay	South Bay	Los Angeles	Sacramento
Assumed cost of property in each submarket	\$100 per square foot of land	\$250 per square foot of land	\$125 per square foot of land	\$25 per square foot of land

Design

To make missing middle developments pencil, interviewees considered it important to maximize leasable or salable square footage and units. For example, missing middle designs often include separate entryways, which eliminates the need for shared hallways that reduce the amount of floorspace in a unit. Such design choices also reduce the cost of common area maintenance in condominium developments. Interviewees said that when they consider building multi-unit condominiums, they choose designs that minimize maintenance reserve requirements in Declaration of Covenants, Conditions, and Restrictions (CC&Rs), like driveways, parking pads, hallways, and overall roof area.

Missing middle developers stress the importance of maximizing the number of units on a parcel. Interviewees highlighted that local requirements which go beyond those of the underlying zoning designation can add constraints to what can be built on any given site. Design standards such as setbacks, tree preservation, parking minimums, slopes, lot size coverage, and floor-area ratio limitations often establish a smaller maximum building envelope than one might initially think could be built on a site. Alternatively, some developers point to the need for very small minimum lot sizes to allow for-sale homes closer together that still fit into a single-family neighborhood style.

Unit sizes are primarily driven by efforts to optimize expected rental or sales price points. Most developers indicated that they were trying to differentiate their product from existing, larger single-family homes or higher-end large-scale apartments, in part by keeping their products below a certain price range. They often target middle-income households, who struggle to find affordable properties but often earn too much to qualify for subsidized housing. The ability to rent or sell units quickly also motivated developers to underwrite and deliver at this under-supplied price point. However, developers said there was a tradeoff between building smaller units (to maximize returns), and demand for larger homes (such as three-bedroom units ideal for families).

Drawing on developer-provided data and observations of unit sizes in California markets, we selected specific unit sizes for our pro forma models in each region: 1,250 square feet for duplexes, 1,000 square feet for for-sale fourplex buildings, 800 square feet for rental fourplex buildings, and 600 square feet for rental ten-unit buildings. Unit size and other design decisions for the pro forma are described in Table 2. Similar to our original *Making It Pencil* report, we also developed a baseline set of development assumptions, as indicated in Table 3, which include assumptions on impact fees and site condition. These conditions can vary significantly by site and jurisdiction, which also have an impact on the cost to acquire the parcel and the total development cost, either directly or indirectly.

Table 2. Missing Middle Prototype Pro Forma Design Standards

	Duplex, for sale	Fourplex, for sale	Fourplex, rental	Ten-unit, rental
Unit size	1,250 square feet	1,000 square feet	800 square feet	600 square feet
Beds per unit	3	2	2	1
Baths per unit	2	1.5	1	1
Parking per unit	2	1	1	0.75
Site size	5,000 square feet	7,500 square feet	7,500 square feet	10,000 square feet

Table 3. Missing Middle Prototype Pro Forma Assumptions

<p><u>Standard approval times/no environmental review</u></p> <p>Case studies assume standard approval times and no environmental review (e.g., California Environmental Quality Act).</p>	<p><u>No affordable housing requirement</u></p> <p>Our case studies assume there is no requirement to include below-market units, or pay into an affordable housing program.</p>
<p><u>Minimal onsite costs and no significant offsite requirements</u></p> <p>No environmental remediation necessary (e.g., cleaning of contaminated soil). The project does not need to undergo significant work to improve capacity for services such as water, power, or wastewater.</p>	<p><u>Total impact fees, connection, and capacity charges of \$40,000/unit</u></p> <p>Impact fees are fees levied on a project as a condition of approval by a city, county, or other fee-levying body (e.g. school district, municipal utility district).</p>

Rents and Sales Prices

Because missing middle development types are relatively rare in California, determining rents and sales prices can be difficult. Typically, a developer must rely on comparable prices of recently rented or sold nearby units—known as “comps”—to determine the amount they can expect to charge for their anticipated housing. However, to the extent there are missing middle comps, such structures may have been built several decades earlier, before land use regulations restricted new development of such units. As a result, the comps available to missing middle developers do not accurately reflect what they can eventually command in rent or sales prices.

