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Research Report

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Can Adaptive Reuse of Commercial Real Estate Address the Housing Crisis in Los Angeles?

Adaptive reuse (AR) refers to the repurposing of a building for a new, more valuable use while preserving as much of the existing structure as possible. A primary application of AR is the conversion of commercial real estate (CRE) properties for residential use. However, for such conversion to be financially feasible, commercial properties must generally be underutilized in their current role.

In this report, we provide estimates of the number of residential units that could be produced through the AR of underutilized CRE in the Los Angeles area and provide evidence on the financial feasibility of creating these residential units. Our results suggest that, if the properties we identify as underutilized were all repurposed as housing, they would represent about 9 percent to 14 percent of the total housing Los Angeles County needs to produce over the next eight years, according to the Southern California Association of Governments (Southern California Association of Governments, 2021b). We also estimate the potential financial feasibility of these properties for AR and find that, on average, the conversion of hotel/motel properties appears to be broadly feasible but that the feasibility of AR using office properties—the most common property type in our sample—depends significantly on area-specific real estate prices and the size of the residential units to be produced (e.g., studio apartments versus one- or two-bedroom apartments).

The potential for AR to address Los Angeles County's regional housing shortage has drawn increased attention from policymakers and stakeholders recently. In the past two years, multiple initiatives related to AR have been undertaken across the region, including the following:

- The City of Los Angeles planning department is in the process of creating an updated AR ordinance (ARO) for downtown Los Angeles (DTLA) and the nearby Arts District as part of its DTLA 2040 plan. This plan represents a significant update of incentives from the successful ARO of the early 2000s (Lall et al., 2021). Proponents suggest that, overall, DTLA 2040 could generate as many as 100,000 units of new housing in the next two decades (Giovannini, 2020).
- Since 2020, dozens of hotel/motel properties have been acquired and are being converted into housing for people experiencing homelessness through a state financing program called

KEY FINDINGS

- Using detailed real estate microdata, we identified approximately 2,300 potentially underutilized commercial properties that, *if fully utilized for residential purposes*, could theoretically produce approximately 72,000 to 113,000 units of housing in Los Angeles County, depending on the mix of unit sizes. This represents about 9 percent to 14 percent of the total housing that Los Angeles County needs to produce in the next eight years, according to the Southern California Association of Governments.
- We assessed the financial feasibility of AR by estimating the average difference in the sale price of market rate apartments and similarly sized units of commercial real estate across different geographies in the Los Angeles region, with a positive price difference indicating the approximate per unit amount of money that could be used for construction and related costs. Hotel/motel properties appear to be the most feasible property type for conversion (conditional on converting rooms directly into housing units). The feasibility of office properties varies, with larger (one- and two-bedroom) apartment types generally appearing to be financially infeasible but with studio apartments showing more promise.
- We developed a simple index to rank neighborhoods in Los Angeles and adjacent small cities according to their desirability as a site for new housing using common social and environmental goals (employment density, rent levels, access to higher-quality transit, and commuting time) and found that hotel/motel properties are primarily located in lower-ranked areas, whereas office properties are more common in higher-ranked areas.
- Insights from a series of expert interviews with architects, developers, and engineers with AR experience suggest that AR projects to convert hotel/motel properties into studio units typically are lower-risk propositions, since these properties already served a residential purpose, while the logistical and financial feasibility of converting office and retail properties depends significantly on the characteristics of each building (the overall size, floor layout, construction type, condition, and other factors).

Abbreviations

AR	adaptive reuse
ARO	adaptive reuse ordinance
CPA	Community Plan Area
COVID-19	coronavirus disease 2019
CRE	commercial real estate
DTLA	downtown Los Angeles
HVAC	heating, ventilation, and air conditioning
RHNA	Regional Housing Needs Assessment

Project Homekey (Oreskes, 2021). Associated legislation (Assembly Bill 83 and, most recently, Assembly Bill 140) provides regulatory streamlining by exempting these projects from challenges under a state environmental protection law, the California Environmental Quality Act, that is often used as a tool to limit the creation of new housing and other urban infill projects (Hernandez, 2018).

- Los Angeles County Supervisors Hilda Solis and Kathryn Barger in February 2021 proposed that the county develop a list of underutilized CRE that could be rapidly transformed into both temporary and long-term housing for people experiencing homelessness (Vega, 2021).

The coronavirus disease 2019 (COVID-19) pandemic has increased the salience of AR of CRE properties for residential purposes through multiple channels. On the housing demand side, the pandemic has led to rapidly escalating housing costs (Khouri and Flemming, 2021) and a potential "eviction cliff" that could see hundreds of thousands of Californians lose their homes (Duara, 2021). On the supply side, the pandemic has led to waves of disruption to tourism, filmmaking, and retail business (Arango and Fuller, 2020) and the rapid and persistent rise of remote work (Dey et al., 2021), trends that have led to both realized and predicted changes in the relative value of CRE in these sectors. It remains far from clear, though, how these trends will ultimately play out.

The state of California recently completed the sixth cycle of an octennial process (the Regional Housing Needs Assessment [RHNA]) of determining housing needs across the state, adopting the sixth cycle allocation in March 2021 (Southern California Association of Governments, 2021a). The goal of the RHNA is to ensure that local governments adequately plan for the housing needs of everyone in their communities. This process mandates that municipalities plan for needed housing by realistically identifying land with the capacity to accommodate the allotted number of housing units and adopting policies and rules that remove barriers to this land being used for housing (Elmendorf et al., 2020). The state hopes to bolster the impact of this process through a reformed approach to allocating housing units and increased enforcement of sanctions against municipalities that fail to adequately meet the goals they are given (Office of Governor Gavin Newsom, 2021b).

Through the RHNA process, the City of Los Angeles has been directed to take steps to facilitate the production of 456,000 units of housing from October 2021 through October 2029. Meeting this goal would require the production of 57,000 housing units per year, far outstripping the approximately 8,800 units per year that were produced, on average, from 2010 to 2019 (Woetzel et al., 2019). The RHNA allocation for Los Angeles County is 812,000 units.

In this report, we assess the potential for residential AR to contribute to meeting these ambitious regional goals.[1] We address key knowledge gaps about the potential for AR to increase the supply of affordable housing in Los Angeles by presenting evidence related to the following research questions:

- How many units of housing might be created from underutilized CRE properties in Los Angeles?
- How do price trends among commercial and residential real estate affect the financial feasibility of AR?
- How does the geographic distribution of underutilized CRE relate to various social goals for the siting of new housing capacity (e.g., "jobs-rich" areas, access to public transit)?

How We Define Adaptive Reuse

Adaptive reuse can mean a variety of things: converting an old office property into housing, converting an old warehouse into a dining hall, converting a hotel into housing, etc. In this report, we focus solely on the **adaptive reuse of commercial buildings for residential purposes**. More specifically, we consider three types of commercial property: hotels/motels, retail, and office.

How We Define Underutilized Commercial Real Estate

There is no standard definition of *underutilized*. In various contexts, this term is applied according to a percentage of vacant space in a building for a certain length of time (New York State Bar Association, Environmental Law Section, 2016) or according to square feet per user (City and County of San Francisco, 2012–2013 Civil Grand Jury, 2013), among other approaches.

Because of the lack of clear guidance, we use a simple set of criteria that substantially narrows the universe of CRE in the Los Angeles area to a subset that is more likely to be amenable to residential AR, as follows:

- Our sample of office and retail properties is limited to class B and C properties. These properties generally command lower rents and have fewer modern amenities and services related to their intended commercial uses, potentially making them more suitable for reuse as housing.
- Our sample of office and retail properties is limited to properties that range in size from 10,000 to 100,000 square feet. Using approximately 1,000 square feet as an average unit size (including associated common space), such buildings could accommodate a minimum of ten or a maximum of 1,000 units.
- Our sample of office and retail properties is further limited to properties with vacancy rates of 20 percent or more.
- Our sample of hotels/motels is limited to those classified as "economy" in our real estate data. This subset of the broader set of all hotel/motel properties is already being targeted for residential AR by high-profile state and local programs, so we follow this policy lead in our analysis.

