Why Is Affordable Housing So Expensive to Build?*

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Introduction

The cost of building housing is important for many market outcomes. It determines what rents are required for a new development to be profitable (Eriksen and Orlando 2024), as well as the number of subsidized units that can be constructed from a given amount of government funds. Prior work has found that housing construction costs have risen faster than inflation since about 1990 (including an acceleration since 2020), and productivity growth in the construction sector more generally has been sluggish for decades (Potter and Syverson 2025). This problem may be particularly acute for subsidized housing, where anecdotal evidence suggests that recent projects have routinely cost much more per unit than comparable market-rate buildings.

In this ongoing project, we study variation across states in the construction costs of market-rate and affordable multifamily housing. We first document basic facts using hand-collected cost data on completed projects. We then turn to drivers of cost variation, with a particular interest in features of the Low-Income Housing Tax Credit (LIHTC) program that are correlated with large differences between affordable and market-rate costs. Understanding the factors that drive up LIHTC construction costs could help policymakers identify ways to improve the efficiency of the program, while understanding drivers of construction costs more broadly may point to reforms that increase housing supply generally.

We are actively building our dataset of project costs, which currently contains roughly the past eight years of LIHTC buildings in 18 states and about 300 market-rate developments. For this

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extended abstract, we report results from an intermediate policy report that compared California, Texas, and Colorado (Ward and Schlake 2025). After adjusting for building characteristics, we find that California's market rate construction costs (per square foot) are 2.6 times Texas's cost, with Colorado falling in between. In California and Texas, LIHTC projects are about 50 percent more expensive than comparable market-rate projects. In contrast, Colorado's LIHTC costs are actually lower than its market-rate costs. The high costs in California are not driven by any single category: hard costs, soft costs, and land prices are all quite high. The subcategories we can observe—municipal impact fees and architecture and engineering costs—are also much higher in California than the other states. Finally, average total production time is 49 months in California, versus 27 months in Texas.

We expect to expand this analysis to include the 18 states we have collected by the end of 2026. With a larger sample, we will be able to study cost drivers more systematically. A particularly interesting analysis may be correlations between the difference in LIHTC and market-rate costs and the criteria that states use to select which projects will receive LIHTC funding.

Our project builds on prior literature on housing construction primarily through data collection. Most related academic work has used industry cost estimates like R.S. Means (Glaeser and Gyourko 2002; Eriksen and Orlando 2022; Potter and Syverson 2025). An exception is Eriksen (2009), who calculates the average construction cost of LIHTC buildings in California using the same cost certification reports that we use in this project. We will add to this literature by using realized cost data to study variation across states and sectors and identify its drivers. Our paper is also related to research on the cost of building infrastructure more generally (Brooks and Liscow 2023; Goldwyn et al. 2023; Liscow et al. 2025). We expand this literature, which has generally focused on transportation infrastructure, by considering the construction costs of government-subsidized housing. In addition to being a substantial government expenditure, a unique feature of multifamily housing is that it is also constructed by the private sector. This provides a natural benchmark for government efficiency, as private versus subsidized construction face the same general market conditions, whereas analysis of other types of infrastructure usually requires comparisons across countries and time periods that differ in many ways.

1 Data

1.1 LIHTC cost data

The Low-Income Housing Tax Credit (LIHTC) program provides federal tax credits to developers who build affordable rental housing. The annual credit, equal to either 9 percent or 4 percent of qualifying construction costs, can be claimed for a ten-year period. Credits are typically sold to outside investors to raise initial development capital. The program requires that units be rented to income-qualified households (typically those earning no more than 60 percent of area median income) at restricted rents for thirty years.

For this project, a crucial feature of LIHTC is that the developer's subsidy is determined by their construction costs. To claim their tax credits, developers must submit audited cost certification reports to their state housing finance agency. These reports include not only total development costs (TDC), but also decompose it into hard costs (labor and materials), soft costs (e.g., financing, architecture, impact fees), and land acquisition costs. The reports are subject to state-level public records laws in most cases and are our primary source of data on LIHTC construction costs.

Table 1 summarizes the current status of our LIHTC data collection. We have acquired cost certification data for eighteen states and one additional major-city jurisdiction (Chicago), with data covering roughly the period 2016–2023. These states include about 65 percent of the country's population. Cleaning and harmonization is complete for nine states. This is a time-consuming process that includes manual quality review and comparison of line-item cost categories that differ across states in their titles and breadth.

