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Strategies to Lower Cost and Speed Housing Production: A Case Study of San Francisco's 833 Bryant Street Project

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Executive Summary

Across the United States, the high costs of developing subsidized housing hinders efforts to address the affordability crisis of low- and moderate-income families and provide homes for unhoused individuals. The number of people paying half or more of their income for housing remains at historically high levels, and after many years of decline, homelessness has been on the rise, particularly in California. Levels of public subsidy for housing have not kept pace with these growing needs. At the same time, higher costs per unit to build affordable housing mean that states and localities produce fewer units with the same amount of subsidy, even as more people are in need of these units.

While these problems exist across the U.S., San Francisco is exceptional both in terms of the need for affordable housing and the high cost to provide those homes. Not only has homelessness in San Francisco worsened in the past five years, but the COVID-19 pandemic has put even more stress on extremely low-income renters and placed many at greater risk of becoming unhoused.

Permanent supportive housing (PSH), where residents are provided with an apartment in conjunction with a range of services, is a proven method to reduce homelessness and has even been shown to require less public expenditure than leaving people unhoused. The city of San Francisco has committed to building more PSH but is not currently building at the pace required to meet the need.

A number of factors pose barriers to building more PSH housing in the city. Development timelines for affordable projects in San Francisco have typically

stretched to 6 years or longer and development costs have reached \$600,000 to \$700,000 per unit. This is a far slower and more costly process than other dense cities in high-cost areas, even other high-cost areas in California. While there is widespread agreement in the public and private sectors that the length of development timelines and high price of construction are problems, they have yet to be addressed in a comprehensive way.

These challenges have been a focal point for [the Chronic Homelessness Initiative](#) launched by [Tipping Point Community](#)—a philanthropic organization in the Bay Area. The goal of the Initiative is to reduce chronic homelessness by 50 percent between 2017 and 2022. To help meet that goal, Tipping Point partnered with [the San Francisco Housing Accelerator Fund](#) (HAF) to: (i) develop a new model for building quality PSH at lower cost, and (ii) establish a revolving fund to support multiple projects and leverage additional funding. They first set out to build new housing in under three years and at a cost of \$400,000 or less per unit. Tipping Point Community contracted with the HAF to create and structure the Homes for the Homeless Fund and lead project investment and implementation efforts. The Homes for the Homeless Fund's first project, a permanent supportive housing development currently under construction at 833 Bryant Street, is on target to meet those goals, which are substantially below the cost and timelines that are typical for San Francisco projects. The Bryant Street project is funded in part by the Initiative through the San Francisco Housing Accelerator Fund with Mercy Housing acting as the developer. It is expected to be completed in July 2021.

This brief assesses 833 Bryant's development process to date, with a specific focus on: (i) understanding how timelines and costs for 833 Bryant compare to San Francisco norms, (ii) how the project achieved projected time and cost savings, and (iii) what lessons can be taken from this project for both the public and private sectors. To inform this analysis, we interviewed the relevant stakeholders involved with the project, and we analyzed the financials of 833 Bryant, a number of comparison projects, and data on affordable housing development costs in the area more generally.

The results of our analysis find that 833 Bryant is on target to be completed 33 months after land acquisition, and we estimate that the development cost is set to come in at \$382,917 per unit. To put that in perspective, 833 Bryant is on pace to build homes, conservatively, about 30 percent faster and at 25 percent less cost per unit the similar project.

We determined that the project was able to achieve these time and cost savings through a package of four cost efficiencies:

1. Committing to defined and ambitious cost and timeline goals.

Tipping Point Community established defined and ambitious cost and timeline goals up front, which led the development team to innovate in the financing and design of the project.

2. Deploying unrestricted capital to fund many costs during construction.

833 Bryant benefited from a large pool of flexible funding unrestricted by the regulations that typically come with subsidies. This capital came from the Homes for the Homeless Fund established by Tipping Point and HAF. In

contrast to most funding for affordable housing, which requires detailed paperwork, or specified returns, these funds had no terms other than to support the development of PSH deals done quickly and at relatively low cost. Furthermore, while it was understood that, ideally, these funds would be revolved to support additional developments, HAF and Tipping Point were willing to accept the risk that the funds would not be returned from the project.

