FINANCIAL FEASIBILITY:

OFFICE-TO-MULTIFAMILY CO-LIVING CONVERSIONS TO PROMOTE AFFORDABILITY

PURDUE UNIVERSITY®

Mitch Daniels School of Business

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Office-to-Multifamily Co-living Conversions
to Promote Affordability

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EXECUTIVE SUMMARY

A growing number of cities in the United States are faced with the dual challenges of vacant office buildings and a shortage of affordable housing opportunities. The purpose of this report is to highlight the potential to address both challenges simultaneously through the conversion of existing office buildings into multifamily housing with shared kitchens, bathrooms, and other living areas. This type of multifamily property with individually leased bedrooms and shared domestic facilities is often referred to as "co-living" and is often championed to produce affordable housing at scale through reduced development costs. With only a few isolated examples of success, redevelopment of existing office space to produce affordable and financially feasible co-living is uncertain.

REPORT KEY FINDINGS

- Co-living multifamily housing is an emerging real estate product. As of late 2025, it has been estimated that there are 100 to 150K co-living units available in the U.S., primarily concentrated in urban centers such as Austin, Denver, Atlanta, Chicago, and Los Angeles.[1]

- The supply of studio or 0-bedroom apartments has decreased nationally and is a contributing factor to the rising homelessness epidemic. Less than 6% of housing units subsidized under the Low-Income Housing Tax Credit (LIHTC) program from 2001-2024 were studio.

- A previous study authored by the architecture firm Gensler demonstrated the physical feasibility of converting office buildings to co-living multifamily housing in seven cities. Those co-living conversions were estimated to cost from 40-69% of the cost of new studio housing units.

- The financial feasibility of Gensler's co-living conversions at proposed rents were mixed. Levered returns with only a conventional mortgage loan at 6% were estimated to range from -7% in Washington, D.C. to 10% in Denver. The per-unit subsidy needed to achieve a 6% levered return to equity ranged from $0 in Denver to $125,314 in Washington, D.C.

- The use of Tax Increment Financing (TIF) and mezzanine loans improved the financial feasibility of co-living conversions. No further subsidy was needed for the Seattle conversion, and per-unit remaining required subsidies ranged from $9,365 in Houston,

$12,344 in Chicago, $20,060 in Minneapolis, $61,691 in Los Angeles, and $105,829 in Washington, D.C.

- LIHTC subsidies alone would be sufficient to fill remaining subsidy gaps although they may create additional costs and delays while reducing operational flexibility. It is estimated that between 2.8 to 9.9 co-living units could be subsidized per traditional multifamily housing through the LIHTC program annually.

- The initial lease-up phase and uncertain operational expenses given high expected turnover rates were identified as significant risks. Pre-leasing individual units or master leasing floors would reduce uncertainty. Opportunities to phase development should also be pursued when possible.

- Lowering the primary mortgage loan's interest rate from 6% to 5.75% would only have a minimal effect on required subsidies. Increasing rents to 60% of the local median of a studio apartment would require no further subsidy beyond TIF and mezzanine loan in four of the cities (Denver, Houston, Los Angeles, and Seattle) given occupancy targets.

- Direct outlays by state and local governments, or the use of federal HOME and Community Block Development Grants (CBDG) to either purchase a site for development or fund revolving mezzanine loan funds at below-market interest rate would align incentives of developers to provide units in a timely manner.

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I. OVERVIEW & SCOPE

A growing number of cities in the United States are faced with the dual challenges of vacant office buildings and a shortage of affordable housing opportunities. Recent changes to how we live and work following the COVID-19 pandemic have largely driven the increased office vacancy and resulted in not only decreased vibrancy of urban communities, but also a decrease in tax revenues to fund public services. Rising development and regulatory costs have resulted in an overall lack of housing, and break-even rents of new housing developments exceed what is affordable to most renter households. Although cities have a history of prevailing through such crises in the past, many economists are concerned an "urban doom loop" has been triggered that may take decades to recover from without intervention.[2]

The purpose of this report is to highlight the potential to address both challenges simultaneously through the conversion of existing office buildings into multifamily housing with shared kitchens, bathrooms, and other living areas. This type of multifamily property with individually leased bedrooms and shared domestic facilities is often referred to as "co-living" and is often championed to produce affordable housing at scale through reduced development costs. Despite a few isolated examples of success, redevelopment of existing office space to produce affordable and financially feasible co-living is unclear.

This report primarily builds upon two existing series of reports. The first was produced by the Brookings Foundation and explores the economics of office-to-residential conversions broadly.[3] That report identified several barriers to such conversions, including an overall inability to profitably produce new housing units at even market rents without significant state and federal subsidies. Although these subsidized conversions would increase the aggregate supply of housing and most likely the number of older units filtering down towards affordability for other households, directly subsidizing units designed to be affordable by those with the greatest need may be more cost efficient.

The second series of reports this project builds upon was produced by the architecture firm Gensler and focuses on the physical feasibility and development costs of existing office-to-multifamily housing conversions featuring co-living. The Gensler studies focused on the redevelopment of actual office buildings in seven cities (Chicago, Denver, Houston, Los Angeles, Minneapolis, Seattle, and Washington, D.C.) and highlighted specific instances when such conversions to affordable housing were physically feasible. In all but one instance those costs significantly exceeded potential revenue, calling into question whether co-living conversions are financially feasible.

Building on those initial reports the aims of this report are to:

- Formally define and provide an economic overview of the benefits of co-living conversion housing

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[2] Gupta, Arpit, Vrinda Mittal, and Stijn Van Nieuwerburgh. "Work from home and the office real estate apocalypse." (2022).

[3] https://www.brookings.edu/articles/a-community-guide-to-office-to-residential-conversion-part-1-economics/

- Estimate levered returns to equity of seven office buildings with co-living conversion costs previously estimated by Gensler using conventional underwriting standards

- Explore the impact of Tax Increment Financing (TIF) and the introduction of mezzanine financing on levered returns

- Calculate and compare any remaining subsidies required to achieve 6% levered return on equity relative to Low-Income Housing Tax Credit (LIHTC) subsidized properties

Similar reports in the past have been written with the primary recommendation to increase already large federal subsidies allocated towards affordable housing, such as LIHTC. This report was instead written with the explicit goal of not considering LIHTC and other large federal subsidies for three main reasons. First, almost any project can become financially feasible with a sufficiently large subsidy, so the answer is self-evident. Second, projects receiving subsidies cannot be scaled, as the total amount of subsidy available to be allocated is fixed annually. Whereas conversions to co-living are potentially more cost effective and require a lower subsidy per unit than ground-up development, every LIHTC dollar allocated towards a conversion still results in one less dollar that could be allocated elsewhere, resulting in at best marginal net additions. Finally, projected decreases in federal revenues make LIHTC and other federal subsidies increasingly at risk of being eliminated in the future. Identifying pathways to feasibility that scale and result in net additions to affordable housing stock is vital.

II. EMERGENCE OF CO-LIVING MULTIFAMILY HOUSING

Office-to-multifamily conversions are a promising strategy to address the dual challenges of high office vacancy and a shortage of affordable housing in U.S. metro areas. The type of multifamily property often championed within broadly defined affordable housing is often referred to as "co-living." Co-living is a contemporary residential typology characterized by the provision of private, individually leased bedrooms combined with shared domestic facilities, most commonly kitchens, bathrooms, and living areas. Unlike conventional multifamily housing, where each unit is fully self-contained, co-living minimizes the duplication of space-intensive functions by centralizing them for collective use. This distinction also separates co-living from co-housing, where households maintain complete private dwellings but supplement them with additional shared amenities.[4]

The spatial configuration of co-living typically follows two dominant models. In small-cluster arrangements, three to six bedrooms are grouped around a shared kitchen and living room. This arrangement retains a domestic scale while achieving efficiency gains by reducing the number of kitchens and bathrooms required per resident.[5] Large congregate models take a different form, placing numerous single-occupancy rooms — often aligned along exterior walls to maximize daylight

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[4] Tummers, L. (2016). The re-emergence of co-housing in Europe. Urban Studies, 53(10), 2023–2040., and Bredenoord, J., & Peer-Smink, F. (2022). Comparing co-housing and co-living: Emerging models of shared housing. Urban Planning, 7(3), 45–56.

[5] LaFond, S., & Tsvetkova, A. (2021). Designing small-cluster co-living arrangements: Spatial efficiency and social outcomes. Facta Universitatis: Architecture and Civil Engineering, 19(3), 231–243.

access — around centrally located kitchens, lounges, and bathrooms.[6] This latter approach is especially suited to adaptive reuse projects, as it addresses the challenges of deep office floorplates and centralized service zones that complicate conventional apartment layouts.

In addition to spatial design, co-living is defined by its organizational characteristics. Most projects are developed and operated as for-profit housing products, marketed through all-inclusive leases that bundle furnishings, utilities, and services. Operators frequently emphasize community through curated programming and standardized house rules, reinforcing a top-down governance model. While this structure provides professional management and consistency across properties, it also differentiates co-living from resident-led collective housing, raising questions about inclusivity, tenure security, and the commercialization of social life.[7]

From an environmental and economic perspective, co-living demonstrates measurable advantages over conventional apartments. By minimizing the number of kitchens, bathrooms, and partition walls, co-living reduces material intensity and improves space efficiency per capita. These reductions translate into diminished embodied carbon per resident, aligning the model with broader sustainability goals.[8] Such efficiencies also enhance project feasibility in contexts where affordability requirements or structural limitations make traditional apartment layouts impractical.