We provide more detail on the data and our methodology in Appendix A.

- What are the key barriers to using AR to increase the housing supply in both the market-rate and the affordable housing submarkets?
- What legislative and regulatory reforms might best facilitate an increase in AR in Los Angeles?

We address these questions in two ways. First, we use real estate data from the data and analysis firm CoStar to provide quantitative analyses that explore the feasibility of residential AR projects in Los Angeles. Second, we use insights distilled from a series of expert interviews with practitioners of AR, including developers of both market-rate and affordable housing, architects, and engineers, to understand the distinct aspects of the AR process and how policy affects the financial and logistical feasibility of AR.

Our policy recommendations focus on incentivizing AR for the production of both market-rate housing and publicly funded affordable housing. This dual focus is motivated by the fact that RHNA housing goals are distributed according to the following household income levels used by the U.S. Department of Housing and Urban Development: very low income, low income, moderate income, and above moderate income. The latter category typically is associated with market-rate housing, and the three former categories are common thresholds for different levels of income-restricted affordable housing.

A primary limitation of this report is that we use very general characteristics to estimate the stock of properties that might be feasible for residential AR. The actual feasibility of any given property depends not only on the price of the specific property but also on the particulars of building construction, layout, and condition, as well as the inclination of a building owner to sell or redevelop, which depends on the current income stream versus the existing debt in a given property, among other factors. Such sources of uncertainty limit our ability to be precise regarding the actual number of CRE properties that could be converted to residential use in a cost-effective manner. Thus, our empirical analyses are intended only to provide data on average relationships among costs, quantity, and the spatial distribution of CRE that may help guide policymakers and stakeholders when considering the future of AR in the region.

Uncertainty regarding the future path of the regional CRE market also limits our ability to make specific predictions and policy recommendations in this report. Sources of this uncertainty include the longer-term effects of the COVID-19 pandemic on patterns of work, shopping, and living and how these changes might affect the market for CRE. Additionally, the potential effects of the pandemic on the supply of labor and materials in the construction industry may affect both the costs of new residential construction projects (which AR projects may be benchmarked against in terms of financial feasibility) and the costs of AR projects themselves.

This report is divided into five sections. Section 1 provides a brief history and some current context in terms of AR in the Los Angeles area and beyond and highlights a series of potential benefits and challenges related to residential AR. Section 2 provides estimates of the amount of underutilized CRE in Los Angeles (at the county and subcounty levels), as well as the potential number of units that could be created from this stock of real estate under ideal conditions. Section 3 provides a brief review of the limited evidence on the costs of AR versus new construction, along with two cost analyses conducted for this study. Section 4 explores the spatial distribution of underutilized CRE and ranks areas according to their relative desirability for the siting of new housing according to a simple index of socioeconomic and environmental factors. Section 5 looks at characteristics of AR policy through the lens of existing and proposed policies in Los Angeles, concluding with additional factors that may warrant further attention when creating policies aimed at increasing the feasibility of AR.

A substantial appendix section accompanies this report and provides much greater detail on our methodologies and other material, including our expert interviews. These six appendixes are available for download at www.rand.org/t/RRA1333-1. We refer interested readers to these appendixes throughout the report.

Section 1. Adaptive Reuse: Some History and Context

Adaptive Reuse in Los Angeles

In 1999, the City of Los Angeles introduced an ARO for DTLA to foster the redevelopment of scores of vacant buildings that were too costly and time-consuming to redevelop under existing law (City of Los Angeles, 2001). Los Angeles's ARO established "by-right" criteria that exempted qualifying projects from rezoning and parking requirements and exempted eligible projects from review under the California Environmental Quality Act, reducing average permitting time from 30 months to six months.[2]

Housing production in DTLA has been one of the few success stories in Los Angeles's quest to increase the stock of housing over the past three decades. Approximately 12,000 of the 37,000 new housing units created in the 5.84-square-mile downtown area since 2000 have been created through AR (Lall et al., 2021). To put this in perspective, DTLA comprises about 1 percent of the total land area of Los Angeles, but about 20 percent of all new housing in the city was created there from 1999 to 2014, with almost 7 percent created through AR (Phillips, 2014).

The original ARO is still on the books in Los Angeles, though its use has declined since the early 2000s (Vaillancourt, 2013). In 2003, the geography covered by the ordinance was expanded to include central Hollywood, parts of Koreatown, Lincoln Heights, and Chinatown (City of Los Angeles, Mayor's Office of Housing and Economic Development, 2006). In a review of City of Los Angeles permitting data over the past eight years, we found that 24 AR projects have been permitted in the areas covered by the original ordinance during this period.

Although recent housing production through AR in Los Angeles has failed to match the levels associated with the peak years of DTLA redevelopment under the city's ARO, the trend in AR-related housing production is increasing in the city. An estimated 1,000 units will come online in 2021, and it has been estimated that another 4,000 units are in the pipeline for 2022 (Ciuntu, 2021).

Housing production in DTLA has been one of the few success stories in Los Angeles's quest to increase the stock of housing over the past three decades.

Much of this production is linked to the acquisition of hotel/motel properties in the Los Angeles area for conversion into permanent supportive housing for people experiencing homelessness through the state's Project Homekey initiative. Across the state, 94 hotels were purchased in 2020 and 2021 for this purpose, with 28 of these in the Los Angeles region (California Department of Housing and Community Development, 2021).[3] Early evidence suggests that the cost of purchasing and converting these properties has been about $230,000 per unit (Oreskes, 2021). This is less than half the price of recent supportive housing projects using new construction (Galperin, 2019). At the state level, Governor Gavin Newsom's 2021 budget proposal contains another $2.75 billion for Project Homekey to continue funding the acquisition of hotel/motels and other properties for the creation of new housing to address homelessness (Office of Governor Gavin Newsom, 2021a).

Adaptive Reuse Around the United States

Cities including Chicago, Philadelphia, and New York also have created thousands of units of housing in recent decades through AR conversions of office buildings and industrial spaces (Ciuntu, 2020). Other cities are taking creative approaches to incentivizing AR, including issuing requests for proposals for specific city-owned properties, such as old schools in Cleveland (City of Cleveland, undated).

From 2006 to 2016, the Washington, D.C., and Baltimore metro area saw the AR of 5.7 million square feet of office space, with 74 percent of this space converted into housing (Banister, 2016). Among these many projects is a privately funded project in suburban Washington that repurposed a class B office building into affordable housing (condominiums) aimed at households earning 80 percent to 120 percent of the area median income (HUD User, 2018). Other office buildings in central Washington have been converted to permanent supportive housing for formerly homeless individuals or market-rate apartments with a substantial number of units reserved for low-income households (Wiencek, 2017).

Efforts to spur AR conversions of office buildings into housing are also increasing in suburban areas that have significant numbers of office parks and corporate campuses that were vacated as major employers have moved back into central cities. However, these projects have, in some cases, struggled with opposition from neighbors in regard to the increased residential density they would create (Brown, 2016).

New York City, which has experienced a tremendous decline in office utilization during the COVID-19 pandemic, has seen a renewed wave of interest in AR of office buildings and hotels from stakeholders in the real estate sector and policymakers (Hughes, 2021). Multiple bills aimed at easing regulatory barriers and incentivizing such conversions have been introduced in the New York state legislature (Lewis, 2021).

A 2021 report projected that, across the United States, 20,000 housing units associated with AR projects would come online in 2021 (Ciuntu, 2021). The same report estimated that AR projects representing another 52,700 units will start in 2022.[4]

AR can contribute to reduced greenhouse gas emissions by reusing carbon-intensive materials, such as steel and masonry, and by reducing vehicle miles traveled.