3. Receiving approval for the Streamlined Ministerial Approval Process under Senate Bill 35.

This law allowed 833 Bryant to move through the permitting process much faster and with less risk.

4. Using off-site construction of apartment units.

Off-site construction of apartment units at Factory_OS allowed the project to simultaneously build units and engage in site work, shortening the development timeline.

The savings achieved by this package of efficiencies are greater than the sum of its parts and taken together resulted in a far more flexible and streamlined development process. The timeline savings of the project are particularly important. Subsidized housing often follows a more convoluted development process than unsubsidized housing and by streamlining the process, 833 Bryant was able to avoid many of these direct costs. Faster timelines also meant locking in lower construction costs. Between 2008 and 2018, multifamily construction costs in the region rose by over 8 percent annually. Timeline savings are especially important for PSH, as slower development means unhoused individuals

remain homeless longer. 833 Bryant's quick timeline means that 145 homeless people will be housed months or even years sooner than if the project had been developed through the typical processes.

And there are lessons to be learned that extend beyond PSH projects. 833 Bryant's goals of cost and time efficiency led the development team to a new way to produce affordable units, faster, and for less subsidy. Their focus on cost and time efficiencies is applicable nationwide, as the scarcity of affordable housing coupled with limited subsidy dollars is a major issue across the country.

Introduction

The cost to develop affordable units has a major impact on how many low-income people, including those currently unhoused, can be stably housed. Affordability, especially for low-income renters is at crisis levels. After many years of declines, homelessness has been on the rise in the U.S., particularly in California. Levels of public subsidy for housing have not kept pace with this rising need. Higher costs per unit to build affordable housing mean that states and localities produce fewer units with the same amount of subsidy, even as more people are in need of these units. While these problems exist across the U.S., San Francisco is exceptional both in terms of the need for affordable homes and the high cost to build them. Even with new local subsidies coming online to support affordable housing construction in the city, the number of new units required far outstrips available resources.

Tipping Point Community—a Bay Area philanthropic organization—launched its Chronic Homelessness Initiative in 2017 with the goal of reducing homelessness

in the region by half in five years. A key component of that initiative is to pilot new ways to develop quality permanently supportive units in San Francisco in under three years and at a cost of \$400,000 or less per unit—significantly faster and cheaper than is typical for such projects in the city. The first development to receive funds through the program is currently under construction at 833 Bryant Street and is scheduled to be completed in July 2021.

This analysis evaluates the progress of the Bryant Street project to date, comparing it to affordable development norms in the city and to specific newly constructed PSH projects. The remainder of the report provides context for the project's development, an overview of methods used to assess its development timeline and financials and identifies key elements that have contributed to Bryant Street's projected time and cost efficiencies. The report concludes with recommendations for ways in which other projects—in San Francisco and beyond—can produce housing relatively quickly and at lower cost, and how the public sector can change laws and policies to facilitate the quick, efficient development of desperately needed homes for unhoused individuals.