Finally, the design logic of co-living offers advantages for office-to-multifamily conversions. Shared service cores can be aligned with existing building infrastructure, while perimeter bedrooms take advantage of daylight and natural ventilation. For cities contending with office vacancies and housing shortages, co-living represents a feasible and replicable model that responds simultaneously to spatial constraints, economic pressures, and policy imperatives.

ECONOMIC ARGUMENTS FOR CO-LIVING CONVERSIONS

Economists classify consumer goods or services that are in greater demand when incomes rise as "normal goods" while "inferior goods" are those where demand declines as incomes rise. For example, housing is usually viewed as a normal good while public transportation is viewed as an inferior good. An original intent of place-based subsidized housing when first conceived in the 1930s was to increase housing consumption of low-income households above some minimum standards. In these regards, federal housing policy has been remarkably successful through increasing median levels of housing consumption for lower-income households.[9] In recent years, development costs of subsidized placed-based housing have risen beyond that of market-rate unsubsidized households.[10]

[6] Costello, L., Revington, N., & Watkins, C. (2023). New urban tenancy forms: Co-living, affordability, and regulation. Environment and Planning A: Economy and Space, 55(2), 365–384.

[7] Harris, J. (2022). Financialized community: Governance and everyday life in co-living developments. Urban Studies, 59(12), 2498–2514.

[8] Barker, J., Stevenson, F., & Rink, D. (2023). Housing efficiency and carbon reduction in collective living. Buildings & Cities, 4(1), 152–174.

[9] Schwartz, Alex F. Housing policy in the United States. Routledge, 2021.

[10] https://www.gao.gov/products/gao-24-107064

Furthermore, there are fewer housing subsidies than income-eligible households, so a significant share of the lowest-income population remains unhoused or homeless.[11]

It is unclear whether these higher-than-market costs of subsidized housing development reflect actual increases in quality, or a lack of efficiency in production while holding quality constant. It is important to point out that there are economic social benefits for some subsidized housing to be relatively more expensive per unit than unsubsidized units. For example, the private market by itself may under-supply units accessible by disabled persons or large apartments with additional bedrooms for families. Earlier research has also suggested new subsidized units that differ in features from privately supplied units are more likely to be net additions to the occupied stock.[12] Figure 1 illustrates the bedroom share of subsidized units by the LIHTC program nationally from 2001-2024. Despite justification for larger units, almost three-quarters of units subsidized through the program (72%) were one or two bedrooms, with only 22% having three or more bedrooms.

Figure 1 also indicates that less than 6% of LIHTC units were studio or efficiency. Although such units differ by having their own private kitchens and restrooms, they are similar in having a lower cost per unit and best suited for single-person households most at-risk for being unhoused. There are at least two benefits of lowering average quality and costs of subsidized housing through increasing supply of co-living units. First, decreasing costs would increase the number of units able to be subsidized, given the supply of subsidy is often fixed. Second, lowering costs may result in subsidized housing being viewed as an inferior consumer good such that demand by recipients would decrease as income rises. This idea of providing in-kind inferior goods has been shown in other settings to improve targeting of subsidies to the neediest households.[13]

III. CO-LIVING IN THE U.S.: EVOLUTION, SUPPLY AND THE ROLE OF CONVERSIONS

Co-living has long roots in U.S. housing history but emerged as a commercialized, institutionally managed model in the 2010s. Early operators such as Common, Ollie, and Quarters piloted large-scale co-living projects in New York, San Francisco, and Washington, D.C.[14] These projects distinguished themselves from conventional multifamily housing by reducing the duplication of unit components and centralizing space-intensive functions.

The first highly visible precedent for institutionalized co-living was the 92nd Street Y residence in New York City, built in 1930. The residence offered a socially programmed environment with small private units integrated into a broader amenity and community framework. This example predates the more recent commercial wave but demonstrates how co-living can succeed when paired with a

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[11] https://endhomelessness.org/state-of-homelessness/

[12] Eriksen, Michael D., and Stuart S. Rosenthal. "Crowd out effects of place-based subsidized rental housing: New evidence from the LIHTC program." Journal of Public Economics 94, no. 11-12 (2010): 953-966.

[13] Jacoby, Hanan G. "Self-Selection and the Redistributive Impact of In-Kind Transfers: An Econometric Analysis." The Journal of Human Resources 32, no. 2 (1997): 233–49. https://doi.org/10.2307/146214.

[14] All reports are available to be downloaded at: https://www.gensler.com/blog/pew-study-flexible-office-to-co-living-conversions

robust institutional sponsor and a market characterized by high housing costs and steady inflows of young adults.

By the mid-2010s, operators began experimenting with adaptive reuse to deliver co-living supply. Office and hotel conversions offered opportunities to deliver a large number of single-occupancy bedrooms at relatively lower acquisition cost, though floorplate depth, plumbing configuration, and daylighting constraints posed design challenges.[15]

Supply estimates remain relatively modest in the national context. Industry surveys in 2023-2024 indicated occupancy rates for institutional co-living operators were between 85 and 92 percent, suggesting resilient demand in coastal metros with the highest rent burdens.[16] While conversions account for a smaller share of total delivery than ground-up projects, they are increasingly attractive in markets where high office vacancy coincides with limited housing availability.

The U.S. co-living market remains niche but has demonstrated traction in urban areas with high barriers to conventional affordability. Literature highlights three conditions where co-living tends to thrive: (1) strong inward migration of young professionals, (2) persistent housing cost pressure, and (3) regulatory openness to alternative typologies.[17] In these contexts, conversions provide a means of rapid supply delivery, though they remain heavily dependent on both incentive structures and operator specialization.

IV. PHYSICAL FEASIBILITY AN UNLEVERED RETURNS

Gensler, in partnership with Pew Charitable Trusts, created an office-to-residential conversion prototype (hereafter referred to as GP) emphasizing individual private bedrooms alongside shared amenities common with co-living. The important innovation of this prototype was to retain as much of the existing floorplate and infrastructure as possible to reduce costs and preserve affordability. Once established, the prototype was initially applied to actual office buildings available to be purchased in four cities (Denver, Seattle, Minneapolis, and Los Angeles), which was later expanded to include buildings in Chicago, Houston, and Washington, D.C. for a total of seven cities.[18]

These seven buildings were selected based on Gensler's earlier analysis of 1,300 potential office-to-residential conversions in North America.[19] That earlier study found that existing office buildings with large floor plates, minimal natural light, and inoperable windows were poor candidates for traditional multifamily conversions due to necessary costs to comply with building and occupancy codes in most cities. By contrast, Gensler determined that office buildings with large floorplates were ideal for co-living conversions due to having sufficient room for shared kitchens, bathrooms, and other living

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[15] https://www.gensler.com/blog/what-we-learned-assessing-office-to-residential-conversions

[16] https://www.multifamilyrefinance.com/glossary/building-efficiency-ratio-in-real-estate

[17] Area Median Incomes (AMI) are adjusted for household size and the 1-person AMI for Denver County was determined to be $91,300 in 2024 for purposes of multifamily tax subsidy programs.

[18] https://www.gensler.com/blog/pew-study-flexible-office-to-co-living-conversions

[19] https://multifamily.fanniemae.com/media/39501/display#:~:text=Minimum%20DSCR.%201.15x%20for%20Mortgage%20Loans%20secured,than%2090%25%20of%20units%20meeting%20affordability%20requirements.

spaces. The individual reports created by Gensler provide the specific buildings selected; in general the buildings had access to employment centers, lights on at least three sides, and a middle core with sufficient depth for shared amenities.

Table 1 provides a summary of the GP conversions in each of the seven cities. The selected buildings' gross square footage ranged from 178,752 square feet (sf) in Chicago to 529,752 sf in Houston. Each of those buildings were also quite dense and ranged from as few as 12 stories in Chicago and Washington, D.C. to as many as 30 stories in Denver. The acquisition costs per gross sf were determined by recent transactions of low occupancy office buildings in each of the respective markets. Those costs ranged from $30 per sf in Chicago, Houston, and Minneapolis to $100 per sf in Washington, D.C. and Los Angeles.

The GP prototype positioned individual bedrooms around the perimeter of each floor plate with a single shared kitchen and restroom facilities in the middle, near existing plumbing and other services on each floor. The middle space between the individual rooms and shared facilities was designated as a common living area. A building's efficiency is the ratio of rentable to gross square footage and typically ranges from 70% to 90% for ground-up multifamily development.[20] The resulting efficiency of rentable space within the seven GP buildings ranged from 48% in Houston to 70% in Denver. This difference reflects common hallways, lobbies, and other shared living areas with only private bedroom space being leased exclusively to tenants. Average unit sizes were largely consistent across six of the cities and ranged from 208 sf in Seattle to 289 sf in Chicago. The building in Washington, D.C. was the outlier, with an average unit size of 339 sf given its unique floor plate as compared to the other buildings selected.