The Case for Residential Adaptive Reuse

Residential AR has several potentially attractive features as a channel for increasing housing production. We briefly review some of these factors and how AR relates to them in the following list (in Appendix B, we discuss each of these points in more detail and provide relevant citations):

- AR can contribute to reduced greenhouse gas emissions by reusing carbon-intensive materials, such as steel and masonry, and by reducing vehicle miles traveled, because many commercial properties have relatively greater access to transit corridors and greater proximity to jobs-rich areas relative to lower-cost new construction homes, which often are in suburban or exurban locations that require significant commutes (Gabriel, Mattey, and Wascher, 1999; Islam and Saphores, 2022).
- AR could lower total development costs by reducing overall labor and material costs on a project and could incur lower development fees, many of which are only levied on new square footage, not reuse of existing space.
- Residential AR projects can make use of flexibility in zoning: Many commercially zoned properties make an allowance for alternate use as multifamily residential.
- Hotel/motel properties, particularly if they are reused so that the layout of rooms and/or suites is retained for the new housing units, can have a major cost advantage over other types of residential AR. One developer referred to hotel/motel conversion as "AR light" because so much of the building infrastructure could be used as is.

- AR projects that use historic buildings may be able to access tax incentives, such as the Federal Historic Preservation Tax Incentives and California Historic Tax Credit programs, and other types of financial assistance, including the Mills Act and private philanthropy (e.g., the National Trust for Historic Preservation) for qualifying projects. Historic buildings may also trigger the use of alternate building codes or code interpretations that are more flexible than current code for new construction (e.g., related to fire safety, accessibility, and energy efficiency).
- AR projects that create deed-restricted affordable housing funded through the 4 percent Low Income Housing Tax Credit program are eligible for both (1) new construction and (2) acquisition and rehabilitation credits (typically, only one credit type is available to a project). For AR projects, the program also allows the value of the existing building to be used in the calculated project value (or *basis*), which determines the maximum award that can be applied for. This is not the case when an existing building is slated for demolition.
- Other streamlining legislation could increase the feasibility of AR projects, including the Los Angeles ARO, the Transit Oriented Communities program, which allows qualifying buildings with nonconforming characteristics (as is often the case with commercial-to-residential conversions) to avoid potentially time-consuming discretionary municipal approval processes (similar to the ARO), and Los Angeles's Interim Motel Conversion Ordinance, which streamlines approvals for projects to convert hotel/motel properties into transitional or permanent housing for individuals experiencing homelessness.
- Residential AR may sidestep opposition from various community and stakeholder groups related to visible demolition and construction activity or new buildings changing the character of a neighborhood. Furthermore, CRE is often located away from existing housing, so typically there are fewer residential neighbors to object to AR projects.

Distinct Challenges of Residential Adaptive Reuse Projects

AR projects also comes with distinct risks and challenges that might affect the feasibility of using this approach versus new construction. We highlight the following key takeaways from our expert interviews regarding these issues (we provide more-detailed discussions of each of these points and relevant citations in Appendix B):

- The costs of a residential AR project hinge, to a large extent, on the characteristics of the existing building(s). Interviewees highlighted the following characteristics for a building to be well suited to residential AR:
  - Buildings with *shallow* (or more rectangular) layouts allow for a single hallway and residential units that all have good access to exterior walls and, thus, natural light.
  - Buildings with repetitive floor layouts allow for easier service routing (e.g., heating, ventilation, and air conditioning [HVAC] and plumbing) and, thus, lower costs.
  - Larger buildings allow costs to be spread across more housing units.
  - Newer buildings tend to have fewer surprises once a project has begun and are less likely to need expensive seismic retrofitting.
  - Buildings with a good amount of outdoor space allow for the creation of green space and common areas that enhance residential use.
- Our interviews also pointed to several factors that can increase the total development costs of AR projects, including
  - utility upgrades to systems, including electrical, fire and domestic water pumps, fire hydrants, HVAC systems, and sewer service
  - environmental efficiency upgrades, including rooftop solar requirements, energy-efficient doors and windows, insulation and waterproofing, and stormwater distribution
  - remediating structural deficiencies, such as water damage to below-grade walls,

the presence of asbestos or lead paint, and unpermitted past additions or alterations that are not code compliant.

- Although historic building status can qualify a project for additional financial resources (as mentioned earlier), it can also significantly increase project costs by requiring specialized labor and materials and because limitations on alterations to the existing property could constrain how the space can be used in a residential conversion.
- There are multiple alternative building codes that can be applied to AR projects. These codes allow greater flexibility for such factors as fire safety, electrical, plumbing, and seismic retrofitting than would be required for new construction, but there is a lack of clear guidance on the application of these alternative codes. Discretionary decisions by city engineers often determine which code governs a given project, creating an additional layer of uncertainty for AR projects.
- Seismic retrofitting is a major cost driver, with the significance of the costs depending critically on the construction type and age of the building. Seismic retrofitting costs calculated in 2021 using AR projects in DTLA ranged between $30 and $100 per square foot (Liljegren et al., 2021). One interviewee who is a developer of an affordable housing project in a historic building told us that unexpected seismic retrofitting requirements added about 35 percent to the total costs of the project.
- An unusual challenge with economy hotel/motel properties is that it has become increasingly common for these properties to be used as de facto permanent housing for individuals with characteristics that make acquiring traditional housing difficult, such as poor credit or unstable employment (Allen et al., 2019; Frazier, 2021; Wiltz, 2020). Such individuals and families often qualify for tenant protections, including compensation for displacement, that can increase costs and otherwise complicate AR projects that use these properties (Smith and Oreskes, 2020).

Section 2. Estimating the Quantity of Underutilized Real Estate in Los Angeles

Our primary data source for the empirical analyses in this report is the real estate data service CoStar, a subscription-based, industry-standard commercial data service that maintains an extensive database of CRE that represents a near-census of properties in the covered markets. Using our definition of underutilized real estate, we identified approximately 2,300 properties in Los Angeles County, with about 1,100 of these properties in a more central urban geography comprising the City of Los Angeles and the municipalities of Beverly Hills, Culver City, Santa Monica, and West Hollywood (we discuss both the data and the geographies we employ in more detail in Appendix A).

Table 1 provides a breakdown of the numbers of underutilized CRE properties by type according to these two geographies, the total square feet of these properties, and two scenarios estimating the number of units that each property type could yield if fully utilized as housing through residential AR. In both of these scenarios, the potential units for hotel/motel properties reflect an assumption that each room or suite represents a unit, such that these properties likely would yield primarily micro-studio units of about 300 to 350 square feet, with some smaller share of one-bedroom unit conversions from suite units (these shares of single rooms versus suites were not available in our data). In scenario 1, for office and retail properties, we use a unit size conversion that averages one- and two-bedroom unit sizes to reflect a 50/50 mixture of these unit types. In scenario 2, we assume the conversion of all property types to studio apartment units. As we explore further in Section 3, the estimated financial feasibility of residential AR depends greatly on the proposed size of housing units considered.

Overall, this estimation exercise suggests that, were the properties we identify here fully utilized as housing through residential AR, they could represent 72,000 to 113,000 units across Los Angeles County and 31,000 to 51,000 units in the City of Los Angeles plus Beverly Hills, Culver City, Santa Monica, and West Hollywood. However, as we discuss later in this

TABLE 1

Underutilized Commercial Real Estate in Los Angeles and Potential Housing Units If Fully Utilized Through Adaptive Reuse

	Los Angeles County			City of Los Angeles plus Beverly Hills, Culver City, Santa Monica, and West Hollywood		
	Hotel/Motel	Office	Retail	Hotel/Motel	Office	Retail
Number of properties	808	787	700	325	432	285
Total building area (square feet)	10,599,839	23,175,112	16,181,776	3,876,020	13,193,625	6,109,000
Scenario 1: studio and one- to two-bedroom housing units	34,868	22,072	15,411	12,830	12,565	5,818
Scenario 2: studio housing units only	34,868	46,350	32,364	12,830	26,387	12,218

SOURCE: Author calculations using CoStar data.