Background

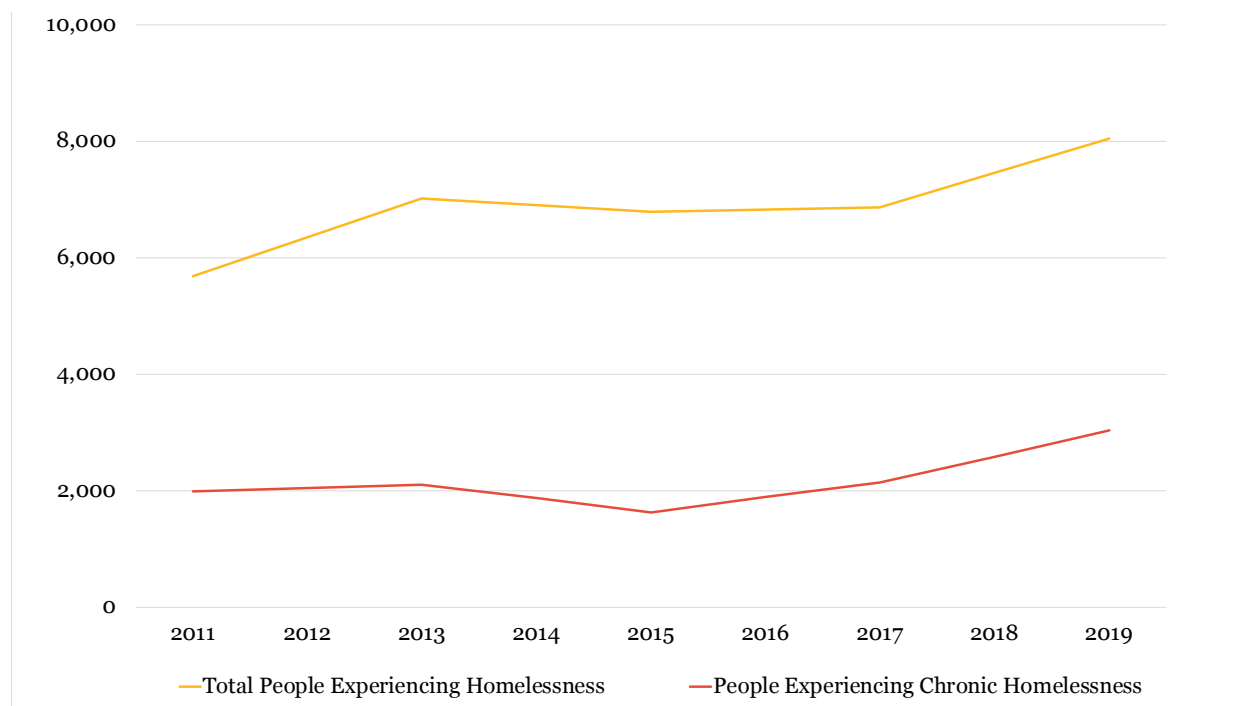
San Francisco's Homelessness Crisis and the Need for Permanent Supportive Housing

Cost efficiency in the production of subsidized housing is essential in the face of the high levels of need and limited subsidy funds. The number of people facing dire housing needs in the U.S. has been at historically high levels for the past decade.¹ Levels of subsidy, particularly from the federal government, have not kept pace with rising need, leaving a larger portion of extremely low-income families without access to the housing assistance for which they are eligible.² After many years of declines, levels of homelessness in the U.S. began to rise in 2015, driven in part by growing affordability challenges.³

California faces especially high affordability pressures and has seen especially

sharp increases in the costs of developing subsidized housing. Construction costs per unit for Low-Income Housing Tax Credit (LIHTC) developments rose 11 percent in real terms from 2011 to 2015 in California, even as costs held flat in other parts of the country.⁴ Increases in the homeless population in the state have also outpaced national trends since 2011, and the number of people experiencing homelessness in San Francisco has risen even faster than the state level, growing more than 40 percent from 2011 to 2019 (Figure 1). In addition, the population of people experiencing chronic homelessness, defined by HUD as people who have experienced homelessness for a year or longer and also have a disabling condition that prevents them from securing work or housing, has risen from 1,977 in 2011 to 3,030 in 2019 (Figure 1).⁵ Note that these numbers do not reflect the impacts of the COVID-19 pandemic over the past year, which is poised to deepen the homelessness crisis.⁶

Figure 1: Homelessness in San Francisco



Permanent supportive housing (PSH) is a proven solution to homelessness, particularly for people experiencing chronic homelessness, a population with rates of substance abuse and physical and mental disability that are higher than the unhoused population in general. Substantial evidence shows that so-called “housing first” strategies, where unhoused people are first provided with a home and then offered a range of supportive services, lead to long-term stability for the chronically homeless and can even result in less public-sector expenses than leaving people unhoused.⁷ The city has identified the production of PSH as a priority and has generated 550 units since 2016, with hundreds more in the pipeline.⁸ However, the challenges are currently outpacing the solution. One reason for this is the exceptionally slow development timeline to build units, coupled with the exceptionally high cost to build new housing, particularly affordable and supportive housing, in San Francisco.⁹