Including acquisition costs but not construction interest accrued during development, the total project costs ranged from $123,263 per unit in Denver to $238,668 in Washington, D.C. In comparison, GP estimated the average development costs of studio apartments ranged from $300,000 per unit in Houston to $500,000 per unit in Los Angeles. These calculations suggest that co-living conversions could reduce the total project cost per unit by 40 to 69%. Later in the analysis we calculate approximately how many additional co-living conversion units could be subsidized annually holding LIHTC subsidy dollars constant.

UNLEVERED RETURNS

After establishing a set of conditions where co-living conversions were physically feasible, GP concluded each of their reports indicating the potential property-specific internal rate of return (IRR). That is, the unlevered rate of return on equity (i.e., without the use of any debt capital to finance the development). That analysis followed conventional real estate valuation practices consisting of the estimation of potential and effective gross income, occupancy, operating expenses, and capital expenditures to arrive at a property's annual net operating income (NOI) over a 10-year holding

[20] https://www.multifamilyrefinance.com/glossary/building-efficiency-ratio-in-real-estate

period. Net Operating Income is best thought of as a property's dividend and the common unit used to base valuation and investment decisions. Some underwriting assumptions (e.g., occupancy rates and rental growth) were assumed by Gensler to be common across cities while others were allowed to vary across cities given local market conditions (e.g., initial rents).

Although there is some guidance offered by observed rents of studio apartments, potential market rents using the GP prototype in each of the cities in largely unknown given such a high degree of shared amenities. Accordingly, Gensler set target rents as an approximate percentage of area median income (AMI) in each of the cities, although that exact percentage varied across buildings and the share of single- and double-occupancy. For example, the prototype applied for the building in Denver resulted in 44 units per floor but 48 beds, as four of the units were double occupancy. The average weighted rents Gensler assumed per person were $815 per month, which translates to a housing contribution of someone earning 36% of the AMI in Denver County in 2024.[21] Average weighted rents per person as a percentage of AMI varied from a low of 31% in Minneapolis to a high of 53% in Houston.

It is important to recognize these targeted rents are significantly lower than the maximum rent reimbursable by landlords of Housing Choice Voucher recipients, which HUD calls the Fair Market Rent (FMR). The FMR is determined annually by HUD and is set equal to their estimate of the 40th percentile of asking rents within each metropolitan area adjusted for bedroom size. Although local public housing authorities are allowed some discretion in setting the voucher payment standard for individual units, the FMR for co-living spaces with shared plumbing is traditionally set equal to 75% of the published FMR of studio apartments with their own private kitchens and bathrooms. As a percentage of studio apartments' FMR, targeted rents ranged from a low of 43% in Seattle to 99% in Houston. Targeted rents were initially targeted so low to both preserve affordability and to help minimize the absorption period when units are initially leased to tenants.

Table 2 indicates additional underwriting assumptions with regard to post-development revenue and costs to estimate returns. Those assumptions match what is listed in each report on Gensler's website with one main exception.[22] That exception is that Gensler previously assumed operating expenses between 37-to-47% higher for co-living properties than estimates of local multifamily developments. Section VII of this report provides more detail on why operating expenses of co-living conversions should be higher than traditional multifamily — but exactly how much higher is unclear given the unproven GP prototype. To aid in initial comparison across cities, we instead assume most operating expenses (administrative, utilities, maintenance, and insurance) were a uniform 40% higher than the traditional multifamily average, according to Costar on a per square foot basis, with property taxes set equal to that average given low targeted rents. Those initial operating expenses range from $7.97 per square foot in Houston to $14.08 per square foot in Washington, D.C.

The bottom row of Table 2 indicates our estimate of the unlevered internal rate of return of each of the seven buildings using previously specified Gensler underwriting assumptions with uniform operating expenses. Those unlevered returns range from 7.9% in Denver to -1.9% in Washington, D.C. The next section explores in more detail the sensitivity of levered returns to those underwriting assumptions, but 90% occupancy rate is a conservative target once initially leased given the assumed below market nature of rents. Other important assumptions to note include $400 of annual capital reserves starting in year two, 60% occupancy rate during first year due to tenant absorption, and 3% escalations in rent, operating expenses, and capital reserves. Also, non-residential net income ranging from $383,778 in Denver to $1,090,152 in Washington, D.C., and selling proceeds in year 10 based on an uniform terminal capitalization (i.e., going-out cap) rate of 5.75% across all markets were assumed.

V. FINANCIAL FEASIBILITY AND LEVERED RETURNS TO EQUITY

Co-living conversions must attract private sources of capital to be effectively scaled. Those private sources of capital will require some minimum threshold of returns given relevant opportunity costs and exposure to related risks through investing. This section explores those projected returns to equity given availability of market-rate debt financing required by senior lenders.

In practice, redevelopments are traditionally financed with 2-3 years of short-term debt during the acquisition, construction, and initial lease-up phases, with longer-term senior debt financing only offered by lenders after a property's income is sufficiently stabilized. Once the property's income is sufficiently stabilized, lenders then size longer-term senior debt according to the property meeting minimum underwriting guidelines established by their own investors or regulators. The most common underwriting requirements by senior debt lenders are that a property's stabilized NOI must exceed annual loan payments by a specific percentage (i.e., Debt-Service Coverage Ratio (DSCR)) and the principal of the loan must not exceed a specific percentage of the appraised value of the property (i.e., Loan-to-Value (LTV)). In rare instances, lenders may use maximum loan-to-cost (LTC) ratios for difficult to appraise properties.

While interest rates of senior debt have varied significantly over the last decade, minimum underwriting standards of affordable housing have been more constant. Those minimum underwriting were an LTV less than or equal to 65% and a DSCR greater than or equal to 115%.[23] Although senior loans with interest-only payments were available from some lenders, the lowest rates (6%) were offered with payments set to amortize over at most 35 years at the time of this writing.

The development costs estimated by Gensler to calculate unlevered returns included an additional 7.83% for construction interest accrued during the 18-month conversion with the underlying assumption that the loan would be immediately paid off during the first day the property was

[23] https://multifamily.fanniemae.com/media/39501/display#:~:text=Minimum%20DSCR.%201.15x%20for%20Mortgage%20Loans%20secured,than%2090%25%20of%20units%20meeting%20affordability%20requirements.

available to be occupied. While useful when calculating unlevered returns, this assumption is unrealistic when calculating levered returns, as these construction "bridge loans" are usually repaid 12 months after first availability by senior loan debt when a sufficient percentage of units are leased and incomes demonstrated. However, for comparability, we follow Gensler's prior assumption by assuming the senior loan originated on the first day of availability at a fixed rate of 6% subject to the above minimum underwriting standards. Consistent with this assumption, we also assume that lenders size senior loan debt offered based on LTC (excluding accrued construction interest) being less than or equal to 65% and DSCR being greater than or equal to 115% based on anticipated year 2 stabilized NOI.

Table 3 indicates the maximum mortgage loan amounts and resulting levered returns for each building. Apart from Denver, DSCR was the binding loan sizing constraint using year 2 NOI after the building was assumed 90% occupied. In the six cities where DSCR was binding, resulting mortgage loan to cost ranged from 36% in Washington, D.C. to 60% in Seattle. Negative leverage occurs from debt when its effective borrowing cost exceeds property-specific returns and results in more negative returns. Negative leverage is estimated to occur for the six cities where DSCR is binding, as the unlevered returns in those markets were less than the 6% cost of mortgage capital debt. Levered returns in those six markets without any additional subsidy range from 2.3% in Seattle to -7.0% in Washington, D.C. Projected returns for the building in Denver increased from 7.9% to 10.0% given positive leverage.

Although the social benefits of proposed buildings might be substantial and exceed private costs, levered returns to equity with even the most generous debt underwriting terms indicate at least six of the seven proposed buildings are not financially feasible without at least some additional public subsidy.

VI. ENHANCEMENT OF FINANCIAL FEASIBILITY WITH SUBSIDIES

The remainder of the report is dedicated to exploring ways to enhance the financial feasibility of proposed co-living conversions. Although exact required returns to equity by private investors are unknown, that return must at least exceed the interest rate of mortgage debt of 6% given additional risks and uncertainties associated with ownership. This section is devoted to loan sizing and analyzing how common subsidies to attract multifamily development affect projected returns of each of the proposed co-living conversions.

The middle of Table 3 indicates the required total upfront and per unit subsidy required for the buildings in each of the cities for equity investors to earn a 6% going-in return. The largest total subsidy required was in Minneapolis at over $81.7m, and the smallest, with no additional subsidy needed, was in Denver as the levered return (10.0%) already exceeded that targeted return. However, these amounts are difficult to compare given significant differences in the number of newly developed units. Table 3 therefore also provides the necessary subsidy for each city on a per unit

basis. Those per unit subsidies in the six cities requiring subsidization ranged from $25,335 in Seattle to $125,314 in Washington, D.C.