NOTE: Potential housing unit calculations for hotel/motel properties reflect an assumption that each room represents a potential studio unit in both scenarios. To estimate the number of one- to two-bedroom housing units, we used apartment size data from Chen, 2019, and assume that 1,050 square feet of office or retail space reflects a potential unit that averages the sizes of one- and two-bedroom units in recent years in Los Angeles (750 and 1,125 square feet, respectively), with an additional 12 percent per unit to reflect required common space. For studio units, we use 500 square feet (assuming an approximately 450-square-foot unit with 11 percent per unit common area).

report, we expect that such an optimistic outcome would depend on the implementation of significant financial and regulatory incentives. Thus, we would consider these estimates to approximate an upper-bound estimate on the potential supply of housing possible through AR. We did not identify a plausible approach to approximating a lower bound. Doing so would depend (1) on having much greater detail on individual properties, (2) on the extent and nature of any policies intended to support residential AR, and (3) on the evolving equilibrium of prices for these properties, which likely would be influenced directly by such policies and by an unknown number of other factors.

Section 3. Evidence on the Financial Feasibility of Residential Adaptive Reuse in Los Angeles

Empirical Evidence on Adaptive Reuse Costs

There is very little high-quality empirical evidence on the cost differences between AR and new construction. However, a limited body of evidence generally suggests that AR can be a cost-effective approach relative to new construction. A 2016 report focusing on the reuse and rehabilitation of older buildings in Tucson, Arizona, found that, on a per-square-foot basis, the average cost for new construction of commercial and residential buildings was, respectively, $92 and $93, whereas the average cost for additions, alterations, and repairs to existing buildings was $37 for commercial buildings and $69 for residential buildings (Preservation Green Lab, 2016). This amounts to 60 percent cost savings for commercial projects and 26 percent savings for residential projects.

Additional evidence on recent costs related to converting hotel/motel properties into permanent supportive housing is emerging from California's Project Homekey, which provided funding for this specific approach to AR. Many Homekey-funded properties are initially used as interim housing for people experiencing homelessness, but the program ultimately requires the conversion of these properties to permanent housing. Typically, projects propose to convert units into *permanent supportive housing*: subsidized affordable housing units coupled with case management and other services aimed at addressing the needs of individuals who have experienced chronic homelessness).[5] Using data on Homekey acquisitions in the City of Los Angeles, we find that hotel/motel properties had an average per-room acquisition cost of $229,242.[6]

Using construction costs as the outcome, we found that AR projects cost 48 percent less than new construction projects ($164,000 less per unit).

Emerging evidence from case studies on individual Homekey projects suggests that the cost to quickly repurpose these properties for use as interim housing ranges from $5,000 to $20,000 per unit (Tingerthal, 2021a; Tingerthal, 2021b). Estimated costs in one such case study, which included costs related to conversion to permanent housing (which could require more-extensive retrofits related to disability accommodations, areas for service provision, and the addition of kitchenettes and other upgrades to units), were $260,000 per unit in total, or approximately $62,000 per unit in conversion costs on top of an acquisition cost of just under $200,000 per unit (Tingerthal, 2021a). One affordable housing developer we interviewed estimated that the total per-unit development cost for hotel/motel conversion in the Los Angeles area ranged from $300,000 to $400,000 per unit, suggesting conversion costs of $70,000 to $170,000 per unit, according to our estimates of acquisition costs. For comparison, the average cost of new construction permanent supportive housing built using traditional public funding mechanisms averages more than $530,000 per unit (Ward, 2021).

Cost Analysis of Affordable Housing Adaptive Reuse Projects in Los Angeles

We analyzed cost data for 47 publicly funded affordable housing projects that are in development in Los Angeles, five of which are AR projects, and found evidence of significant cost savings for the AR projects relative to the pool of 42 comparable new construction projects.[7] Using construction costs as the outcome, we found that AR projects cost 48 percent less than new construction projects ($164,000 less per unit). When we instead used total development costs, we estimated savings of 27 percent ($154,000 less per unit). We discuss this analysis in more detail and provide a table with these results in Appendix C.

We note that most of the small number of AR projects in this portfolio were buildings that had some history of housing or quasi-housing uses (two were apartment buildings in poor condition, two were small hospital-related facilities, and one was a school that had also served as housing), which may have contributed to relatively lower costs compared with AR using structures that had not been used for housing-related purposes. On the other hand, three of the five projects involve historic buildings that are between approximately 75 and 130 years old, a factor that may have contributed to higher costs than might otherwise prevail with the conversion of newer structures (Hahm, 2018; U.S. Department of Veterans Affairs, 2016). Regardless, caution in interpreting this evidence is warranted because of the small sample size and the fact that these cost data are estimated.

Anecdotal evidence suggests that the costs of an AR project can dramatically escalate because of any number of the significant risk factors we highlight elsewhere in this report. For example, the Brockman Lofts, a project that was part of the early wave of DTLA redevelopment projects, initially was estimated to cost $16 million, but construction ultimately took seven years to complete and reached a final cost of $40 million (Vaillancourt, 2013). An affordable housing project in a historic building led by one of the developers we interviewed for this report saw a total cost increase of 35 percent that was caused by significant seismic retrofitting requirements that were not clear at the start of the project.

Assessing Adaptive Reuse Feasibility Using Market Prices of Commercial Real Estate and Multiunit Housing

We assess the average feasibility of residential AR by estimating the sale price differences between market-rate multiunit housing (i.e., studio and one- and two-bedroom apartments) and apartment-sized units of CRE across multiple areas in Los Angeles. This approach is motivated by the idea that the price of CRE represents the acquisition costs of a property for AR, and the price of appropriately comparable housing units represents the potential market value of a housing unit in an adaptively reused property. The sign (positive or negative) and magnitude of the price gap between these two—in other words, multiunit housing sale price minus CRE sale price—provide evidence on the financial feasibility of residential AR. We present these estimates from 2017 through the third quarter of 2021 to consider how recent trends in the markets for both CRE and multiunit housing have affected this relationship in the past and how the relationship might change going forward.

For this analysis, we made three comparisons using two types of CRE. First, we compared multiunit studio housing prices with economy hotel/motel prices. This comparison is plausible because hotel/motel rooms closely approximate this housing type, and the native price unit for hotel/motel sales in our data is price per room. Then we compared one- and two-bedroom apartment prices, respectively, with "apartment-size" units of office space derived from office space prices per square foot.[8] To consider the potential for such conversions to provide relatively affordable housing (and to match our focus on older commercial buildings as part of our criteria for underutilized CRE), we use multiunit housing prices for older apartment buildings only: Specifically, we exclude properties rated as "class A" in the CoStar data. In this sense, our estimates are conservative.

Because real estate prices may vary dramatically across geography, we conducted this exercise across three areas that have significant differences in the price of both CRE and residential real estate. We detail the geography of these areas, which are real estate submarkets defined by CoStar, and the substantial differences in these real estate prices and in area demographics in Appendix C.

The results of this analysis indicate a significant positive gap between the market price of studio apartments and the acquisition cost of economy hotel/motel rooms, suggesting a high level of financial feasibility for these conversions. Across the nearly five-year period we focused on, the average gap ranges from $92,000 per unit (Central Business District) to $185,000 per unit (West Los Angeles). These gaps suggest that a developer could spend up to this amount per unit on conversion costs (including any fees or profit) if these units could later be sold at current market prices. In terms of the viability of affordable housing production, these amounts are much larger than the $62,000 per unit in conversion costs for permanent supportive housing in a recent Project Homekey case study (Tingerthal, 2021a), suggesting that the average economy hotel/motel property is amenable to reuse as subsidized affordable housing aimed at addressing homelessness.