Piloting a New Approach to Permanent Supportive Housing Development: 833 Bryant Street

As part of its Chronic Homelessness Initiative, Tipping Point was interested in effective ways to increase and accelerate the production of new supportive housing. Tipping Point partnered with the San Francisco Housing Accelerator Fund (HAF) to develop a concept to increase the speed of construction and decrease the cost to build by pairing flexible private funds with long-term sustainable government funding. After developing a program model together, Tipping Point provided \$50 million to the HAF to create the Homes for the Homeless Fund with the explicit goal of developing PSH faster and at

lower cost than similar projects. The Fund itself provides a structure that is meant to encourage speed and cost efficiency. Its mission is to provide affordable housing, but as a public-private partnership it has more flexibility and can operate more nimbly than public agencies. This was a particular advantage for 833 Bryant, as HAF was able to move quickly to acquire a promising site that was privately held, thus avoiding the often-lengthy processes that accompany the development of publicly-held sites. While the Fund has acted as a lender to a number of projects across the city, this is the first deal that uses the capital provided by Tipping Point Community and where HAF has taken a more active role in development.

The site at 833 Bryant had originally been used as surface parking and was zoned as Service/Arts/Light Industrial. Prior to acquisition, HAF assembled the development team and worked with the City on a zoning amendment that allowed the construction of affordable housing on sites like 833 Bryant. The site was entitled in six months for the construction of 145 units permanent supportive housing reserved for people who have experienced chronic homelessness, plus one unit for the manager.

HAF purchased the site in October 2018 using unrestricted capital that was provided by Tipping Point and was not subject to the same requirements or expectations typically attached to private or public subsidy sources. HAF also used these funds to provide a low-cost loan for predevelopment and initial construction expenses (including a substantial portion of the off-site construction). These funds were partially returned to HAF with the deployment of a \$33,282,714 mortgage, funded with tax-exempt private activity

bonds. The HAF construction funds will be fully returned with the deployment of \$21,673,000 in associated LIHTC equity.¹⁰ Further public subsidies come in the form of an operating lease from the city of \$1.4 million per year and a master lease from the city of \$1.9 million per year, with payments beginning in 2022. Additionally, HAF is providing subsidy directly to the deal by providing the site to the city after a 30-year ground lease, and by providing development services without compensation, thus allowing for a lower collected developer fee than is standard.

Tipping Point and HAF partnered to launch the first project, jointly interviewing and choosing an architect, developer, contractor, and modular company. Mercy Housing was chosen to act as developer on the project. The units are all small studios of about 260 square feet each, which is appropriate given that the vast majority (94 percent) of people experiencing chronic homelessness in San Francisco are single adults without children.¹¹ The units were constructed off-site by Factory_OS.

Methods

Research for this project consisted of interviews with members of the 833 Bryant development team, analysis of the project's financials and development process, and comparisons with aggregated development cost data and the financials of four specific developments. The teams at both HAF and Mercy have many years of experience developing housing in San Francisco and were able to describe in detail how the development of 833 Bryant differed from other, similar developments.