These required subsidy amounts are well below prior estimated subsidies on a per-unit basis associated with the LIHTC program and other place-based subsidized housing programs. Developers of LIHTC projects can receive subsidies up to 91% of non-land development costs in exchange for providing income- and rent-restricted units for at least 30 years.[24] There is nothing preventing developers of the proposed co-living conversions seeking LIHTC subsidies from their respective allocating agencies as the proposed rents are well below LIHTC maximums in each city. However, applying for LIHTC subsidies would result in significant application delays with added uncertainty and costs eroding its value. For example, managers operating LIHTC subsidized units are required to not only find a sufficient number of tenants meeting agreed upon eligibility standards slowing absorption, but must also validate and document tenant incomes on an annual basis. The most generous LIHTC subsidy each state housing agency can allocate to developers is fixed annually based on that state's population and is usually over-subscribed by interested developers applying to receive a subsidy. This means that subsidizing the proposed co-living units with fixed LIHTC funds would not only crowd out housing elsewhere in the state but would also limit the ability to scale co-living conversions beyond what the subsidy itself allows. The rest of this section focuses on subsidies other than LIHTC to subsidize the proposed co-living conversions and are discussed further in the conclusion.

TAX INCREMENT FINANCING

Each of the proposed buildings convert under-utilized and potentially distressed real estate that previously paid little to no property taxes into more productive uses paying additional property taxes. The premise of Tax Increment Financing (TIF) is to capture that increase in future property tax revenue to help subsidize some of the upfront development expenses. The first TIF was issued in California in 1952 to fund urban redevelopment and has since spread to similar programs in almost all 50 states to fund public improvements, infrastructure, and housing.[25] Traditionally, TIF Districts were designated by state governments with increased property tax revenue captured from both existing and new developments because of improvements. Increasingly, Project TIFs are created to allow individual projects to use a portion of their own future property taxes to finance development. This sub-section is dedicated to the potential of Project TIFs to help finance co-living conversions, but the use of District TIFs to finance any remaining subsidy gaps is discussed in the conclusions of this report.

Three important assumptions must be recognized when using Project TIFs to self-finance redevelopment. First, the project must actually pay property taxes. In some states, non-profit housing

[22] https://finance-commerce.com/2025/07/philadelphia-affordable-housing-municipal-bonds/#:~:text=Philadelphia%20Mayor%20Cherelle%20Parker's%20Housing%20Opportunities%20Made,housing%20bonds%20over%20the%20next%20three%20years.

[23] https://go.lincolninst.edu/50-state-property-tax-comparison-for-2023.pdfCherelle%20Parker's%20Housing%20Opportunities%20Made,housing%20bonds%20over%20the%20next%20three%20years.

organizations that manage affordable housing are exempt from paying local property taxes and would thus be unable to create a Project TIF. Second, developments receiving property tax abatements that cap property taxes at pre-improved rates are also ineligible, as the increase in property taxes paid to the local government is what funds the TIFs. Last, the project must be located in a municipality willing and able by the state to create a Project TIF. Project TIFs are most often created by local governments issuing a municipal bond to fund the upfront payment to developers. However, local governments are often constrained by their state government in how much municipal debt they can issue using their own balance sheet. For example, the state constitution of Pennsylvania limits municipal debt issued by local governments to 13.5% of the value of its assessed taxable real estate.[26]

Significant variation also exists across municipalities in terms of how much of the difference in future property taxes can be rebated upfront. For purposes of this analysis, it is assumed that developers are able to receive the difference in the present values of 30 years of property taxes according to pre- and post-improved assessed values. Assessed values were determined based on stabilized NOI in year 2 divided by the previously specified terminal capitalization of 5.75% when the property is sold at the end of 10 years. This assumption means that the assessed value reflects the actual economic value of income generated as compared to potential with full market-rate rents or project costs.

Table 4 illustrates each building's ability to generate upfront financing from a Project TIF. That table also includes stabilized assessed value and local effective property tax rates of residential property estimated by the Lincoln Institute of Land Policy.[27] The dollar potential of Project TIFs increases with those local property tax rates, which vary from 1.67% in Chicago to 0.54% in Denver. Cities were assumed to issue 10-year municipal bonds at 4% to borrow against those future tax obligations.

Levered returns in the six cities requiring subsidization to achieve targeted 6% return become more marginally positive with a Project TIF, although only the building in Seattle approached the targeted returns with a Project TIF alone. On a per unit basis, awarding a Project TIFs would generate highs of $32,693 in Chicago and $21,125 in Los Angeles. Levered returns in D.C. and Los Angeles remained negative at -6.6% and -3.0%, respectively.

MEZZANINE LOANS

It is not unusual for a gap to exist between a developer's access to owned equity and that required for a project to proceed. Given a project generates a sufficient return, a developer may attempt to seek additional debt collateralized by the property (i.e., a 2nd mortgage loan) but is often prevented by the senior mortgage debt lender worried about their own proceeds by a foreclosure triggered by that subordinate lender. While the developer could alternatively seek additional equity partners, doing so would dilute their own ownership interest and control of the asset. The premise of mezzanine

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[26] https://finance-commerce.com/2025/07/philadelphia-affordable-housing-municipal-bonds/#:~:text=Philadelphia%20Mayor%20Cherelle%20Parker's%20Housing%20Opportunities%20Made,housing%20bonds%20over%20the%20next%20three%20years.

[27] https://go.lincolninst.edu/50-state-property-tax-comparison-for-2023.pdfCherelle%20Parker's%20Housing%20Opportunities%20Made,housing%20bonds%20over%20the%20next%20three%20years.

debt is to provide a loan to fund that gap that is secured by the pledge of equity of the developer instead of the real property. This means that the mezzanine debt lender can take over remaining controlling ownership much faster than traditional foreclosure should the developer default on those payments, but the mezzanine debt lender is not able to trigger a foreclosure of the entire property as a subordinate mortgage loan lender would be entitled. Although the interest rate of privately issued mezzanine loans is higher than senior mortgage debt reflecting those additional risks, it may still be attractive to developers wishing to proceed with projects with an otherwise high opportunity cost of additional equity.

The provision of mezzanine loans has become an increasingly common method for state and local governments to subsidize affordable housing projects. Although the exact terms vary significantly across governments, the basic idea is to provide financing at below-market rates that does not harm the senior debt lender affecting the sizing and rates of those offered loans. Those terms are typically sufficiently generous to require no interest or payments until the project generates "surplus cash" or proceeds from a sale. Mezzanine debt with such flexible repayment plans is often preferred over direct grants by developers to avoid potential tax consequences of gifts. Local governments issuing mezzanine loans to housing developers usually finance such revolving loan funds in one of three ways. First, they may use locally generated sources such as income generated by housing trusts or redevelopment authorities. Second, they may redirect federal subsidies from the HOME Investment partnership or Community Block Developments Grant (CBDG) programs, although this may trigger additional costs and tenant requirements as described in more detail below. Third, the community can issue municipal bonds and implicitly arbitrage the income tax-free they can borrow as compared to the developers absorbing remaining risks as an implicit subsidy.[28]

There is no industry standard when sizing mezzanine loans.[29] It is often still based on a maximum percentage of appraised value and the fact that senior mortgage debt lenders will still require some cushion between the combined payments and the ability of the property to generate NOI. For purposes of this analysis, we assume the maximum mezzanine loan is determined by a LTC less than 30%, combined LTC less than 90%, and a combined DSCR of at least 105%. The latter requirement means that there must be a 5% cushion between the combined payments on the senior mortgage and mezzanine loans with annually generated NOI. Alternatively stated, there needs to be at least $1.05 in NOI to support every $1 of debt service (i.e., loan payments).

Figure 2 illustrates the effect of receiving mezzanine debt with Project TIF subsidies on levered returns to equity for conversions in each of the cities excluding Denver. The first column illustrates levered returns with no mezzanine loans whereas the second column illustrates levered returns with mezzanine loans with no interest accruing or payments until the original principal is repaid when the

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[28] Municipal bonds to finance mezzanine debt to produce additional affordable housing are called "social impact bonds."

[29] See the following website for examples underwriting loan guidelines of mezzanine loans: https://www.multifamily.loans/freddie-mac-workforce-housing-mezzanine-loans/

property is sold at year 10.[30] These 0% interest loans increase levered returns to above 5% in Chicago (5.8%) and Houston (5.0%) and well above the 6% targeted return in Seattle (12.9%). It is important to note that negative leverage can still occur even for loans at 0% with no payments for the conversions in the two cities (Washington, D.C. and Los Angeles) with projected negative returns even with a Project TIF subsidy.

Columns 3 and 4 of Figure 2 instead illustrate levered returns when some interest-only payments are required at still below market rates of 2% and 4%. These now required payments result in less than the maximum amount of mezzanine loan to be issued with the required 105% combined DSCR binding in all five cities. While mezzanine loans at such rates are still beneficial in reducing the actual dollars of equity or other types of subsidies required to be raised, they are insufficient by themselves in making projects financially feasible without at least some additional subsidy.

ADDITIONAL SUBSIDIES REQUIRED

Figure 3 illustrates the calculated capital stack required for each of the co-living conversions to earn a levered return to equity of 6% with a mezzanine loan offered with interest-only payments of 2%. The top panel represents the capital stack in dollars on a per unit basis whereas the bottom panel represents the proportionate share of the capital stack. The bottom blue bar represents senior debt. The yellow bar represents funds raised from a Project TIF and the orange bar represents capital raised from a mezzanine loan offered at a 2% interest rate given above underwriting guidelines. The top grey bar represents the additional subsidy needed such that the developer equity represented by the light-blue bar earns a 6% levered return to equity.