The lack of comps can impact financing, as lower assumed revenue limits how much a debt provider is willing to lend to a project, and conversely (discussed later in this report), how much equity a small-scale builder will need to bring to the table. By comparison, new large-scale multifamily development can generally leverage comps in nearby, similarly new buildings and units to demonstrate a demand for their product at specific price points. And in the

for-sale context, small-scale developers do not have access to captive financing companies, which are common among the large-scale production builders and which allow for creative end-buyer financing (such as rate buydowns) that can help push sales prices up.

Without appropriate missing middle product comps, a proposed missing middle project will have no choice but to rely on comps from single-family communities and/or apartment buildings. However, new, large apartment buildings routinely offer residents amenities (e.g., game rooms, delivery lockers, or on-site gyms) that make them competitive for renters. New single-family communities often have shared amenities areas as well, such as a clubhouse or swimming pool. Because of the small-scale nature of missing middle housing, these kinds of amenities are not typically provided.

Accordingly, we used multifamily-rental rent numbers from the lower end of the observed range, as a missing middle developer would be unlikely to convince a financial backer that they could command rents in line with larger multifamily new construction. We determined these

Table 4. Missing Middle Prototype Pro Forma — Rents and Sales Prices

	East Bay	South Bay	Los Angeles	Sacramento
Rent for two-bed unit in duplex or fourplex	\$2.88 per square foot	\$3.08 per square foot	\$2.36 per square foot	\$1.83 per square foot
Rent for one-bed unit in duplex or fourplex	\$2.91 per square foot	\$3.39 per square foot	\$2.81 per square foot	\$1.96 per square foot
Townhome/multiplex sales price	\$878 per square foot	\$803 per square foot	\$749 per square foot	\$589 per square foot

rents using data from internet listings for duplex and fourplex type buildings in select markets. These observed market fundamentals from 2023 are described in Table 4.

Construction Costs

Estimating the cost of development is essential for determining missing middle development viability. Missing middle developers we interviewed rely on recent experience to determine construction costs for their next project. This in itself is a barrier to entry for aspiring developers without any recent experience in the building industry. Developers and contractors shared the cost per square foot and cost per unit of their recent developments but told us not to rely on them because every project is different and they were “old” figures. The two things all missing middle developers agreed on is that cost per square foot is a difficult metric to nail down and construction costs have been too volatile to accurately predict on their next project.

Developers stated that their own construction costs were only manageable because of accumulated experience, replicable building designs, and trusted contractor partners. They considered their construction costs per square foot to be unique due to their track record and ability to manage costs (though patterns did emerge across the interviews). The construction costs included in our modeling assume an experienced missing middle developer relying on a trusted set of contractors delivering a standard building typology (Table 5). Customization due to site-specific considerations or any unique circumstances in a market (e.g. higher-end finishes are required for duplexes to be competitive as a for-sale product) could add cost to these figures. These figures were based on interviews and observations from 2022 and adjusted to reflect 2023 market changes.

Table 5. Missing Middle Prototype Pro Forma — Building Hard Costs

	East Bay	South Bay	Los Angeles	Sacramento
Duplex for-sale construction cost	\$339 per square foot	\$290 per square foot	\$268 per square foot	\$252 per square foot
Fourplex rental construction cost	\$372 per square foot	\$323 per square foot	\$295 per square foot	\$284 per square foot
Fourplex condo construction cost	\$416 per square foot	\$356 per square foot	\$334 per square foot	\$317 per square foot
Multiplex rental construction cost	\$394 per square foot	\$339 per square foot	\$312 per square foot	\$301 per square foot

Note: Hard costs are defined here as direct construction costs exclusive of the cost of land, fees, warranty reserves, and financing costs.