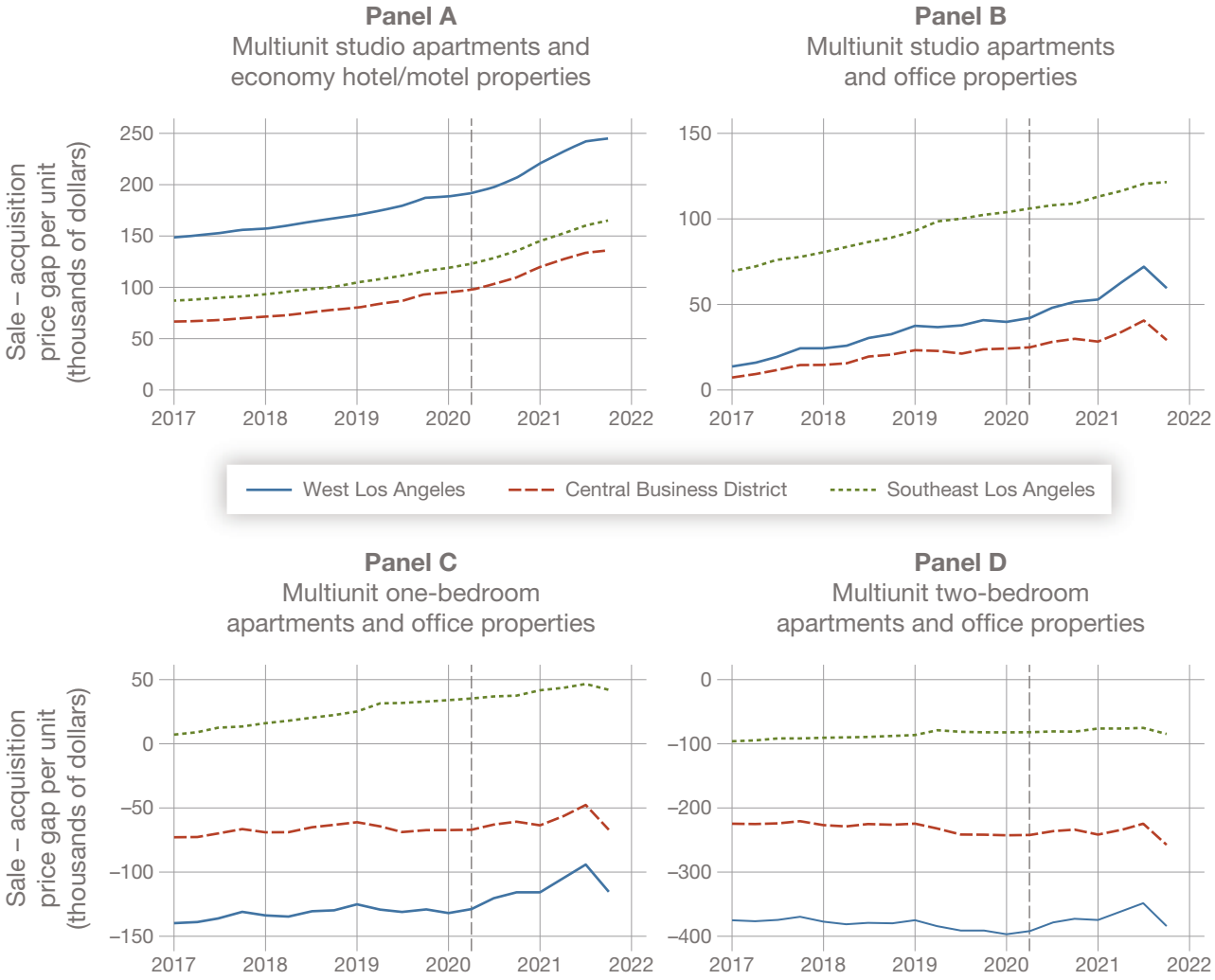
These averages mask substantial growth in the size of these gaps prior to and after the emergence of the COVID-19 pandemic. From 2017 through the first quarter of 2020 and from the first quarter of 2020 through the third quarter of 2021, the magnitude of this gap increased by 32 percent to 44 percent across these three areas, driven by both falling hotel prices and persistently rising prices for studio apartments (Figure 1).

Comparing studio apartment prices and office properties suggests positive gaps that are approximately 30 percent to 50 percent of the magnitude of those for hotel/motel properties.[9] The largest positive gap, $96,000, is in the Southeast Los Angeles submarket. The other two gaps are less than $40,000 per unit, which may suggest marginal financial feasibility, though we note that office properties, unlike hotel/motel properties, would not be expected to have unit-size rooms with even basic amenities, such as individual bathrooms, suggesting that conversion costs would likely be higher for this property type, on average.

Comparing one- and two-bedroom apartment prices with office space prices suggests that there is, on average, significantly less financial latitude to redevelop these buildings into larger housing units

FIGURE 1

Price Differences Between Multiunit Residential and Commercial Real Estate



SOURCE: Author calculations using CoStar data.

NOTE: The vertical dashed line indicates the second quarter of 2021, when the COVID-19 pandemic plausibly began to affect real estate prices. For more detail on the process of generating these comparisons and figures with the underlying price levels, see Appendix C.

or, in the case of subsidized affordable housing, that these properties would require larger subsidies. The gaps we estimate for comparisons of one-bedroom apartments and office space range from $28,000 to –$126,000 (in other words, an apartment-size block of office space in West Los Angeles sells for, on average, $126,000 more than a one-bedroom apartment). The gaps for two-bedroom apartments and office properties are entirely negative and range from –$85,000 to –$378,000.

In Appendix C, we provide figures showing the prices in levels (rather than differences), which these figures are drawn from. Interested readers can see the extent to which these differences depend on higher or lower prices for the CRE or residential components of this comparison, which differ fairly dramatically across the areas we considered.

Overall, these findings provide suggestive evidence that, at current prices, market-rate residential AR is unlikely to be financially feasible for typical office properties except perhaps in lower-cost areas, such as the Southeast Los Angeles submarket (and, even then, only for the development of studio units).

Section 4. Incorporating Social and Environmental Goals into Adaptive Reuse Policy

Policymakers and other stakeholders involved in the debate over housing policy have become increasingly interested in a more holistic view of the criteria that should guide such policy. Nonfiscal factors that are commonly cited as relevant to such an approach include access to jobs and higher-quality public transit, as well as past lack of affordability and histories of exclusionary zoning (Bertoni and Sewill, 2021; McConville, 2013; Southern California Association of Governments, 2021a). Proponents of this broader approach argue that the specific location of future housing can have important repercussions for social and environmental goals (Dedousis, 2020).

These concerns are highly relevant to policymaking with regard to residential AR, since commercial properties are much more ubiquitous than vacant land parcels in relatively dense urban areas, such as Los Angeles. As shown in our analysis in Section 3, CRE in resource-rich areas (such as West Los Angeles) might not appear to be fiscally viable for residential AR at market rates for multiunit residential housing. However, these market rates do not fully reflect all benefits that may accrue to society from having affordable housing located more broadly across the region. Such benefits might include greater access to high-performing schools; shorter commutes for low- and middle-income workers, who often struggle to live near their work (Nguyen, 2021; Zonta, 2020) and face long commutes to work in high-cost areas (Kneebone and Holmes, 2015; Stacy, Plerhoples, Stern, et al., 2020); and the ability to meet California's ambitious greenhouse gas reduction goals (Bedsworth, Hanak, and Kolko, 2011). Fully accounting for these factors may justify the use of significant incentives or subsidies to produce housing in these high-resource areas.

To provide evidence on how the distribution of underutilized CRE in our sample is distributed across areas according to a basic set of criteria that reflect these social and environmental goals, we constructed a simple housing priority index score by averaging measures of higher-quality transit access, commuting times, employment density, and housing affordability. Then we ranked neighborhoods using Los Angeles Community Plan Areas (CPAs), which the city uses to establish neighborhood-specific goals and policies related to land use planning, and a subset of small municipalities around Los Angeles according to these scores.[10] Our index aligns closely with recent, similar approaches to prioritizing housing across local geography used by stakeholder groups and policymakers (Bertoni and Sewill, 2021; Dedousis, 2020).