That additional subsidy required ranges from $0 in Denver and Seattle, to a high of $105,829 additional subsidy needed per unit in Washington, D.C. to achieve the targeted return to equity. In percentage terms, the additional subsidy in Washington, D.C. represents 41% of the total development costs, 25% in Los Angeles, but only 11% in Minneapolis, and 6% in Chicago.

LIHTC PROGRAM

The LIHTC is the nation's largest place-based subsidized housing program. The LIHTC provides a 10-year annuity of tax credits equal to a fixed percentage of non-land development costs to developers in exchange for imposing tenant income and rent restrictions for at least 30 years. There are two variants of the LIHTC program that developers could apply to their state-designated agency to receive. The most generous is equal to 9% of non-land development costs annually, but the annual amount of subsidy each state can allocate is capped by population and requires developers to

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[30] Lending mezzanine debt with interest-only payments at a 0% interest rate would not add to DSCR so only the LTC constraint would be binding.

"bid" further rent concessions in order to receive an allocation in some states. The second variant awards an annual subsidy equal to 4% of non-land development costs but does not require further concessions and allows more flexibility in how to finance the project, including the use of municipal bonds.

Maximum LIHTC tenant incomes are set equal to 60% AMI with rents at 18% AMI adjusted for bedroom size, which are above proposed co-living conversion rents, and thus developers eligible to apply receive subsidization through the program. The income tax credits awarded through the LIHTC program are non-refundable, which means that developers must have sufficient tax liability in order to claim. It is impossible for LIHTC projects to generate a sufficient taxable income themselves due to imposed rent restrictions and other tax deductions entitled to all owners of multifamily properties, so virtually all LIHTC developers sell 99.9% of the equity of their completed projects to outside investors with a sufficient tax liability to claim the full value of the subsidy. Given the tax credits are paid over 10 years and entail other investment risks, those outside investors are currently paying $0.85 per $1 of tax credit. Table 6 illustrates these maximum dollars of equity raised through either the 4% or 9% LIHTC program variants. Those indicated amounts mean that the non-competitive LIHTC variant that awards an annual annuity equal to 4% of non-land development costs would be more than sufficient to cover the remaining subsidy gap in four of the five remaining cities including Project TIF and a mezzanine loan offered at 2%, with the 9% variant necessary to cover the remaining gap for the proposed Washington, D.C. conversion.

The bottom of Table 3 calculates how many additional co-living conversions units would be possible to subsidize through the LIHTC program relative to regular studio apartments not including Project TIFs and mezzanine loan financing. Gensler previously estimated that the total development costs per studio apartment in each of those five cities was between $300,000 to $500,000. This translates to an average LIHTC subsidy between $168,914 (Houston) and $281,523 (Los Angeles) per unit assuming 15% of those estimated developments costs were land and a discount rate of 6%. Not including potential Project TIF and mezzanine loan subsidies, this would translate to a low of 2.8 co-living conversion units in Washington, D.C. per traditional LIHTC subsidized studio apartment, to a high of 9.9 co-living conversion units in Seattle.

However, there are potential drawbacks of using LIHTC subsidies to finance co-living conversions. First, receiving LIHTC subsidies may significantly increase the upfront costs of development through additional legal fees establishing the partnership, or triggering Davis-Bacon prevailing wage requirements. These same requirements may also be triggered through use of federal funds to establish mezzanine loans and are similarly cautioned against. Second, receipt of LIHTC subsidies requires additional operating expenses to document incomes of tenants, which may be especially costly for co-living conversions given relatively high expected turnover rates. Finally, it can often take over a year in most states to receive even a non-competitive LIHTC allocation and lock-in floor configuration; this would erode one of co-living conversion's greatest features: being a timely and flexible solution to provide affordable housing.

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VII. RISK ANALYSIS AND MITIGATION

The above analysis illustrates that co-living conversions are at least close to being financially feasible under reasonable assumptions, although the risks and uncertainties through ownership still remain unclear. This section is devoted to better understanding those risks and identifying opportunities to mitigate them.

ABSORPTION RISK

The first main risk identified is the speed of lease-up and absorption, which is currently assumed to result in cash flows consistent with 60% occupancy during the development's first year of operation. This is more than 30 percentage points less than assumed stabilized occupancy after the first year and similar to assumptions made by traditional multifamily properties charging market rents. However, there are reasons to believe actual first-year occupancy of proposed co-living conversions could be different. Similar subsidized properties charging below market rents usually have excess demand and the already furnished units should result in shorter move-in times per tenant resulting in higher than usual first-year occupancy. Co-living conversions have a higher density of unique tenants than traditional multifamily, so the required logistics and the novelty of the product may create initial hesitation of some tenants, resulting in slower than usual absorption.

Figure 4 illustrates projected levered returns to equity using the capital stack displayed in Table 5 with assumed first-year occupancy rates specified to be from 40-70%, with occupancy remaining stabilized at 90% during the second year. Levered returns increase with the assumed first-year occupancy and ranged from 9.5-to-10.2% in Denver and from 4.8- to 6.6% in the other six cities. Levered returns in Seattle were less sensitive and ranged from 5.4-to-6.3%.

Three potential strategies are commonly used by real estate developers to at least partially mitigate absorption risk. First: be even more aggressive with initial rents by providing months of free rent or reimbursement of some moving expenses. Offering a one-time incentive would be more attractive than lowering rents, as the targeted population has only limited resources to pay for fixed moving expenses. The second strategy would be to increase operational expenses during and potentially before the first year of operations by providing incentives to employees who are successful in identifying tenants. The third strategy would be to consider a phased-occupancy approach that would allow tenants to move in over a longer period of time as successive floors of the building are converted. Quantifying this benefit would require additional information on timeline and development costs but potentially have significant value in allowing both completion speed and potential designs to adjust with actual performance.

OPERATIONAL RISK

The second main risk is operational. Operating expenses of traditional multifamily rental housing range typically from 35-to-45% of effective gross income including property taxes. The purposely low rents and unique congregate nature of co-living conversions with such a high degree of shared amenities may result in many additional challenges and expenditures than lower density arrangements as a share of gross income. For example, there could be faster than usual depreciation of shared items, or the property may require additional janitorial and security services when compared to traditional multifamily. There could also be cost savings relative to other types of multifamily housing through centralized mechanical units to maintain, or purposely lower rents resulting in a reduction in property taxes. Having sufficient resources to address concerns while maintaining a safe and desirable environment throughout the property's lifetime is viewed as crucial to the property's financial success.

As already discussed in Section V, most operating expenses for this analysis were assumed to be 40% higher than traditional multifamily on a per square foot of conditioned space in each local market with property taxes assumed equal to 100% of that standard. These rents ranged from $7.97 per conditional space in Houston to $14.08 in Washington, D.C. These amounts do not include an additional $400 in annual capital reserves per unit starting in year 2 with annual escalations of 3%, which is higher than the typical $250 standard for LIHTC properties. Figure 6 illustrates how variation in operating expenses impacts levered returns to equity. The x-axis in Figure 5 represents increasing operating expenses in 1% increments starting at 1% below the assumed baseline. Denver remains an outlier within the figure with the least amount of sensitivity — around 10% — with the greatest sensitivity in Washington, D.C. with a range of levered returns between 3.6-to-6.9%

A strategy to mitigate potential operational risks will be to have well-trained management staff that both carefully screens tenants upfront and quickly addresses concerns as they develop. It is important to recognize that providing commissions to some staff to speed up absorption may decrease incentives to effectively screen tenants, so those operations should be separated if possible.

VIII. SCENARIO ANALYSIS

This section is devoted to explaining how three potential changes in property and underwriting assumptions could result in altering the additional subsidy required while maintaining projected levered returns to equity of 6%. Each of these alterations to the model will be first considered in isolation using the baseline assumptions throughout the analysis with both a Project TIF and mezzanine loan offered at 2%.

MORTGAGE LOAN INTEREST RATE DECREASES TO 5.75%

The first scenario considered illustrates how decreasing the interest rate on the primary mortgage loan from 6% to 5.75% on the remaining required subsidy while holding other underwriting assumptions constant (i.e., maximum 65% LTC and minimum 115% DSCR). This change is in line with recent announcements made by the Federal Reserve and remains above interest rates charged by lenders over the last decade.

Table 6 compares how additional subsidy dollars are necessary to achieve a 6% levered return changes if interest rates decrease. That potential 25 basis decrease would result in less than 1% decrease in the subsidy share required, or approximately $1,500 less subsidy required per unit. While this decrease in rates is feasible over the next year, it is unlikely this change alone would result in a material change in the financial feasibility of a project itself.

FREE SITE ACQUISITION

The second scenario explored in Table 6 is how the additional subsidy required would change if the developer were alternatively provided the office building to be redeveloped for free. While there are scenarios where existing owners or lenders might be willing to voluntarily surrender buildings in exchange of removal of future liabilities, it is more likely the buildings selected by GP as well-suited for co-living conversion would require at least some subsidy. This practice of "free site acquisition" is common to make LIHTC developments financially feasible, while similar local and federal resources used to provide mezzanine loans (i.e., CBDG, existing TIF District or redevelopment funds, municipal bonds, or direct government outlays) can be also used to finance the acquisition and subsequent transfer of sites to developers. The main advantages of providing free site acquisition as compared to direct grants are tax efficiency, transparency when determining subsidy amount, and the ability to insert permanent deed restrictions ensuring long-term affordability.