In this draft, we present the results from the intermediate report in Ward and Schlake (2025), which includes only California, Texas, and Colorado in the sample. The sample excludes projects whose physical or programmatic characteristics differ substantially from generic market-rate apartments—most importantly, projects serving the chronically homeless and projects exclusively for seniors—because both typically involve additional services or accessibility requirements that inflate costs. We also drop projects with zero or de minimis land costs, which generally reflect repurposed public land parcels provided to LIHTC developers at no cost rather than arms-length market transactions.

1.2 Market-rate cost data

We draw on two distinct sources for the costs of market-rate construction. First, two large multi-state developers—Trammell Crow and an anonymous developer—have shared proprietary project-level cost data. The results in this draft are drawn entirely from Trammell Crow's data, which includes detailed cost information for 27 buildings in California, Colorado, and Texas and less detailed information for an additional 28 buildings in those states. The data from the anonymous developer provides similar information for an additional 43 buildings across several states.

Second, we extract project-level cost information from the tax depreciation schedules included in the Form 10-K filings of publicly traded multifamily Real Estate Investment Trusts (REITs). These schedules report initial costs, capitalized improvements, accumulated depreciation, and year of construction at the property level. They do not break the cost down further into, say, hard and soft components. In some cases, a REIT's initial cost represents a purchase price, while in others, it is a construction cost. We have manually identified about 300 projects in which the REIT was the developer and the initial cost likely represents a construction cost. While this is an imperfect approach, we have verified that it is usually accurate by comparing the 10-K filing of the anonymous developer who shared data with us to the data they provided directly. Finally, we have matched our constructed sample to CoStar to acquire building characteristics like unit count, square footage, and available amenities.

Table 2 summarizes the market-rate developers and REITs covered. In total we have collected project-level cost data from eleven large developers, containing about 300 individual properties that span much of the United States. We expect this sample to grow further as we develop more relationships with developers and identify and process additional REIT filings.

1.3 Sample for this draft

In this draft, we present intermediate results from Ward and Schlake (2025). The sample for the analysis consists of 27 market-rate buildings developed by Trammell Crow (10 in CA, 10 in TX, 7 in CO) and 88 LIHTC buildings (38 in CA, 34 in TX, 16 in CO). All buildings were completed between 2015 and 2024.

2 Methodology

The buildings in our sample differ widely in size, structure type, and quality. The sample period also spans a decade in which construction costs increased rapidly. We take three steps to develop clean cost comparisons that are not driven by differences in building characteristics or time period.

The first two adjustments are quite simple. First, we account for time differences by converting all cost numbers to 2019 dollars using granular, sector-specific, inflation estimates. Second, we measure costs as either per net-rentable square foot (NRSF) or per apartment unit. These measures are both interesting and have different strengths and weaknesses. The NRSF measure accounts for differences in unit size and common spaces, but it does not capture how many expensive elements (e.g., kitchens, bathrooms) are included in a building. The per-unit measure does a better job at capturing the number of expensive elements, but does not capture differences in unit size.

Our third adjustment is slightly more complicated. We use a simple regression to account for building type (high-rise, garden, podium, and wrap) and the number of units in the building. This is necessary because of increasing returns to scale and because some building types are cheaper than others, and some sites only accommodate certain building types. We then use the regression estimates to calculate the average cost of constructing a representative building in each state and sector. The regression specification is:

$$y_{it} = \beta_0 + \beta_1 CO_i + \beta_2 CA_i + \gamma_1 LIHTC_i + \gamma_2 (LIHTC_i \times CO_i) + \gamma_3 (LIHTC_i \times CA_i) + \pi\, units_i + \rho_i^{building_type} + \epsilon_{it}$$

where y_{it} is real cost per NRSF (or per unit) for project i completed in year t, and $LIHTC$ and the state abbreviations represent dummy variables. We use these coefficients to predict the cost of a representative "average" project (185 units, with a building-type mix weighted to match the overall sample) across the various combinations of state and sector. Standard errors on these combined estimates are constructed via the delta method. Note that this specification is constrained by the sample size of 115 buildings. In the future, the expanded sample will allow us to estimate more detailed and flexible specifications.

3 Results

3.1 Total development costs

Figure 1 shows our main estimates: the regression-adjusted average total development cost (TDC) for a representative project in each state and sector, expressed both per net rentable square foot and per unit. The most striking pattern is the sheer magnitude of cross-state variation. A market-rate building in Texas cost about $157 per NRSF on average, compared to $415 in California—a 2.6-fold difference. Colorado falls between the two, at about $305 per NRSF for market-rate projects, though closer to California than to Texas. The same ordering holds when costs are measured per unit.