Table 2 presents these results. For each CPA or municipality, we list the index score (on a scale of 0 to 100) followed by the number of underutilized properties in each area, the associated square footage, and the share of the total square footage represented by this amount. The highest-ranked areas are disproportionately located on the west side of Los Angeles, including the CPAs of Westwood, West Los Angeles, Westchester-Playa Del Rey, and Brentwood-Pacific Palisades and the small municipalities of Santa Monica, Beverly Hills, and Culver City. The lowest-ranked areas include much of South Los Angeles and several areas around the San Fernando Valley. Key takeaways from this analysis include the following:

- Areas in the top quartile of our housing priority index contain 46 percent of the total underutilized office capacity (the highest share) but only 22 percent of the underutilized hotel/motel capacity (the second-lowest share).
- Areas in the bottom quartile of our housing priority index contain 18 percent of the total underutilized office capacity (the lowest share) and 35 percent of the underutilized hotel/motel capacity (the highest share).
- A large share of the total hotel/motel properties are highly concentrated in a few areas. For example, Hollywood, Central City (DTLA), and Westlake together contain 37 percent of all hotel/motel square footage in our data set.
- Office and retail CRE are generally less concentrated, with the exception of the Central City (DTLA) CPA, which has 13 percent of hotel/motel, 11 percent of office, and 13 percent of retail capacity. The exceptional nature of DTLA in terms of CRE shares suggests that

TABLE 2

Summary of Underutilized Property Characteristics by "Los Angeles City Plus" Geography

			Hotel/Motel Building Area			Office Building Area			Retail Building Area	
Geography	Socioeconomic Index	Hotel/Motel Properties	Square Feet	Percentage of Total	Office Properties	Square Feet	Percentage of Total	Retail Properties	Square Feet	Percentage of Total
Westwood	92	1	5,700	0.1	8	150,912	1.1	6	137,983	0.1
West Los Angeles	88	3	27,600	0.7	26	640,708	4.9	10	257,944	0.7
Santa Monica	82	7	88,500	2.3	41	1,131,746	8.6	17	293,643	2.3
Beverly Hills	82	1	6,000	0.2	29	915,726	6.9	4	55,766	0.2
Westchester, Playa del Rey	78	1	20,400	0.5	6	180,839	1.4	5	105,504	0.5
Brentwood, Pacific Palisades	71	2	23,100	0.6	3	129,209	1.0	2	37,036	0.6
Culver City	67	10	81,600	2.1	31	751,822	5.7	6	90,558	2.1
Canoga Park, Winnetka, Woodland Hills, West Hills	66	6	93,900	2.4	25	773,405	5.9	11	254,933	2.4
Central City (DTLA)	64	13	506,000	13.1	30	1,420,462	10.8	29	744,241	13.1
Chatsworth, Porter Ranch	62	1	22,500	0.6	11	349,566	2.6	11	215,027	0.6
Wilshire	59	25	329,270	8.5	25	758,920	5.8	36	724,449	8.5
Venice	58	5	58,500	1.5	8	109,556	0.8	3	61,471	1.5
Hollywood	57	43	544,500	14.0	23	924,063	7.0	6	153,584	14.0
Sherman Oaks, Studio City, Toluca Lake, Cahuenga Pass	57	6	43,500	1.1	16	421,499	3.2	10	188,022	1.1
Palms, Mar Vista, Del Rey	57	2	15,000	0.4	24	665,633	5.0	24	491,545	0.4
West Hollywood	52	2	12,900	0.3	13	210,710	1.6	14	229,864	2.3
Northridge	51	0	0	0	2	40,723	0.3	1	17,409	4.2
Encino, Tarzana	50	5	62,100	1.6	12	420,966	3.2	7	115,594	4.8
Sun Valley, La Tuna Canyon	49	4	25,800	0.7	1	22,600	0.2	0	0	0.9
Bel Air, Beverly Crest	48	0	0	0	0	0	0.0	1	11,000	1.7
Central City North	43	3	39,100	1.0	18	597,724	4.5	4	207,911	0.6

Table 2—Continued

Geography	Socioeconomic Index	Hotel/Motel Properties	Hotel/Motel Building Area: Square Feet	Hotel/Motel Building Area: Percentage of Total	Office Properties	Office Building Area: Square Feet	Office Building Area: Percentage of Total	Retail Properties	Retail Building Area: Square Feet	Retail Building Area: Percentage of Total
Reseda, West Van Nuys	43	2	38,800	1.0	9	201,570	1.5	4	49,442	1.5
Northeast Los Angeles	42	10	90,300	2.3	8	149,191	1.1	8	176,328	4.2
Harbor Gateway	42	7	50,700	1.3	3	170,794	1.3	1	16,772	12.2
Granada Hills, Knollwood	42	1	9,600	0.2	1	29,000	0.2	0	0	3.5
Arleta, Pacoima	41	2	10,500	0.3	1	25,000	0.2	2	42,479	11.9
Wilmington, Harbor City	39	13	111,900	2.9	0	0	0.0	4	86,774	1.0
North Hollywood, Valley Village	37	8	99,000	2.6	2	97,064	0.7	10	188,272	2.5
Sylmar	36	9	106,500	2.7	0	0	0.0	1	26,140	3.1
Van Nuys, North Sherman Oaks	34	8	89,700	2.3	12	468,395	3.6	4	155,421	8.0
San Pedro	33	8	92,100	2.4	3	71,629	0.5	6	117,234	3.8
Silver Lake, Echo Park, Elysian Valley	30	5	35,700	0.9	3	76,976	0.6	5	96,285	0.3
West Adams, Baldwin Hills, Leimert	28	15	90,600	2.3	2	25,190	0.2	4	53,594	1.9
Mission Hills, Panorama City, North Hills	28	13	227,700	5.9	9	302,116	2.3	6	273,000	0.0
Westlake	25	20	384,000	9.9	15	585,575	4.4	8	182,635	0.2
Southeast Los Angeles	24	25	144,300	3.7	3	125,484	1.0	4	69,433	3.4
Sunland, Tujunga, Lake View Terrace, Shadow Hills, East La Tuna Canyon	23	3	17,400	0.4	1	13,440	0.1	1	19,344	0.8
Boyle Heights	22	3	35,050	0.9	5	91,005	0.7	4	83,778	2.9
South Los Angeles	21	33	236,200	6.1	3	144,407	1.1	6	78,585	0.3

SOURCE: Author calculations using CoStar, U.S. Census Bureau, and City and County of Los Angeles data.

the city's focus on this area as a hub of future AR is reasonable.

Our housing priority index employs a simple formula that may omit some characteristics of interest to policymakers and stakeholders (e.g., school quality, crime rates). Thus, we propose this only as a tool to demonstrate how such criteria could be used to inform housing policy. However, the correlation between our index and more-complex ranking systems that have been proposed to guide the intracity allocation of housing, such as the FAIR LA approach developed by the pro-housing advocacy group Abundant Housing LA (Dedousis, 2020), is remarkably high. Among CPAs in the City of Los Angeles, the correlation coefficient is 0.81 on a 0.0 to 1.0 scale, where a correlation of 1.0 would indicate an exact correspondence.

Section 5. Policy Considerations and Recommendations

In this section, we consider how the results from our analyses might inform local and regional AR policy. To provide useful context, we discuss how issues raised here were or were not addressed by the original Los Angeles ARO and how they appear likely to be addressed by an updated ARO; when relevant, we highlight examples from other housing policies that may be useful points of reference. We also incorporate insights on the intersection of AR and policy provided by our expert interviewees.