This provision of free site acquisition was sufficient to require no further subsidies needed to achieve targeted return in two of the five cities requiring further subsidization (Chicago and Houston), and significantly reduce it in the others. That remaining subsidy gap was $45,952 per unit in Washington, D.C., $23,791 in Los Angeles, and $8,818 in Minneapolis.

TARGET RENTS TO 60% OF MEDIAN RENT

Baseline rents proposed by GP ranged from $683 in Minneapolis to $1,030 per month in Seattle. These rents were purposely targeted low to promote affordability and are between 44-to-65% the median rents of 0 bedroom or studio apartments with private kitchens and bathrooms according to HUD. Although a market discount should be expected given shared kitchens and bathroom, the exact rent required to attract a sufficient number of tenants and obtain occupancy targets is unknown.

The last scenario explored at the bottom of Table 6 is if rents were instead uniformly targeted to 60%

of the Median 0 bedroom rent across all cities. This revision would reduce proposed rents in Chicago and Minneapolis relative to the baseline, and increase them in the other five cities. Those monthly revised rents would range from $790 per month in Minneapolis to $1,420 per month in Seattle. Relative to the baseline at the top of Table 6, these revisions would increase the additional subsidy required in Chicago and Minneapolis while decreasing it in the others with no additional subsidy estimated to be required in Houston and Los Angeles.

Figure 6 illustrates how this additional subsidy required per unit varies with targeted rent as a percentage of median rent of studio housing units in each of the cities to obtain targeted 6% levered return to equity. This additional subsidy required decreases as rents increase, with no subsidy required in Denver or Seattle if rents were alternatively set equal to 45% of the median rent. No additional subsidies are first required in Houston if rents were alternatively targeted at 55% of the median and 60% in Chicago. Less than $10,000 per unit would be needed if 65% of the median in the remaining cities, with no subsidy required at 70%. Whether occupancy targets are achievable at these targeted rents remain unclear and should be the subject of further market research.

CONCLUSIONS

The purpose of this report is to examine the financial feasibility of converting office buildings into multifamily housing to address the dual challenges of vacant office buildings and a shortage of affordable housing opportunities. Specifically, the type of multifamily housing we examine is the co-living model with single (and some double) styled living units, but with shared kitchens, bathrooms, and other living areas. Our work is built on previous studies by the Brookings Institute, who studied office-to-residential conversions and more directly, Gensler and Pew (GP) for office-to-co-living conversions.

This report has demonstrated under what set of conditions the proposed GP co-living conversions can be financially feasible while identifying opportunities to further enhance equity returns. This was accomplished using that original GP study's baseline assumptions with only a slight modification to operating expenses with a targeted levered return to equity of 6%. That return was infeasible with only a senior mortgage loan given current underwriting standards. Therefore, the ability to monetize upfront future property tax increases as a result of the conversions through a Project TIF and issuing mezzanine loans to achieve that goal was investigated. Those subsidies were sufficient to achieve the targeted levered return of conversions in two of the proposed cities (Denver and Seattle), with subsidies offered through the LIHTC more than sufficient to cover the remaining gap. Use of the LIHTC subsidies is not without added costs, concessions, and delays, eroding potential benefits of the proposed co-living conversions.

The study next identified absorption and operational risks as important to quantify and mitigate to improve financial feasibility. The proposed GP prototype is largely unproven, so it may take additional time to locate tenants, resulting in slower than usual absorption patterns than traditional multifamily housing. It is also unclear whether the assumed 40% additional operating expenses compared to traditional multifamily are sufficient to cover added programming, security, janitorial, and included utilities with rent. Sensitivity analyses were conducted to quantify those risks on levered returns, but more work is needed to correctly identify potential ranges of those analyses. Suggestions to mitigate those risks were master leasing entire floors, pre-leasing, and screening tenants. Possibilities to

phase or open floors sequentially to allow modification of physical and operational plans as needed should also be explored.

The report concludes by investigating how three different scenarios alter financial feasibility. The first shows that lowering interest rates of mortgage loans by 25 basis points helps but is not alone sufficient to make projects financially feasible. The second scenario was to use local and federal funds to purchase and then provide existing office buildings for developers to convert into co-living housing without costs. This method of subsidization has benefits for both communities and developers, and when combined with Project TIFs and mezzanine loans, results in obtaining targeted levered returns in four of the seven cities and a less than $7,000 per unit subsidy gap remaining in a fifth city. The last scenario explored was altering the proposed rent originally by GP. That analysis showed that no further subsidies beyond Project TIFs and mezzanine loans would be required if occupancy targets could be achieved charging rents 30% lower than median rents of 0-bedroom units in each city.

The main questions remaining are who will develop these co-living conversions and whether the targeted 6% levered returns are sufficient given the included risks and uncertainties? The answer is most likely that 6% is currently insufficient until more is understood about the potential risks and uncertainties involved with long-term ownership. Similar hesitation to invest occurred after the LIHTC was first established in 1986 and has since matured to where some of the nation's largest and most well-capitalized companies participate. Establishing a similar co-living ownership community will take time but would be encouraged by a couple of well-documented pilots from others to learn. Similarly, opportunities for communities to not only subsidize but to also partner and share risks similar to the establishment of the Resolution Trust Corporation following the Savings and Loans Crisis in the 1980s would encourage developers to innovate. These ideas will take time to mature. There will likely be missteps along the way. However, the societal cost of not providing affordable housing is too high to ignore.

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Figure 1. Bedroom Share of LIHTC Subsidized Units Placed into Service from 2001-2024 (Source: US Department of Housing and Urban Development, 2025)
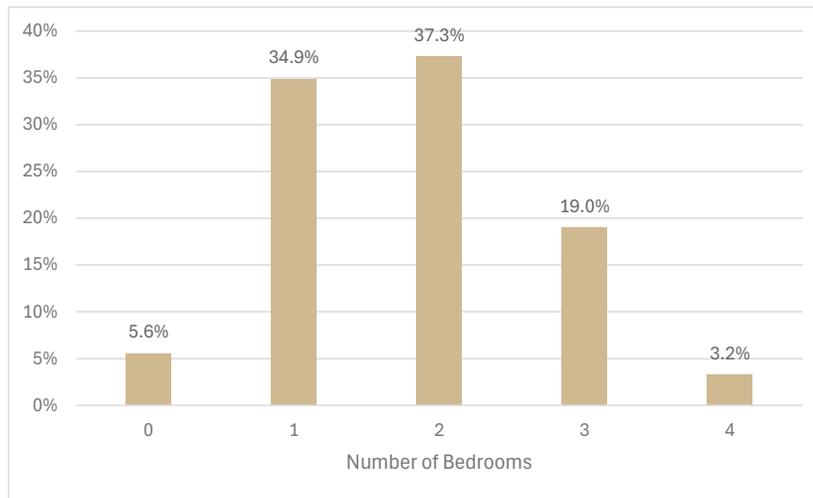
Figure 2. The Effect of Interest Rates on Mezzanine Loans on Levered Returns to Equity with Project TIF Subsidy
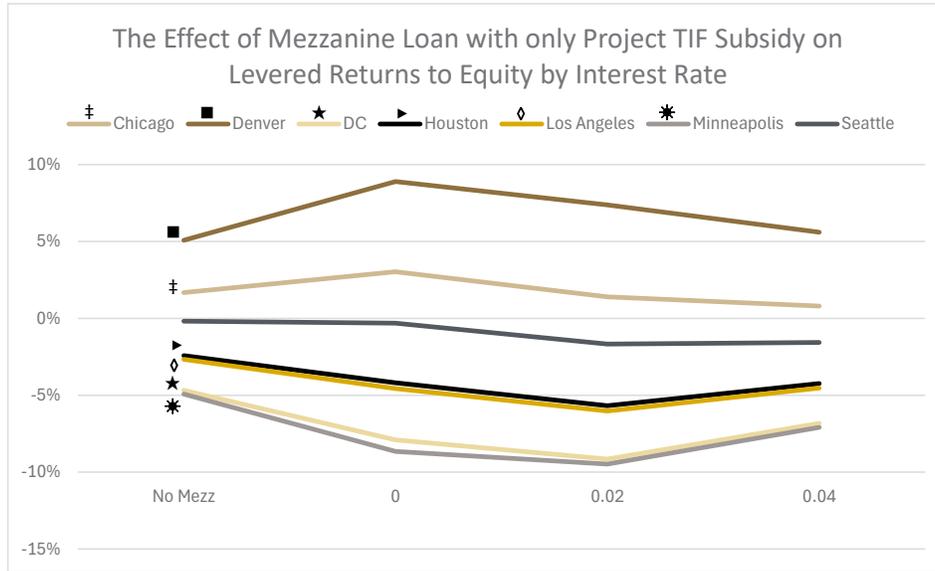
Figure 3. Capital Stack Required for 6% Levered Returns to Equity with Mezzanine Loan up to 30% Loan to Total Project Costs (Minus Construction Interest) at 0% Interest Rate