LIHTC costs follow a similar geographic pattern but are higher than market-rate construction in California and Texas. A LIHTC project in Texas cost about $228 per NRSF, roughly 45 percent more than a comparable market-rate project. In California, LIHTC projects cost about $640 per NRSF, about 55 percent more than market-rate. Colorado is the exception: LIHTC costs there are slightly below market-rate costs, although the small sample (16 LIHTC projects and 7 market-rate projects) means we are cautious about reading too much into the difference. In all states, LIHTC units are smaller than market-rate, which leads per-unit costs to be lower for LIHTC than market-rate projects in Texas and shrinks the gap in California. Taken together, these results indicate that the affordable-housing cost premium that has attracted attention in California is not unique to that state, but it is also not universal.

3.2 Decomposition into cost categories

Figure 2 and Table 3 decompose total development costs into hard costs (labor and materials), soft costs (financing, architectural and engineering services, permitting and impact fees, and similar items), and land acquisition costs.

Hard costs are by far the largest component, accounting for between 63 and 78 percent of TDC in each state and sector. Across the three states, hard costs display the same broad pattern as TDC: California is the most expensive ($253 per NRSF market-rate, $427 LIHTC), Texas the least ($115 market-rate, $173 LIHTC), and Colorado in between.

Soft costs vary even more dramatically across both geography and sector. Soft costs per NRSF for LIHTC projects are $187 in California, $75 in Colorado, and $60 in Texas. To put the California

number into perspective, the *soft costs* of building LIHTC in California are greater than the *total costs* of building market-rate in Texas. Within each state, LIHTC soft costs are roughly 2–3 times higher than market-rate soft costs. This category appears to be a particularly important driver of the LIHTC premium.

Finally, land costs do not follow the same patterns as the other components. In every state, land costs per NRSF are lower for LIHTC projects than for market-rate projects. This likely reflects a combination of factors: LIHTC developers often build on less expensive sites, occasionally receive public land at concessionary prices (though we drop the most extreme cases from the sample), and may benefit from local programs that assist with land acquisition. Land costs are nonetheless meaningfully higher in California than in Texas or Colorado for both sectors.

We are able to observe two components of soft costs: architectural and engineering (A&E) fees and municipal impact fees. Table 4 reports average A&E fees per unit for each state-sector pair, with the California sample further broken out into the Los Angeles, San Diego, and San Francisco Bay metro regions. They are dramatically higher in California than in Texas or Colorado. In Texas, A&E fees average about $4,400 per unit for market-rate projects and $3,100 for LIHTC projects. In California's major metros, by contrast, A&E fees range from about $10,000 to $16,000 per unit for market-rate projects and from about $10,000 to $25,000 per unit for LIHTC projects. The cross-state difference for market-rate projects likely reflects some combination of higher cost of living, more demanding design environments, and California-specific seismic and energy-efficiency requirements. The additional gap between LIHTC and market-rate within California, however, is harder to attribute to these factors. Interviews with market participants suggest that design and review requirements imposed by LIHTC funders—which can require, for example, additional rounds of architectural review, sustainability certifications, or specific finish standards—play an important role.

Table 5 reports average municipal impact fees, again at the metro-region level. The state-level pattern is even starker than for A&E fees. Impact fees in Texas average roughly $800–$1,200 per unit, less than 1.5 percent of TDC. In California, fees average $14,000–$37,000 per unit, depending on the metro region, and account for as much as 14 percent of TDC for San Diego market-rate projects. Colorado falls in between, with average impact fees of about $4,800–$12,000 per unit.

The within-state, cross-sector comparison is also notable. Unlike A&E fees, impact fees are

generally lower for LIHTC projects than for market-rate projects in California, presumably reflecting local fee waivers or reductions for affordable housing. Despite these waivers, impact fees remain a meaningful share of LIHTC TDC in California—over 12 percent in San Diego. The contrast between California and Texas indicates that local impact fees are a quantitatively important driver of cross-state cost differences, especially for market-rate construction.

3.3 Construction and predevelopment times

We observe production time for the market-rate projects in our sample. The average in each state is shown in Figure 3, split into predevelopment (entitlement, design, and permitting) and active construction. The cross-state differences are large. Total production time averages 49 months in California, 33 months in Colorado, and 27 months in Texas. The California-Texas gap of about 22 months is roughly evenly split between longer predevelopment and longer construction periods, although the predevelopment difference is somewhat larger. Long timelines impose direct costs through carrying costs of land and capital, and may also raise hard and soft costs indirectly by extending the period over which design teams, consultants, and construction managers must be retained. The fact that production times track total costs across states is consistent with delays being both a symptom and a cause of high costs.