Features of the Original Los Angeles Adaptive Reuse Ordinance and Proposed Updates

The original DTLA ARO, passed in 1999, applied to buildings in the geographic area of the ordinance constructed prior to July 1, 1974. The ARO had the following key features:

- Eligible projects were subject to *ministerial* or *by-right* approval processes for the change of use (e.g., from commercial to residential) required for AR, which refers to streamlining or eliminating certain discretionary approval stages that apply to projects under a *discretionary* review process, such as a mandatory site plan review or the allowance for challenges to a project under the California Environmental Quality Act.
- Maximum density limits on new housing units in eligible projects were set at a minimum unit size of 450 square feet and an average unit size of 750 square feet (with no density limits on new hotel rooms created through AR).
- Requirements to add minimum parking, as would be required for typical new housing construction, were removed (a similar exemption for providing loading space was included as well).
- A new single-story could be added to rooftops by-right.
- A limited type of new floor area within buildings ("mezzanine" floors) could be added by-right, so long as this new floor area does not exceed one-third of the floor area of the associated room or space below it.
- The application of alternate building codes and code interpretation for qualifying projects that provide greater flexibility in satisfying, for example, fire and safety requirements than those that would apply to new housing construction (City of Los Angeles, 2006).

These changes provided a significant and successful incentive to redevelop many buildings in DTLA over several years after the policy was passed. Eventually, however, a combination of fewer eligible buildings and increasing prices for them resulted in a significant decline in AR activity (Vaillancourt, 2013).

The forthcoming land use and zoning update covering DTLA (known as "DTLA 2040") includes a significant update of the original ARO. Many of the proposed revisions follow the recommendations of stakeholders and practitioners, including some of the experts we interviewed for this report.[11] Such recommendations, in many cases, specifically address aspects of the original Los Angeles ARO that either limited eligibility of buildings or limited the feasibil-

ity of what could be done with an eligible building. Key changes from the original ARO in the current language for the DTLA 2040 ARO update include

- basing eligibility on a building being ten years old or older, which creates a continuous stream of buildings that can be adaptively reused as time passes rather than a static stock of buildings, as was the case in the original Los Angeles ARO
- removing both minimum and average unit size requirements, which significantly limited the overall density and the mix of unit sizes that could be realized in a project and, hence, the financial feasibility of residential AR
- allowing permitted expansions of rooftop space and use of basement space to be exempt from a building's maximum floor area limitations
- expanding the scope of permitted reuse within a project, such as the conversion of parking structures to housing (Lall et al., 2021).

Other Policy Features That Could Facilitate Greater Use of Adaptive Reuse

Using our original analyses, our expert interviews, and our review of existing research on AR, we identified four other policy or regulatory areas of AR that would likely increase the financial and logistical feasibility of AR projects.

Provide Clear Pathways for the Use of Alternative Building Code Requirements

There are three distinct building codes that could be applied to structures used in AR projects in the City of Los Angeles, as follows:

- California Existing Building Code (Title 24, Part 10)
- California Historical Building Code (Title 24, Part 8)
- Los Angeles Building Code Division 85: Alternative Building Standards for Joint Living and Work Quarters.

The applicable code for AR projects is not clearly spelled out by existing policy and often is subject to discretionary decisions made by individual plan check engineers.

Each code contains provisions that are specific to the reuse of buildings with features that would not meet current code for new construction. However, these standards are all written to provide (in the words of the Division 85 code) a "reasonable level of safety to the building occupants . . . in conformance with the provisions of California Health and Safety Code Section 17958.11" for important building characteristics, including fire safety, electrical, plumbing, and seismic retrofitting (UpCodes, undated).

The applicable code for AR projects is not clearly spelled out by existing policy and often is subject to discretionary decisions made by individual plan check engineers. This fact was highlighted by multiple interviewees, who suggested that a combination of explicit written guidance and clear signals from relevant authorities (e.g., the Los Angeles Department of Building and Safety) on what alternative codes should be applied under what circumstances are necessary ingredients in a more robust AR policy. These experts said that both of these factors were in place during the implementation of the original Los Angeles ARO (and were pivotal in its success) but that this unified approach between intent and implementation was primarily informal during that time and should be formalized to reduce uncertainty regarding what code AR projects should be covered by.

Lock in Building Codes and Code Guidance at Project Approval

Building codes in California are updated every three years. Projects that occur across the period of an update may be subject to costly and time-consuming changes in requirements in terms of such factors as allowable nonconforming features, fire safety and smoke removal, and energy efficiency. Additionally, even with a static building code, code enforcement guidance could change during the period of an AR project. Locking in these codes and the guidance used to enforce them at the time of project approval is an important tool to reduce uncertainty relating to both cost and time overruns.

Provide Incentives or Funding for Adaptive Reuse Projects Using a Social and Environmental Index as Part of any Eligibility Criteria

As mentioned in Section 4, a pure financial analysis of the feasibility of residential AR using market housing prices might not capture important social and environmental benefits related to the area in which a project is located (for example, in jobs-rich or other high-resource areas). The city or county might be able to provide funding that could steer AR to areas with greater social and environmental benefits in a transparent manner by, for example, including a social and environmental index as part of a system for scoring project proposals or as a way of allocating geography-specific levels of funding in support of AR projects across the region.

Developing approaches to use these rankings to incentivize privately funded projects might prove more difficult, since investors in a given project may not place specific value on the more abstract socioeconomic characteristics of a project. However, using such criteria to guide eligibility and the intensity of incentives related to geography is feasible and has been used in such successful programs as Los Angeles's Transit-Oriented Communities program, which awards specific "density bonuses" (the ability to include more units in a project than would be allowable under normal circumstances) according to how many criteria related to transit access and the included share of affordable units a proposed project involves.

The Los Angeles City Council in 2021 passed a motion directing city staff to report back to the council on options for either the creation of new incentive programs or the modification of existing incentive programs to prioritize 100-percent affordable housing projects in high-opportunity areas (Linton, 2021). A social and environmental index could be used to guide the creation or reformulation of such incentives, allowing developers to incorporate these goals into feasibility analyses using more-concrete measures of costs that are responsive to the index, such as the number of potential housing units, required parking, and setbacks. Efforts by the County of Los Angeles Board of Supervisors to identify underutilized properties for conversion to housing through residential AR could similarly incorporate such a system in prioritizing properties to offer for this purpose (Vega, 2021).

Use Incentives, Not Mandates, to Achieve Affordable Housing Goals for Adaptive Reuse Projects

The question of whether market-rate multifamily housing developments should simply be required to include affordable units or should be encouraged to include them by offering, for example, density bonuses or similar incentives is the subject of considerable and ongoing debate (Phillips, 2020). Evidence suggests that, in high-cost areas (such as Los Angeles), incentives such as density bonuses perform better than mandatory rules in achieving affordable housing goals (Stacy, Plerhoples, Morales-Burnett, et al., 2021; Vallianatos et al., 2019). Importantly, incentives alone will not prevent the use of AR to build needed market-rate housing.[12]

As our analysis in Section 3 suggests, the financial feasibility of potential AR projects around the region likely varies considerably, from projects that may be only marginally viable even without requirements for the inclusion of affordable units, to projects that may have considerable financial capacity to accommodate such additional costs. Policymakers should carefully consider the trade-offs between the benefits from mandating the inclusion of affordable

Evidence suggests that, in high-cost areas (such as Los Angeles), incentives such as density bonuses perform better than mandatory rules in achieving affordable housing goals.

units for every potential AR project and the costs of projects that could produce needed market-rate housing potentially being abandoned because of these requirements. The creative use of purely incentive-based mechanisms, such as time-limited property tax abatements (which would likely require substantial city and county coordination) or a set of ARO incentives that are tiered in terms of their "generosity" according to the number or share of affordable units included (as is the case for the Transit-Oriented Communities program) could spur the robust inclusion of affordable units in projects that have the financial capacity to do so, without disincentivizing more financially marginal projects (which could still provide needed gains in the supply of market-rate housing) from moving forward.