Panel A. Per Unit
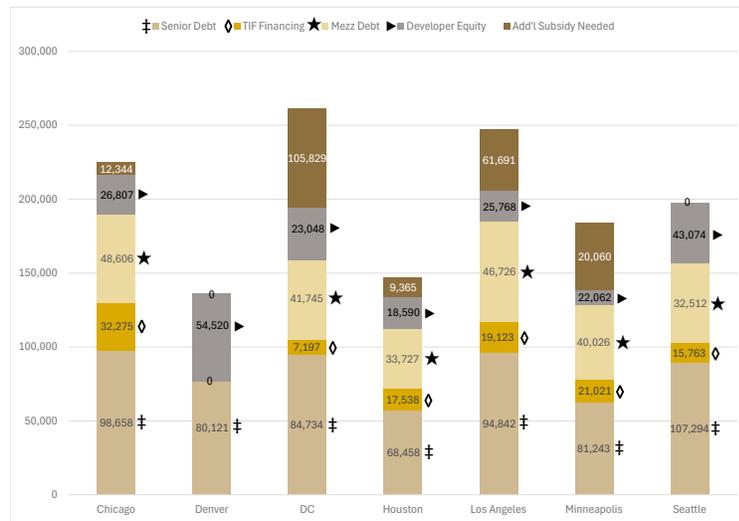
Panel B. Share of Total Development Cost
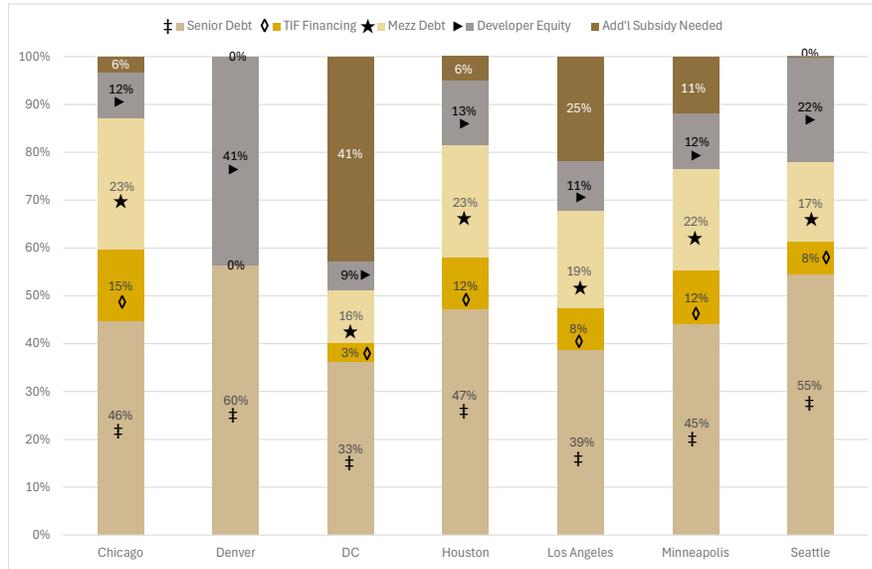
Figure 4. Sensitivity of Levered Returns to Alternative First Year Occupancy Assumptions Holding Capital Stack and Subsidies Constant
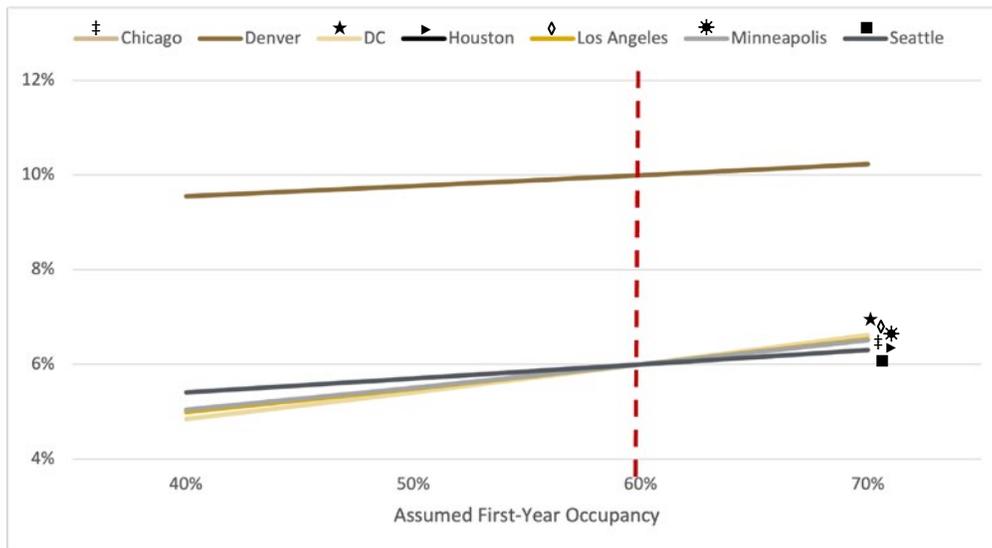
Figure 5. Sensitivity of Levered Returns to Alternative Operating Expense Assumptions Holding Capital Stack and Subsidies Constant

Figure 6. Additional Subsidy Needed to Achieve Targeted Return to Equity by Rents Charged as Percentage of Median Rent of Studio Units

Table 1. Projected Development Costs of the Gensler-Pew (GP) Prototype Co-Living Buildings

Table 1. Market specific building information and unlevered returns (with and without acquisition costs).

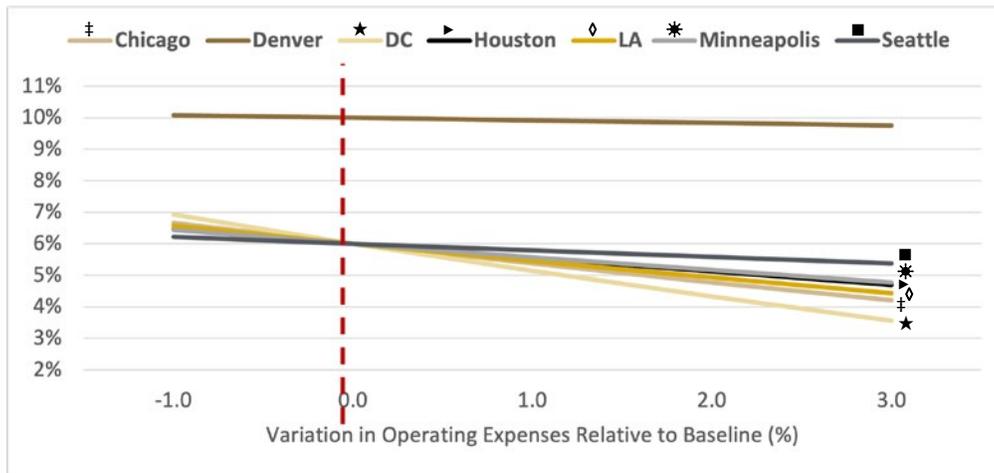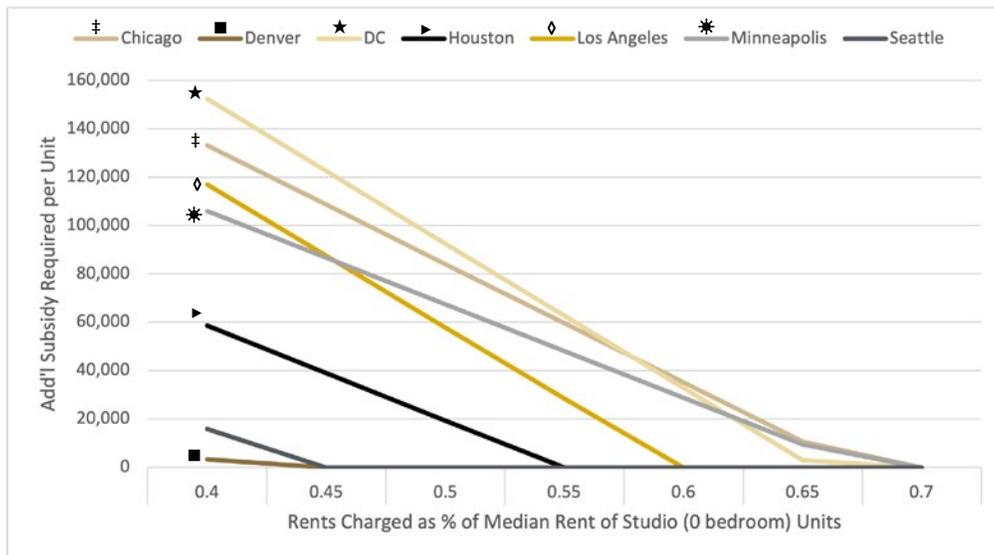|	Chicago	Denver	Washington, DC	Houston	Los Angeles	Minneapolis	Seattle
Gross Square Feet	178,752	418,201	317,340	529,752	327,460	476,658	210,680
Site Acquisition Cost	5,362,560	20,910,050	31,734,000	15,892,560	32,746,000	14,299,740	15,801,000
Acquisition Cost per GSF	30	50	100	30	100	30	75
Rentable Square Feet	101,810	293,636	179,510	254,885	220,554	266,814	124,047
Efficiency	57%	70%	57%	48%	67%	56%	59%
Total Units	360	1,232	530	1,140	864	1,080	597
Average Unit Size	283	238	339	224	255	247	208
Total Project Cost (without construction interest)	71,352,560	151,860,050	126,494,000	152,722,560	194,838,000	180,789,740	107,641,000
Total Project Cost per Gross SF	399	363	399	288	595	379	511
Total Project Cost per Unit	198,202	123,263	238,668	133,967	225,507	167,398	180,303
Development Cost Per Unsubsidized Studio Unit*	400,000	400,000	400,000	300,000	500,000	400,000	400,000
Dollar Reduction in Development Cost	201,798	276,737	161,332	166,033	274,493	232,602	219,697
Percent Reduction in Development Cost	50%	69%	40%	55%	55%	58%	55%

*Reported by Gensler in their own reports for each city.