3.4 Discussion and future work

Taken together, the results paint a picture in which California construction is more expensive than Texas construction along nearly every dimension we can observe, and in which LIHTC construction is more expensive than market-rate construction along most of the same dimensions. There is no single category that accounts for the gaps; rather, hard costs, soft costs, and the duration of the construction process all contribute.

We emphasize that these results are based on a small sample of buildings from three states. The expanded dataset that we are assembling will allow us to estimate richer cost adjustment specifications, examine variation across a much broader set of states, and link cost differences to specific policies, especially the criteria used to allocate LIHTC awards.

References

Brooks, L. and Liscow, Z. (2023). Infrastructure costs. *American Economic Journal: Applied Economics*, 15(2):1–30.

Eriksen, M. D. (2009). The market price of low-income housing tax credits. *Journal of Urban Economics*, 66(2):141–149.

Eriksen, M. D. and Orlando, A. W. (2022). Returns to scale in residential construction: The marginal impact of building height. *Real Estate Economics*, 50(2):534–564.

Eriksen, M. D. and Orlando, A. W. (2024). A cost decomposition of break-even rents for new multifamily housing development. *Journal of Housing Economics*, 66:102012.

Glaeser, E. L. and Gyourko, J. (2002). The impact of zoning on housing affordability.

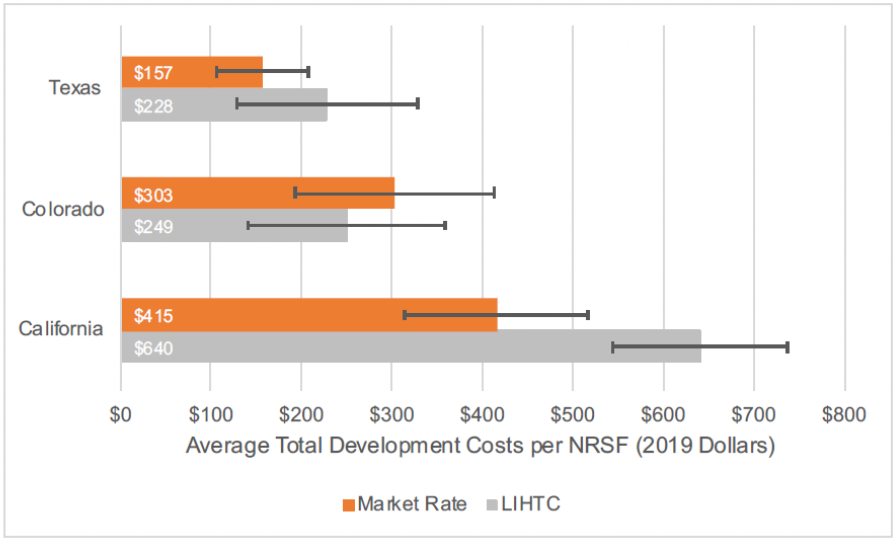
Goldwyn, E., Levy, A., Ensari, E., Chitti, M., Dahir, A., Daniell, R., Yao, Y., and Maalouf, A. (2023). Transit costs project. *NYU Marron Institute of Urban Management, https://transitcosts.com/final-report*.

Liscow, Z., Slattery, C., and Nober, W. (2025). State capacity and infrastructure costs. *Yale Law & Econ. Research Paper*.