Development Deal Structures

Like large, institutional developers, missing middle developers generally put their own money at risk, attract additional equity from outside investors, and rely on mortgage debt financing. While ready pathways exist for take-out financing for these properties (e.g., through established financing programs operated by Fannie Mae and Freddie Mac), conventional institutional investors typical of larger multifamily projects are generally less interested in this product type. For missing middle for-sale products where the take-out is a fee-simple purchase of the unit, this challenge occurs during the construction phase, as homebuyers use conventional pathways to source both their own debt and down payment.

Moreover, debt-underwriting standards for these products can be more conservative than with traditional sources of debt because of some developers' more limited financial capacity and the somewhat novel housing types. This means lenders often require completion guarantees and recourse to the developer's personal assets as collateral.

Equity investment sources and return metrics for missing middle developments reflect a range of factors, including:

- Investors' minimum requirements for the scale of missing middle investments;
- Investors' expectations regarding a particular developer's track record building a particular development type;
- Investors' lack of knowledge of neighborhoods where missing middle may be more feasible for a range of reasons;

- Investors' tax avoidance strategies, which may favor rental properties that have longer periods where the property is held by the investor; and

- Concerns about atypical designs, particularly the minimal parking provided with missing middle projects on small lots.

The “global pool of capital” for larger developments described in our original *Making It Pencil* work is generally not accessible at the missing middle scale, so developers often have to be creative in sourcing equity capital. Some developers we interviewed had established lasting relationships with a handful of investors, but they considered themselves unique and their positions the result of an arduous and iterative evolution in their businesses. The consensus among interviewees was that at least early in their careers, investment came primarily from friends, family, and other investors close to them and/or that believe in their mission. In previous work, we noted that many missing middle investors are hyper-local, such as wealthy individuals or a group of individuals who are interested in supporting development in their community.⁴

Because of the variability of investor type, the structuring for investment and returns varies more in the missing middle space than in large multifamily. For example, interviewees described some investors requiring deal structures that offer a preferred investor return—a typical circumstance in multifamily investment structure referred to as a “distribution waterfall” model. In a distribution waterfall, investors receive a greater share of returns up to a certain financial benchmark (e.g., until a specific investor-desired yield target is achieved) followed by the developers, who receive a disproportionate share of any additional returns beyond

that level. Other interviewees described structuring investments via joint ventures where both parties were involved with the development decision-making and proceeds were split based on the proportion of the equity invested. In these cases, one of the parties might also receive a finder's fee for identifying the property, a contractor fee, or realtors' fees upon purchase of the site and sale of the units. These additional revenue generation options would not count toward their split of the returns.

However, the most common partnership is a structure with the developer as a general partner (GP) responsible for sourcing the development opportunity and delivering the new development, and the investor as a limited partner (LP) not responsible for day-to-day decision-making. The GP contributes a small percentage of the equity and the LP contributes the rest. In such cases, the deal's cash flows would typically be split between the GP and LP based on a ratio more favorable to the GP than the proportion of equity they invested. When developers spend money to identify sites, secure the selected site's purchase, and conduct some pre-develop-

ment activities, those expenditures would count toward their GP equity investment. If the investor did not participate in the deal from the outset, the limited investment partner might contribute funds to reimburse the developer GP so that the two parties' equity contributions fall in line with the agreed-upon equity proportions.

Interviewees shared a wide range of desired Internal Rate of Return (IRR) from investors⁵ ranging from 3 to 25 percent IRR. In some cases, low return requirements were complemented by other income sources, like an investor participating in the deal as the listing agent or general contractor. Some developers also described investors who were more focused on achieving community-oriented results than financial returns.

For our modeling, we assumed a 15 percent IRR—higher than what “friends and family” equity might require but lower than what is necessary for many institutional investors—delivered via a GP-LP structure. More detailed financial assumptions are included in Table 6.