Table 2. Revenue Assumptions and Unlevered, Property-Specific Returns of GP Buildings

Table 2. Underwriting Assumptions and Anticipated Property-Specific Returns by Gensler

	Chicago	Denver	Washington, DC	Houston	Los Angeles	Minneapolis	Seattle
AMI for 1-person Household	78,500	91,300	108,300	52,500	97,100	87,000	105,400
Average Monthly Rent Per Bed	893	815	979	700	1,000	683	959
Monthly Rent Per Unit	1,042	889	1,034	700	1,000	820	1,030
Monthly Rent as AMI Housing Contribution	45.5%	35.7%	36.1%	53.3%	41.2%	31.4%	36.4%
Fair Market Rent for Efficiency w/ Vouchers	1,399	1,658	1,772	708	1,777	1,174	2,211
Monthly Rent Per Bed as Pecentage of FMR	63.82%	49.13%	55.22%	98.87%	56.27%	58.21%	43.36%
Vacancy & Collection Losses	10%	10%	10%	10%	10%	10%	10%
Operating Expense Ratio	37.4%	34.4%	$41.4%	39.1%	33.7%	42.4%	34.9%
Annual Capital Reserves per Unit	400	400	400	400	400	400	400
First-Year Occupancy Due to Absorption	60.00%	60.00%	60.00%	60.00%	60.00%	60.00%	60.00%
Non-Residential Net Income (Year 2)	$651,990	$383,778	$1,337,764	$721,824	$1,090,152	$690,141	$558,827
Unlevered IRR to Equity	1.90%	4.70%	-0.60%	0.20%	0.20%	-1.40%	2.00%

Table 3. Levered Returns to Equity

Table 3. Levered Returns to Equity

	Chicago	Denver	Washington, DC	Houston	Los Angeles	Minneapolis	Seattle
Site Acquisition	$5,362,560	$20,910,050	$31,734,000	$15,892,560	$32,746,000	$14,299,740	$15,801,000
Development Costs	77,417,137	164,762,241	137,251,524	165,707,927	211,394,673	196,153,461	116,778,767
Loan Principal	35,094,045	94,496,037	50,151,128	64,950,315	82,953,812	67,229,576	53,370,680
Loan to Cost (LTC)	45%	57%	37%	39%	39%	34%	46%
Debt-Service Coverage	115%	115%	115%	115%	115%	115%	115%
Unlevered IRR	1.89%	4.74%	-0.62%	0.17%	0.21%	-1.37%	1.99%
Levered IRR w/o Subsidy	-1.70%	3.28%	-5.33%	-4.24%	-4.19%	-6.33%	-1.55%
Subsidy Needed for to 6% Levered IRR	21,898,485	15,461,933	57,947,668	63,140,134	80,076,111	90,232,152	32,384,876
Subsidy Needed Per Unit for 6% Levered IRR	60,829	12,550	109,335	55,386	92,681	83,548	54,246
Average LIHTC Subsidy Per Unit*	225,219	225,219	225,219	168,914	281,523	225,219	225,219
Percent Difference in Subsidy Required Per Unit	27.0%	5.6%	48.5%	32.8%	32.9%	37.1%	24.1%
Relative Increase in Affordable Units w/ Co-Living	3.7	17.9	2.1	3.0	3.0	2.7	4.2
Avg Monthly Housing Voucher Subsidy Per Unit	1,208	1,643	1,218	1,797	1,189	1,322	1,272
Average Housing Voucher Subsidy Per Unit**	217,440	295,740	219,240	323,460	214,020	237,960	228,960
Percent Difference in Subsidy Required Per Unit	28.0%	4.2%	49.9%	17.1%	43.3%	35.1%	23.7%
Relative Increase in Affordable Units w/ Co-Living	3.6	23.6	2.0	5.8	2.3	2.8	4.2

*The average LIHTC subsidy per unit is calculated as the present value of a 10-year annuity of 9% of LIHTC development cost in Table 2 discounted at 6%.

Table 4. Tax Increment Financing (TIF) Potential

	Chicago	Denver	Washington, DC	Houston	Los Angeles	Minneapolis	Seattle
Site Acquisition	5,362,560	20,910,050	31,734,000	15,892,560	32,746,000	14,299,740	15,801,000
Stabilized Assessed Value	48,411,435	130,355,126	69,182,336	89,597,477	114,432,891	92,741,666	73,623,635
Local Property Tax Rate	1.54%	0.54%	0.73%	1.26%	1.19%	1.23%	0.75%
Municipal Bond Rate (30y)	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%
TIF Funds Raised	11,769,499	10,637,626	5,584,703	16,800,052	18,251,608	17,335,052	7,937,712
TIF Funds Raised Per Unit	32,693	8,634	10,537	14,737	21,125	16,051	13,296
Levered IRR w/ Only TIF	1.67%	5.08%	-4.68%	-2.42%	-2.67%	-4.93%	-0.18%

Table 5. Capital Stack with Additional Subsidies Needed for 6% Levered Returns to Equity

	Chicago	Denver	Washington, DC	Houston	Los Angeles	Minneapolis	Seattle
Capital Stack - Total							
Total Dev Costs	77,417,137	164,762,241	137,251,524	165,707,927	211,394,673	196,153,461	116,778,767
Senior Debt	35,094,045	94,499,366	50,152,687	64,950,315	82,953,812	67,229,576	53,372,536
Mezz Debt	21,405,768	10,919,972	37,948,200	45,816,768	58,451,400	54,236,922	32,292,300
Project TIF	11,769,499	10,638,055	5,584,975	16,800,052	18,251,608	17,335,052	7,938,044
Add'l Subsidy Needed	674,934	0	35,602,228	26,107,053	36,011,810	48,945,844	10,183,474
Developer Equity	9,437,382	51,512,328	9,380,476	14,014,796	17,917,556	10,717,629	14,501,531
Capital Stack - Per Unit							
Total Dev Cost	215,048	133,736	258,965	145,358	244,670	181,624	195,609
Senior Debt	97,483	76,704	94,628	56,974	96,011	62,250	89,401
Mezz Debt	59,460	8,864	71,600	40,190	67,652	50,219	54,091
Project TIF	32,693	8,635	10,538	14,737	21,125	16,051	13,297
Add'l Subsidy Needed	1,875	0	67,174	22,901	41,680	45,320	17,058
Developer Equity	26,215	41,812	17,699	12,294	20,738	9,924	24,291

Table 6. Potential Equity Raised for Co-Living Conversions Through Low-Income Housing Tax Credit (LIHTC) Program

	Chicago	Denver	Washington, DC	Houston	Los Angeles	Minneapolis	Seattle
Panel A. 4% LIHTC Variant							
Tax Credits Allocated	73,332	42,512	71,517	48,011	75,043	61,663	61,534
Equity Raised	62,324	36,139	60,789	40,809	63,786	52,414	52,304
Panel B. 9% LIHTC Variant							
Tax Credits Allocated	164,975	95,662	160,913	108,024	168,846	138,742	138,452
Equity Raised	140,229	81,312	136,776	91,820	143,519	117,930	117,684

*LIHTC Developers assumed to receive $0.85 per $1 of Allocated Tax Credit from External Investors

Table 7. Additional Subsidy Needed to 6% Targeted Return to Equity by Rents Charged as Percentage of Median Rent of Studio Units

	Chicago	Denver	Washington, DC	Houston	Los Angeles	Minneapolis	Seattle
Baseline Assumptions							
Total Subsidy Needed	674,934	0	35,602,228	26,107,053	36,011,810	48,945,844	10,183,474
Subsidy Per Unit	1,875	0	67,174	22,901	41,680	45,320	17,058
Percent Subsidy	1%	0%	26%	16%	17%	25%	9%
Scenario 1. Senior Loan Interest Rate Decreases from 6% to 5.75%							
Total Subsidy Needed	39,319	0	34,693,813	24,930,153	34,509,288	47,727,870	9,216,547
Subsidy Per Unit	109	0	65,465	21,869	39,941	44,192	15,444
Percent Subsidy	0%	0%	25%	15%	16%	24%	8%
Scenario 2. Target Rents at 45% AMI							
Total Subsidy Needed	1,345,116	0	17,332,283	45,180,488	22,595,719	0	0
Subsidy Per Unit	3,736	0	32,702	39,632	26,152	0	0
Percent Subsidy	2%	0%	13%	27%	11%	0%	0%
Scenario 3. Target Rents 30% Below HUD's Fair Market Rent for Studio Apartment*							
Total Subsidy Needed	0	0	15,654,156	.	589,575	23,395,340	0
Subsidy Per Unit	0	0	29,536	.	682	21,662	0
Percent Subsidy	0%	0%	11%	.	0%	12%	0%

*Lowering target rents to 30% below FMR in Houston results in insufficient revenue to repay senior loan.

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