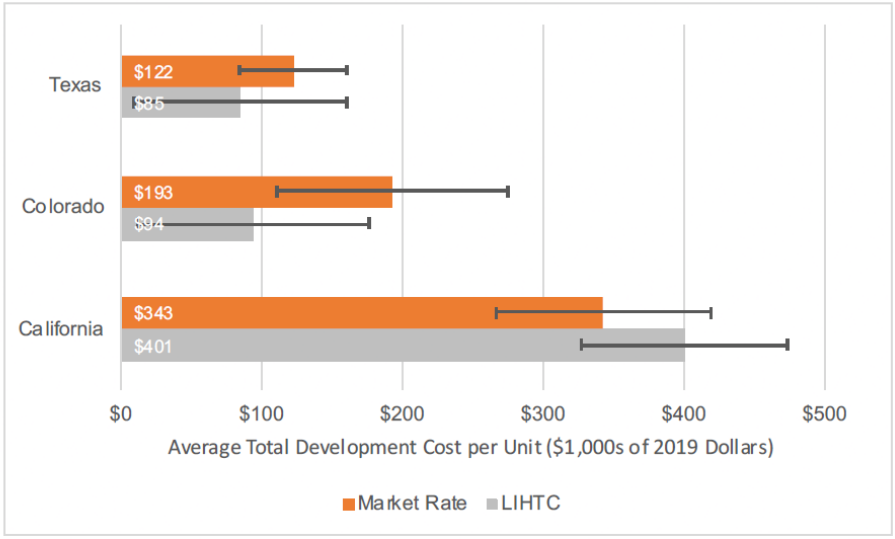
Potter, B. and Syverson, C. (2025). Building costs and house prices. *Journal of Economic Perspectives*, 39(3):67–86.

Ward, J. M. and Schlake, L. (2025). The high cost of producing multifamily housing in california. *Evidence and Policy Recommendations*.

Figure 1: Total Development Costs (TDC) by State and Sector



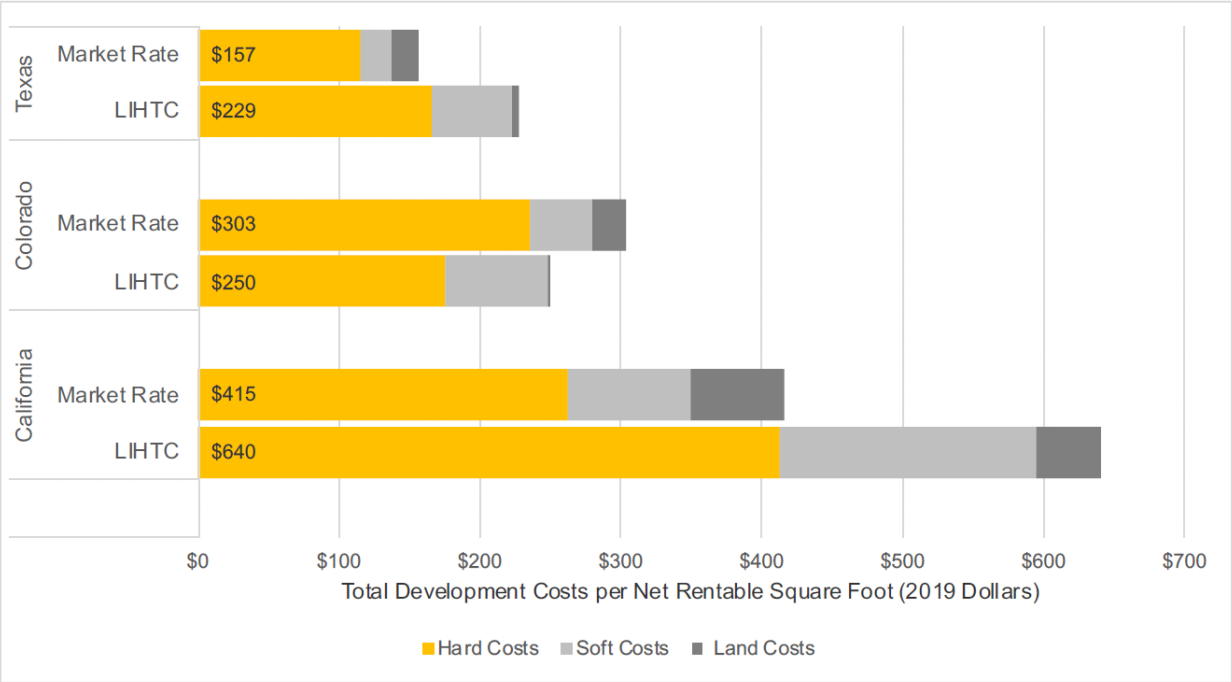
Panel A. TDC per NRSF



Panel B. TDC per Unit

NOTE: N = 115 (market-rate project n = 27, LIHTC project n = 88). Estimates are created as regression-adjusted averages for each state and project type, as described in the text. Costs are adjusted to be in terms of 2019 dollars. Bars indicate mean costs per net rentable square foot (NRSF) or per unit. Capped whiskers indicate 95 percent confidence intervals of the mean cost estimate.

Figure 2: Decomposition into Cost Categories



NOTE: N = 115 (market-rate project n = 27, LIHTC project n = 88). Costs are adjusted to be in terms of 2019 dollars. Bars indicate mean costs per NRSF. The exact numbers underlying this bar chart appear in Table 3.