Table 6. Missing Middle Prototype Pro Forma — Finance Assumptions

<p><u>Loan to cost</u></p> <p>60%</p>	<p><u>Interest rate</u></p> <p>9.5% for construction loan, 6.5% for permanent loan</p>
<p><u>Debt service coverage ratio (for rental properties only)</u></p> <p>1.30</p>	<p><u>Yield expectation for equity</u></p> <p>15% Internal Rate of Return</p>

Results

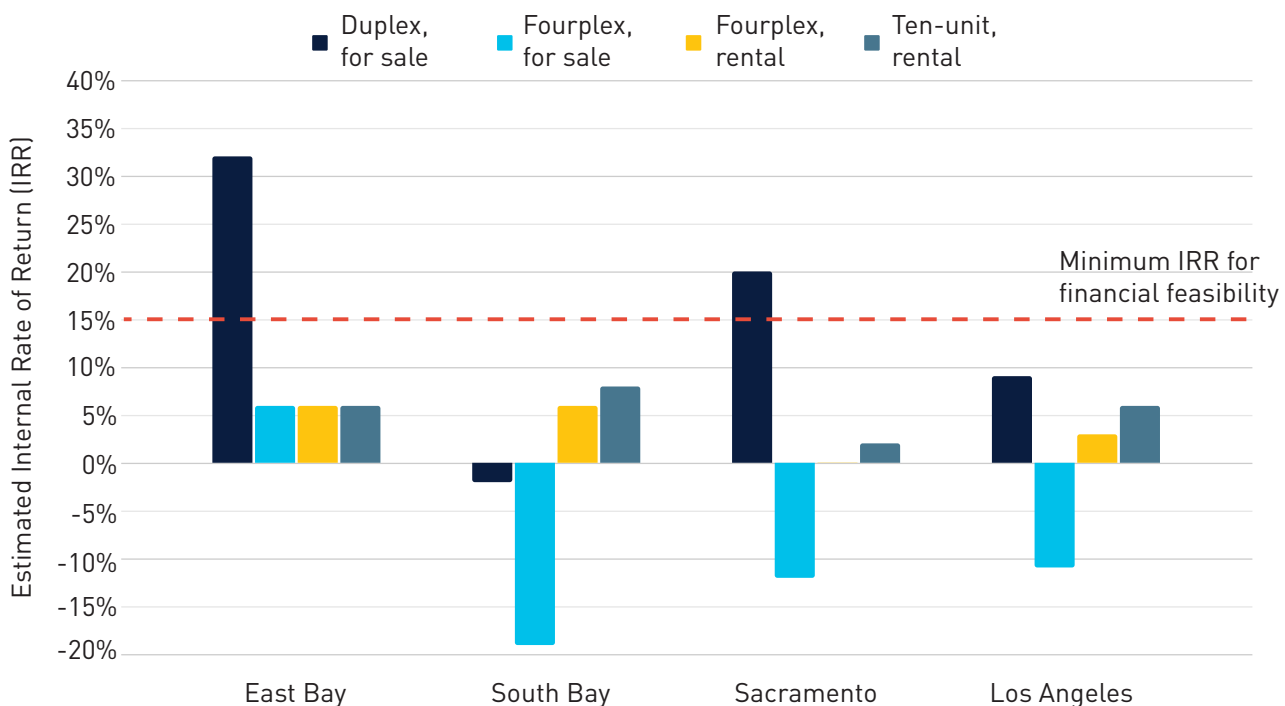
We optimistically assume that sites are available and offered at the prices projected in our four pro forma models. We further assume that developers have identified an investment partner and a bank with whom they will execute the project. And we assume that a sufficient number of contractors are interested in the project such that the project can be built at cost determined by a competitive market-rate bid. In fact, in our interviews, developers noted they would often revert to delivering a single-family home or a low number of townhomes on a site that was suitable for larger missing middle projects because these factors were not readily available.