Establishing whether the project achieved its cost and development timeline reduction goals is not a straightforward question

because, in a number of important ways, 833 Bryant is an atypical project. At some level of detail, every development is unique. The development process in San Francisco is unlike the process in even adjacent cities like Oakland. The specifics of development sites also vary, the costs of labor and materials change, and the methods of financing projects are rarely the same from project to project. There have been many multi-family affordable housing projects in the city of San Francisco in the past few years, though non-supportive housing projects rarely have all or nearly all of their units as studios. Permanent supportive housing is often 100 percent studios, but 833 Bryant's units are notably smaller than typical PSH in the city.¹²

For this reason, we use a few reference points to measure the project's cost savings and reductions in development timeline. The first reference point is averaged costs for subsidized multifamily housing construction in San Francisco. Data on construction costs are very limited, and this portion of the analysis relies on data on development costs by the Turner Center (from application materials for 9 percent LIHTC projects) in California and data from the San Francisco Mayor's Office of Housing and Community Development (MOHCD) on multifamily projects they have recently funded. To account for the fact that 833 Bryant is 100 percent small studio units we use cost averages in terms of costs per residential square foot and gross square foot, in addition to cost per unit. Unlike Single Room Occupancy projects (SROs), 833 Bryant is composed of full units, with a bathroom and kitchen. Costs per unit for microunit projects look low because more units are arranged into the floor area of the project, whereas costs per residential square foot appear high because more expensive facilities like

kitchens and bathrooms are also arranged into the residential area of the project. It is unclear whether to expect costs per gross square foot of 833 Bryant to be high or low because—though the residential areas will cost more—833 Bryant is a very efficient building, with little space necessary for circulation and relatively little space programmed for non-apartment uses. Non-apartment uses are common in affordable development in San Francisco.

We also compare 833 Bryant to four specific projects: 1064 Mission, Mission Bay Block 9, Casa de la Misión, and Parcel O. The first three are new construction, 100 percent small studio apartment, permanent supportive housing projects in San Francisco, all of which are currently under construction. These projects use some, but not all, of the cost saving measures used in 833 Bryant. The fourth project, Parcel O, is not similar to 833 Bryant, as it is mostly family housing, with unit sizes far larger than 833 Bryant. The project's fraught design and development process, however, provides a useful comparison to the relatively smooth process for 833 Bryant.

Findings

Estimated Cost for 833 Bryant & Savings Approach

833 Bryant is on pace to achieve a cost of approximately \$382,917 per unit. The total development cost for the project is about \$100,000 higher per unit, but this figure does not provide a fair comparison of 833 Bryant's costs to other projects. Table 1 shows the adjustments we made to the costs of 833 Bryant and other projects to arrive at figures that are useful for comparisons.

We exclude acquisition costs because many affordable projects in the city are developed on publicly owned land, which is typically ground leased to the developer. Furthermore, the cost and timeline reduction objectives of 833 Bryant are in many ways separate from the issues of site acquisition. Policy objectives such as access to jobs or quality schools or transit, for example, may justify higher acquisition costs. Like many PSH developments, 833 Bryant includes a large developer fee, only a portion of which is actually collected by

Table 1: Adjustments Made to 833 Bryant Project Costs for Comparison

833 Bryant	Project	Per Unit	Per GSF	Per RSF
Total Development Cost	\$68,635,195	\$470,104	\$1,111	\$1,572
- Acquisition Cost	\$ 8,273,523			
- Recontributed Developer Fee	\$ 5,405,858			
+ Reduced Developer Fee	\$ 950,000			
Cost for Comparisons	\$55,905,814	\$382,917	\$905	\$1,280

the developer, while the rest is recontributed to the project to boost LIHTC-eligible costs. In the case of 833 Bryant the collected developer fee was reduced even further (by \$950,000) relative to a typical PSH development. Mercy Housing, as the developer, agreed to take a reduced fee because HAF assumed a substantial portion of the development work, particularly entitling the site and leading negotiations of the subsidy lease with the city. The reduced fee can be considered a subsidy provided by HAF to the project and is thus added to the total development cost. However, 833 Bryant also includes about \$900,000 of interest and fee costs for the HAF construction loan, which are costs that are not incurred in most similar affordable developments, where construction costs would typically be supported by MOHCD subsidy. We do not adjust the cost downward to account for these interest and fee costs, because at the moment deal structures like this one—reliant on unrestricted capital—will need to support such costs.