Concluding Thoughts

The evidence from this report suggests that the feasibility of AR to meaningfully address the housing shortage in the Los Angeles region is a complex issue. There is a large stock of CRE that may be underutilized and, thus, amenable to reuse as housing. However, a simple analysis of the financial feasibility of converting these properties suggests that the targeted mix of unit types and hyperlocal real estate prices are both important to this question. Furthermore, considering a broader mix of social, economic, and environmental factors suggests that significant subsidies or other incentives to bolster the financial feasibility of residential AR may be warranted to site new housing in areas that are rich in resources for residents and that are in locations that can help meet important environmental goals. History suggests that policy plays a critical role in reducing the considerable uncertainty that characterizes many AR projects. The city's recent policy efforts and broader interest at the county level and elsewhere in AR's potential suggest that residential AR may yet play a meaningful role in meeting the significant need for new, affordable housing in the region.

Acknowledgments

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Notes

1 Much of this report's framing and results focus on the City of Los Angeles and the small municipalities that are members of the Westside Cities Council of Governments: Beverly Hills, Culver City, Santa Monica, and West Hollywood. Together, these communities are responsible for nearly 60 percent of the overall RHNA allocation for Los Angeles County. However, in the appendixes to this report, we present results at the Los Angeles County level for most of the analyses we conducted.

2 The California Environmental Quality Act, a law adopted in 1970 that was intended to allow for public input into development that could have negative effects on the state's natural resources, has long been used by a variety of private groups to oppose urban infill projects over concerns that appear to be largely unrelated to the natural environment. A 2018 study found that this is by far the most common current use of the law (Hernandez, 2018).

3 Project Homekey was initially provided with $750 million in funding through Homeless Assistance Grants that were part of the federal Coronavirus Aid, Relief, and Economic Security (CARES) Act (Pub. L. 116-136). These funds were augmented with $100 million from the state and philanthropies (Baldassari, 2021).

4 To put this number in context, about 324,000 units of new, multiunit rental housing have been completed per year on average in the United States, according to U.S. Census Bureau data (U.S. Census Bureau, 2021). Thus, the 52,700 AR projects figure represents about 15 percent of typical annual completions.

5 This is a requirement for Tier 1 applications, which appear to have been granted most or all of the awards in the first round of funding for this program (Newsom, Castro Ramírez, and Velasquez, 2020). The Homekey program also funds the purchase and conversion of existing apartments, but we focus in this discussion and analysis on hotels, which comprise most of the total portfolio in Los Angeles County.

6 Our analysis combines data on Homekey awards from the California Department of Housing and Community Development (California Department of Housing and Community Development, 2021) and CoStar data on these properties, including their sale prices. We use 12 of the 15 awards in the City of Los Angeles that were associated with hotel/motel properties.

7 These housing developments were all proposed from 2017 to 2021 in Los Angeles using a common set of funding sources, making them subject to many common cost-drivers, including city regulations and planning requirements, regional labor and materials costs, and several funding source–specific regulations (Ward, 2021).We use estimated cost data provided to the agency that administers the Low Income Housing Tax Credit program in California for our cost data, which includes estimates of total development costs and *hard* (construction) costs. Greater detail on these data and exercises assessing their validity are presented in Ward, 2021. Our regression model also controls for a variety of other important characteristics that may vary across these projects in order to better isolate the relationship between AR and costs. These characteristics include project size, the share of housing units of different sizes and types, year-to-year differences in cost factors that affect all projects (year fixed effects), and the type of populations the housing project is targeted toward. See Appendix C and Ward, 2021, for a detailed description of the data and the regression models used.

8 We employ apartment size data from Chen, 2019, and Balint, 2018, using 450 square feet for studio apartments, 725 square feet for one-bedroom apartments, and 1,150 square feet for two-bedroom apartments. To each of these sizes, we add heuristic amounts of space (roughly 10 percent to 12 percent) to account for required common areas so that our final equivalent unit sizes are 500 square feet for studio units (for office properties only, since we use a straight room-to-unit comparison for hotel/motel properties), 800 square feet for one-bedrooms, and 1,300 square feet for two-bedrooms. We omit retail properties from this analysis, since the wide variety of property sizes and layouts in this sector suggests that these comparisons would be the most speculative of the three. However, ignoring the potentially greater uncertainty regarding AR feasibility because of particular property characteristics, we would expect that the feasibility of residential AR using retail would be roughly between the results we present for hotel/motel and office properties, given that the per-square-foot price of retail in our sample is roughly between the price of economy hotel/motel properties and office properties.

9 We compared the average price of a studio unit with the average per-room price for hotel/motel properties, whereas we used the average price of a 500-square-foot portion of office space for office properties, which reflects a 450-square-foot unit plus 50 square feet of common space. Our best estimate of the average room size for hotel/motel properties is 300 square feet, though these properties also contain (implicit) common space, and an unknown share of these units are suites (6 percent of the hotel/motel properties in our sample have "suite" in the property name), which may be more than double this average room size. This potential difference (relatively smaller room sizes for hotel/motel properties) may drive some of the magnitude of the price differences we observe between panels A and B in Figure 1, but we cannot directly test the extent of this issue.

10 See Appendix E for details on how our index was constructed and for a series of maps that display the spatial distribution of these properties across the geography used here and across an alternate, countywide geography.

11 The city also uses language similar to the draft DTLA ARO update in a document intended to provide a map for neighborhood-specific AROs as the housing elements of each of the other Los Angeles CPAs are updated (Los Angeles City Planning, 2021).

12 Although the idea that market-rate housing is not needed in Los Angeles or other high-cost cities is persistent in policy debates about housing supply (Hills, 2018), the sixth cycle RHNA process has allocated to Los Angeles County the task of planning for more than 340,000 units of housing for "above-moderate income" households (those earning more than 120 percent of the area median income level) over the next eight years (Southern California Association of Governments, 2021b). Furthermore, recent empirical evidence suggests that new market-rate housing reduces rents and fosters increased housing opportunities for low-income individuals and families (Asquith, Mast, and Reed, 2019; Mast, 2019).

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About This Report

The sixth cycle of the octennial California Regional Housing Needs Assessment indicates that, over the next eight years, the City of Los Angeles needs to plan for the creation of nearly 260,000 homes for families earning 30 percent to 80 percent of area median income and for the creation of 197,000 units for families earning more than that amount. Meeting this goal would require the production of more than 100,000 homes per year over the next eight years, with more than 50 percent of them available at affordable rents.

The magnitude of the region's housing needs has led many policymakers and other stakeholders to call for an all-of-the-above approach to expanding the housing supply that includes increasing the production of both publicly funded affordable housing and market-rate housing, incentivizing increased density for infill housing projects, doubling down on such innovations as modular housing, and increasing support for the preservation of the existing affordable housing stock. In this report, we attempt to inform such an approach by focusing on one channel that could be an important part of the overall approach: the adaptive reuse (AR) of underutilized commercial real estate (CRE) as multiunit housing.

The objectives of this report were to (1) generate evidence on the potential capacity of AR to bolster the supply of housing in the region, (2) assess how recent trends in prices and utilization rates of CRE affect the financial feasibility of AR, (3) explore how the geographic distribution of underutilized CRE coincides with social and environmental goals related to the siting of housing, and (4) assess how the distinct aspects of AR projects and relevant policy might affect the feasibility of this approach in terms of meeting regional housing goals.

This research was supported through a gift from the Lowy Family Group and conducted by the RAND Center on Housing and Homelessness in Los Angeles (CHHLA), part of the Community Health and Environmental Policy Program within RAND's Social and Economic Well-Being division. The CHHLA is focused on providing policymakers and stakeholders with timely research and analysis to address the dual crises of housing affordability and homelessness in the Los Angeles region and beyond. For more information, visit www.rand.org/chhla.

Community Health and Environmental Policy Program

RAND Social and Economic Well-Being is a division of the RAND Corporation that seeks to actively improve the health and social and economic well-being of populations and communities throughout the world. This research was conducted in the Community Health and Environmental Policy Program within RAND Social and Economic Well-Being. The program focuses on such topics as infrastructure, science and technology, community design, community health promotion, migration and population dynamics, transportation, energy, and climate and the environment, as well as other policy concerns that are influenced by the natural and built environment, technology, and community organizations and institutions that affect well-being. For more information, email chep@rand.org.

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