Despite our optimistic assumptions, in most cases we found that our missing middle prototypes would not be built under recent market conditions given costs, rental comps, lack of financing options, and generally unfavorable market conditions. The feasibility of the missing

middle prototypes we evaluated—which we measured via IRR—varied depending on product type and geography, as shown in Figure 1. The duplex, for-sale model provided the greatest return and likelihood of being built, while fourplex rental models showed the lowest returns in each region except the East Bay.

The relative feasibility of the duplex, for-sale model is likely due to the less intensive construction required of duplex developments, which benefit from simpler code requirements, and as such are less expensive to build overall. Specifically, one-unit and duplex buildings are subject to the residential building code, whereas projects with three or more units are subject to more stringent commercial building code requirements (e.g. triggering more cost-intensive fire suppression requirements). We estimate a roughly ten percent premium in cost to build to the commercial building code, meaning that any development above two units is more expensive to build, all else being equal.

Figure 1. Missing Middle Prototype Pro Formas IRR



Moreover, costs associated with attached units can be higher than detached or duplex, non-stacked structures, meaning that our four- and ten-unit models incur more costs than our duplex models for things like noise abatement and the distribution of more utilities in the densely built structures. A cost premium is generally associated with for-sale products due to higher costs of building to condominium standards, including more expensive finishes and the costs associated with subdivision mapping, California Department of Real Estate (DRE) filings, and higher construction defect liability insurance premiums. Stacked flats in particular cannot be sold as fee-simple units and so must be sold as condominiums, which typically require higher insurance premiums.

While we did not test a single-family home option, it is likely that none of our missing middle prototypes would hold up favorably to such an option given current market and policy dynamics. Our analysis of SB 9 found that it was less feasible to deliver a duplex than to build a similarly-sized single-family home (perhaps with an ADU) that could command the same or higher price per square foot while costing roughly the same or less to build.⁶

Our returns show significant regional variation, with the East Bay as a particular outlier. Our prototypical model for the East Bay has relatively low teardown costs, yet favorable rents/sale prices, which is why its projected internal rate of return is much higher.⁷ The developers we spoke to told us that when evaluating what type of project to pursue, they fall back on delivering a single-family home when conditions are not favorable for missing middle development. As opposed to relatively novel missing middle options,

single-family developments are facilitated by ample comparable sales data, standard financing programs, advantageous building codes, more construction trade familiarity, looser land use controls, and relatively supportive neighbors.

In addition to our baseline analysis, we tested a handful of policy changes to examine the impact of feasibility on our various projects. This analysis shows that policy changes are key to bringing parity across missing middle housing typologies, and greater feasibility overall. For example, when impact fees are lowered for each development type, we see a small but meaningful increase in feasibility (Figure 2). Specifically, we reduced fees from \$40,000 to \$10,000 per unit. As a result, each of our projects improved their IRR by 1 to 2 percent. In our East Bay fourplex, for sale and Los Angeles duplex, for-sale models, the reduction in fees nearly pushed feasibility to our 15 percent feasibility threshold.

We also tested the reduction in cost in our fourplex and ten-unit typologies should the residential building code apply to these types, as with our duplex model. The reduction in cost increased viability to a small degree when combined with the previous impact fee reductions we also examined (Figure 3). Together these changes pushed the East Bay, for-sale fourplex over the 15 percent feasibility threshold.