833 Bryant differs from the “business-as-usual” development of PSH in San Francisco in a number of ways, but a package of four cost efficiencies have worked together to result in lower per-unit costs and a shorter development timeline.¹³

Specifically, the project partners:

1. **Committed to defined and ambitious cost and timeline goals.** The development team was committed to building quality PSH at a cost of \$400,000 per unit or less and complete the project within three years. These goals drove many of the important decisions in the development process.
2. **Deployed unrestricted capital during construction.** Tipping Point Community provided HAF with capital whose sole purpose was to develop PSH faster and at lower cost than is typical. Tipping Point was willing to accept the risk of losing some of this capital to achieve these savings.
3. **Received Streamlined Ministerial Approval under SB 35.** The Streamlined Ministerial Approval Process, signed into law in 2017, provides an entirely ministerial entitlement process on a fixed timeline for certain affordable housing projects in some jurisdictions in California, and allows these projects to avoid delays caused by CEQA.
4. **Used off-site construction.** 833 Bryant’s units were constructed off-site by Factory_OS, a union-staffed facility in Vallejo, CA. Off-site construction allowed the project to simultaneously engage in site work and building construction.

All four innovations work together in 833 Bryant, resulting in a method of development that is substantially different, not only from “business-as-usual,” but also from developments that used only one or two of these four measures (Table 2). The sum of savings achieved by this package is greater than the parts.

Table 2: Comparison Projects and the Package of Cost Efficiencies

	Defined, Ambitious Cost & Time Goals	Unrestricted Capital During Construction	Streamlined Ministerial Approval Process	Off-Site Construction
833 Bryant	Yes	Yes	Yes	Yes
1064 Mission	Time Goal Only	No	Yes	Yes
Mission Bay Block 9	No	No	Yes	Yes
Casa de la Misión	No	Yes	Yes	No
Parcel 0	No	No	No	No

833 Bryant's Package of Cost Efficiencies Is on Target to Bring Units Online, Conservatively, 30 Percent Faster and at 25 Percent Lower Cost Per Unit Than Similar Developments

The three projects that are most similar to 833 Bryant provide the best benchmarks to estimate how effective the project was at achieving its cost and timeline reduction goals. Table 3 summarizes these projects' per-unit costs, the average size of the units, and the scope of the projects, along with recent LIHTC averages in San Francisco and the costs of recent MOHCD projects. 1064 Mission, Mission Bay Block 9, and Casa de la Misión are very similar to 833 Bryant though Bryant cost between 37 percent to 25 percent less on a per unit basis. While the residential portion of these projects are very similar to 833 Bryant, all of the projects include non-housing

components that are more substantial than 833 Bryant. (833 Bryant includes a very small retail space.) Non-housing components are common in PSH developments in San Francisco and contribute to higher per-unit costs. 833 Bryant was acquired in October of 2018 and is on target to be finished in July of 2021, for a development timeline of 33 months, which is fast for San Francisco. San Francisco is notorious for the exceptionally long time required to take projects from acquisition to completion. The extended timelines are largely due to public processes, and affordable projects face even longer delays because of the additional requirements that come with public subsidies.¹⁴ On average, multi-family projects in San Francisco took 76 months, or 6.3 years, from permitting to completion.¹⁵ (833 Bryant submitted its permitting application two months after acquisition, in December 2018.)

The comparison projects all took longer to complete than 833 Bryant, though direct

Table 3: Comparison Projects' Costs and Scope

	\$ Per Unit	Average Unit Size	Scope
833 Bryant	\$382,917	260 sq. ft.	<ul style="list-style-type: none"> • 61,800 gross sq. ft. • 146 units • 500 sq. ft. retail space • 2,355 sq. ft. services and office space • 2,858 sq. ft. community outdoor space
1064 Mission	\$509,826	350 sq. ft.	<ul style="list-style-type: none"> • 175,123 gross sq. ft. • 258 units • 20,000 sq. ft. clinic • 5,400 sq. ft. commercial kitchen & culinary training center
Mission Bay Block 9	\$573,218	330 sq. ft.	<ul style="list-style-type: none"> • 99,150 gross sq. ft. • 141 units • 18,000 sq. ft. landscaped community garden
Casa de la Misión	\$611,981	300 sq. ft.	<ul style="list-style-type: none"> • 25,757 gross sq. ft. • 45 units • 1,100 sq. ft. retail
LIHTC San Francisco Average ¹⁶	\$639,555	Average unit sizes are substantially larger than 833 Bryant	Varies
Recent MOHCD Average	\$736,000	Average unit sizes are substantially larger than 833 Bryant	Varies