Figure 3: Average Production Times by State for Market-Rate Apartments



NOTE: This figure shows average total production time subdivided into predevelopment time and construction time for 50 market-rate projects in our data set (17 in California, seven in Colorado, and 26 in Texas) using the same regression framework used in our other analyses.

Table 1: LIHTC cost certification data collection status, by state

State / Jurisdiction	Years provided	Processing status
California	2016–2024	Included in analysis
Texas	2016–2024	Included in analysis
Colorado	2019–2021	Included in analysis
Georgia	2015–2023	Prepped for analysis
New York State	2019–2023	Prepped for analysis
North Carolina	2016–2023	Prepped for analysis
Michigan	2016–2023	Prepped for analysis
Arizona	2016–2024	Prepped for analysis
Ohio	2016–2024	Prepped for analysis
South Carolina	2016–2022	Processing
Maine	2016–2021	Processing
Alabama	2016–2024	Processing
Washington	2016–2024	Processing
Pennsylvania	2016–2021	Processing
Illinois	2019–2023	Processing
Chicago	2019–2023	Processing
Florida	2016–2022	Processing
New Mexico	2015–2025	Processing

Table 2: Market-rate data collection

Developer / REIT	Projects	Source
Developer-provided data		
Anonymous developer	43	Developer
Trammel Crow	27	Developer
Data from 10-Ks		
AvalonBay Communities	98	10-K
Equity Residential	36	10-K
UDR	28	10-K
Essex Property Trust	30	10-K
MAA (Mid-America Apartment Communities)	57	10-K
AIM (Apartment Investment and Management)	3	10-K
Veris Residential	6	10-K
Apartment Income REIT	9	10-K
ELME Communities	4	10-K
Centerspace Apartments	20	10-K
Total	318	

Table 3: Differences in Costs by Category Across States

State	Sector	Cost per NRSF	% of Total Costs
Panel A. Hard Costs			
California	Market rate	$253	63
California	LIHTC	$427	65
Colorado	Market rate	$237	78
Colorado	LIHTC	$183	70
Texas	Market rate	$115	73
Texas	LIHTC	$173	73
Panel B. Soft Costs			
California	Market rate	$84	21
California	LIHTC	$187	28
Colorado	Market rate	$44	15
Colorado	LIHTC	$75	29
Texas	Market rate	$22	14
Texas	LIHTC	$60	25
Panel C. Land Costs			
California	Market rate	$64	16
California	LIHTC	$47	7
Colorado	Market rate	$23	7
Colorado	LIHTC	$1.5	1
Texas	Market rate	$20	13
Texas	LIHTC	$5	2

Notes: $N = 115$ for hard and soft costs (market-rate $n = 27$, LIHTC $n = 88$). For land costs, $N = 129$ (market-rate $n = 54$, LIHTC $n = 75$). All costs are adjusted to be in terms of 2019 dollars.

Table 4: Metro Region–Level Architectural and Engineering Fee Costs

Metro Region	**Sector**	**Cost Per Unit ($)**
Texas	Market rate	4,440
Texas	LIHTC	3,131
Colorado	Market rate	6,502
Colorado	LIHTC	6,730
Los Angeles	Market rate	10,835
Los Angeles	LIHTC	23,249
San Diego	Market rate	10,267
San Diego	LIHTC	10,835
San Francisco Bay	Market rate	16,494
San Francisco Bay	LIHTC	24,943

Notes: $N = 115$ (market-rate project $n = 27$, LIHTC project $n = 88$). All dollar amounts are adjusted to 2019 dollars.

Table 5: Metro Region–Level Municipal Impact Fees

Metro Region	**Sector**	**Cost per NRSF**	**% of Total Costs**
Texas	Market rate	816	0.6
Texas	LIHTC	1,196	1.2
Colorado	Market rate	12,088	6.1
Colorado	LIHTC	4,802	4.1
Los Angeles, California	Market rate	20,266	5.8
Los Angeles, California	LIHTC	14,292	3.6
San Diego, California	Market rate	36,992	14.3
San Diego, California	LIHTC	31,872	12.4
San Francisco Bay, California	Market rate	30,712	6.3
San Francisco Bay, California	LIHTC	14,609	3.0

Notes: $N = 115$ (market-rate project $n = 27$, LIHTC project $n = 88$). All dollar amounts are adjusted to 2019 dollars.