Figure 2. Missing Middle Prototype Pro Formas IRR—Impact Fee Reduction

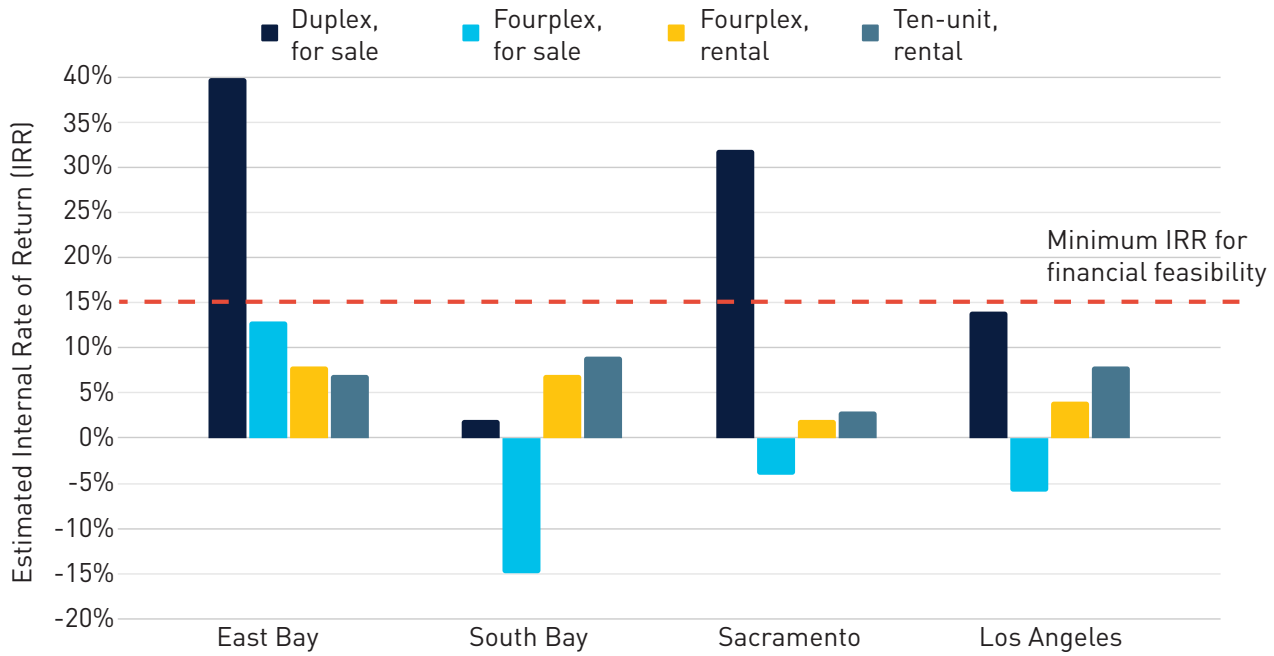
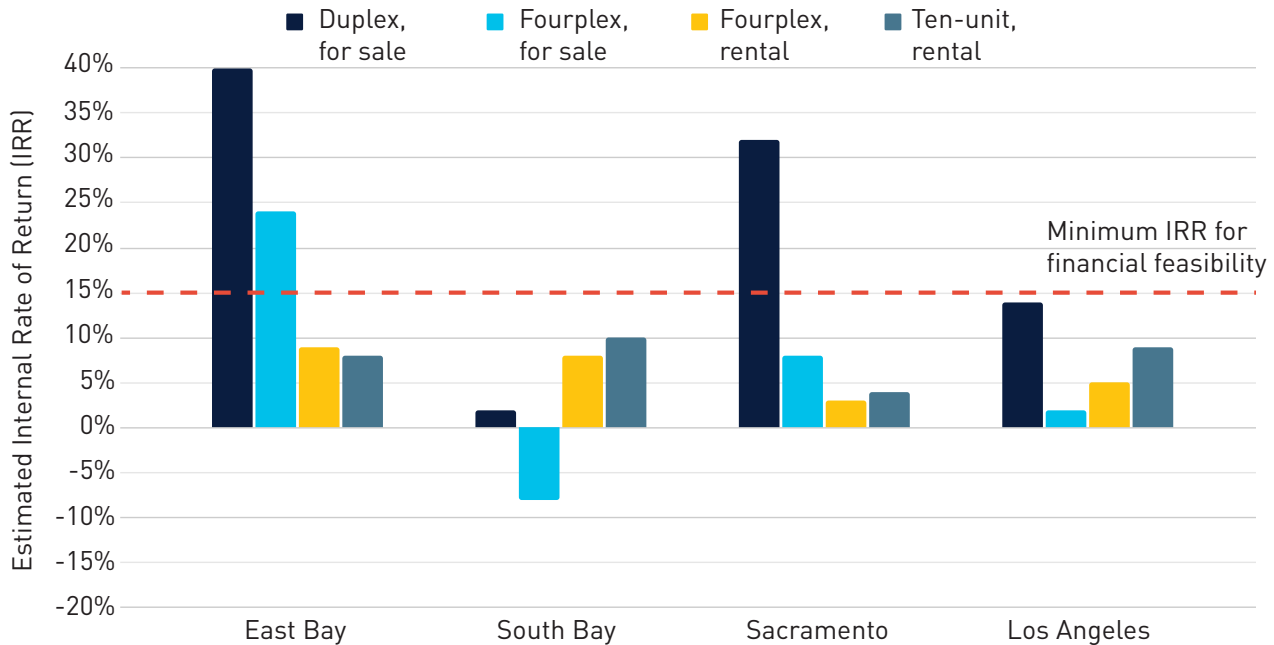


Figure 3. Missing Middle Prototype Pro Formas IRR—Impact Fee and Fourplex Construction Cost Reductions



Conclusion

The relative difficulty to build missing middle projects in infill locations indicates the need to examine policies that can alleviate cost burdens and risks for these forms of development. One area to explore would be revisiting code requirements for three- to ten-unit structures, which as noted above are required to adhere to more costly commercial code requirements. There is precedent for this reform. In 2022, Memphis, Tennessee passed legislation to extend the residential building code to projects up to six homes rather than three.⁸ In North Carolina, recent legislation will allow triplex and fourplex projects to be built under the residential building code beginning in 2025.⁹ In California, Assembly Bill (AB) 2934,¹⁰ authored by Assemblymember Chris Ward, was introduced as a study bill designed to analyze the impacts of allowing 3-10 unit buildings under the residential building code.¹¹ Incorporating such a change would reduce costs for attached missing middle projects and increase their feasibility.

Other changes to bend the cost curve are worth exploring as well. For example, as a result of legislative action in California (AB 68,¹² SB 13¹³), ADUs under 750 sq. ft. are exempt from most residential impact fees. SB 937¹⁴ would allow developers to pay impact fees once residents moved in, rather than at the time of building permit issuance. Such a change would allow developers to more easily finance projects by reducing upfront carrying costs. Other reforms have reduced parking required for smaller development types when access to transit is available. Allowing for single stairway multi-unit residential buildings (as contemplated by 2023 AB 835¹⁵) also has potential to reduce costs. On the homeownership side, changes to construction defect liability laws, simplification of DRE

and subdivision mapping processes for smaller projects (SB 684,¹⁶ SB 1123¹⁷), and allowing smaller lot sizes for fee-simple homes all may warrant further exploration. It is also important to note that these assumptions do not include inclusionary housing requirements—so jurisdictions that have these policies may also want to consider whether applicability for smaller projects is warranted.

We also heard from our interviewees that a fundamental shift in the marketplace would be required for missing middle development to truly scale. For example, developers would be able to pursue these projects if more advantageous underwriting terms for convertible construction-to-permanent loan products were available, land use codes explicitly favored missing middle housing types over single-family (rather than merely allowing missing middle types), simplified lot splitting were enabled for fee-simple townhome development, predictable permitting timelines and processes were available for missing middle projects, and more measures existed that could encourage property sales in established neighborhoods.

Understanding the math behind missing middle development is important for policymakers and planners, many of whom are actively considering policies to further facilitate this type of homebuilding. Moreover, several state legislatures are pushing localities to allow more missing middle housing types. For example, SB 9 in California, House Bill 2001 in Oregon,¹⁸ and SB 323¹⁹ in Montana all require changes in local zoning standards to allow for multiple homes on residential lots. However, removing zoning barriers is just a first step to realizing more smaller-scale development.

ENDNOTES

1. Garcia, D., et. al. (2023). “Making It Pencil: the Math Behind Housing Development – 2023 Update.” Turner Center for Housing Innovation, UC Berkeley. Retrieved from: <https://turnercenter.berkeley.edu/research-and-policy/making-it-pencil-2023/>.
2. California State Senate Bill 9. Retrieved from: https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=202120220SB9.
3. California State Senate Bill 10. Retrieved from: https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=202120220SB10.
4. Garcia, D., et. al. (2022). “Unlocking the Potential of Missing Middle Housing.” Turner Center for Housing Innovation, UC Berkeley. Retrieved from: <https://turnercenter.berkeley.edu/research-and-policy/unlocking-missing-middle/>.
5. IRR measures an investor’s total anticipated return over the life of their investment. Specifically, it is calculated by considering total equity invested and the anticipated annual cash flows for the number of years an investor expects to hold the property with the anticipated value at sale.
6. Metcalf, B., et. al. (2021). Will Allowing Duplexes and Lot Splits on Parcels Zoned for Single-Family Create New Homes?” Turner Center for Housing Innovation, UC Berkeley. Retrieved from: <https://turnercenter.berkeley.edu/wp-content/uploads/2021/07/SB-9-Brief-July-2021-Final.pdf>.
7. For example, if we change only the South Bay’s teardown price to the East Bay’s teardown price and keep everything else constant, we will get a South Bay duplex project IRR similar to the East Bay. It is important to note that teardown prices reflect an area’s lowest land values, which might be found across a number of submarkets, while the rent inputs reflect some strong rental submarkets.
8. Opticos Design. (2022). “Memphis, TN Amends Local Building Code to Allow up to Six Units Under Residential Building Code (IRC) to Enable Missing Middle Housing.” Retrieved from: <https://opticosdesign.com/blog/memphis-tn-amends-local-building-code-to-allow-up-to-six-units-under-residential-building-code-irc-to-enable-missing-middle-housing/>.
9. North Carolina General Assembly, House Bill 488. Retrieved from: <https://www.ncleg.gov/BillLookup/2023/H488>.
10. California State Assembly AB 2934. Retrieved from: https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=202320240AB2934.
11. The California Residential Code (CRC) governs construction of one-unit and duplex dwellings and townhouses of three stories or less. The California Building Code (CBC) establishes requirements for all other buildings, including medium and high-density housing. Certain requirements in the CBC for higher density buildings can make development complicated or render the economically infeasible for smaller ones.

12. California State Assembly Bill 68. Retrieved from: https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=201920200AB68.
13. California State Senate Bill 12. Retrieved from: https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=201920200SB13.
14. California State Senate Bill 937. Retrieved from: https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=202320240SB937.
15. California State Assembly Bill 835. Retrieved from: https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=202320240AB835.
16. California State Senate Bill 684. Retrieved from: https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=202320240SB684.
17. California State Senate Bill 1123. Retrieved from: https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=202320240SB1123.
18. Andersen, M. (2019). "Oregon Just Voted to Legalize Duplexes on Almost Every City Lot." Sightline Institute. Retrieved from: <https://www.sightline.org/2019/06/30/oregon-just-voted-to-legalize-duplexes-on-almost-every-city-lot/>.
19. Montana Legislature Senate Bill 323. Retrieved from: <https://leg.mt.gov/bills/2023/billhtml/SB0323.htm>.

ABOUT THE TERNER CENTER

The Turner 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.

For more information visit: www.turnercenter.berkeley.edu

ACKNOWLEDGMENTS

We would like to particularly thank Jonathan Fearn for his review and insights in the development of our pro forma tool and this brief. We would also like to acknowledge Jim Heid, Denise Pinkston, Sean Roberts, Muhammad Alameldin, Cora Johnson-Grau, Sarah Karlinsky, and Carolina Reid for their review of this brief.

This research does not represent the institutional views of UC Berkeley or of the Turner Center's funders. Funders do not determine research findings or recommendations in Turner Center's research and policy reports.