comparisons are difficult because these projects followed different development processes (Table 4). 1064 Mission, Mission Bay Block 9, and Parcel O, for example, all were developed on public land, which complicated the acquisition. For these projects we calculate the timeline starting from the selection of the developer. We estimate that 833 Bryant is on track to be completed at least 30 percent faster than 1064 Mission, which has the next shortest projected timeline. We consider this to be a conservative estimate because, though 1064 Mission is larger than 833 Bryant, it was developed faster than is typical. 1064 Mission moved quickly because of the federal government's requirement that the project be completed and occupied within three years of the property transfer agreement.

(We omit Casa de la Misión from the timeline comparison because of that project's especially complex development process. Mission Neighborhoods Center purchased the site in 1994. The project went through various programming ideas until 2012, when initial renderings for a multifamily

project were drawn up. However, the developer then spent years working with the city to get the site into a developable configuration. Thus, it could reasonably be said that the development process of Casa de la Misión took 43 months, starting from the beginning of the process to get the site into a developable configuration; or 8 years, starting from the selection the developer of the site; or 26 years, starting from the initial purchase of the site.)

Delays in development not only mean that those currently in need of housing need to wait longer to be housed, but they also increase development costs. Delays increase costs in a number of ways but some of the biggest increases come from rising construction costs. We calculated that multifamily construction costs in San Francisco rose 119 percent between 2008 and 2018, for an annualized increase of over 8 percent.¹⁷ Thus a year's delay for a project like 833 Bryant would not only mean 145 homeless people would remain on the streets for an additional year, but also that the same project would cost an additional \$500,000.



Table 4: Development Timelines of Comparison Projects

	2014	2015	2016	2017	2018	2019	2020	2021	Timeline
833 Bryant					Acquired October		Started construction March	To be completed July	33 months
1064 Mission					Selected through Request for Proposal (RFP) February	Site transferred from Federal Government	Started construction March	To be completed December	47 months
Mission Bay Block 9				Selected through RFP November	Received approval through Office of Community Investment and Infrastructure (OCII)	OCII approved design Modular vendor selected	Started construction August	To be completed December	49 months
Parcel 0	Selected through RFP December	Applied for entitlements February; Conditional Use Permit filed August	Project approved	Started construction October		Completed September			57 months

Commitment to Defined Cost and Time Goals Pushed the Project to Innovate in Both Financing and Design

Defined and ambitious cost and timing targets are not standard in the development of affordable housing. Housing subsidy programs are often structured in ways that provide no incentive to reduce development costs. For example, LIHTC projects have substantial construction contingencies in their budgets and receive LIHTC subsidy in proportion to the size of the contingency (up to a defined limit). Developers who are on track to not fully use their construction contingency often add scope items to the project in order to use the contingency with the associated subsidy. Public input processes can also impede cost efficiency. While local residents may want people experiencing homelessness to have homes, the public input process can result in proposed changes that push up per-unit costs. The private sector also doesn't provide incentives for cost efficiency. There are no major architecture awards for cost-effective design and developers are similarly rewarded far more for splashy but expensive projects than they are for projects that provide quality units as quickly as possible and using as little subsidy as possible. In a world of limited subsidy this set of incentives means fewer units, and, in the case of PSH, more people living in shelters or on the street.

The commitment to these goals drove most of the important decisions in the financing and design of 833 Bryant and resulted in a financing structure and development process that is quite different from San Francisco norms. Early on the team realized that accepting local subsidies during

construction would require compliance with regulations that would make it impossible to reach the cost and time goals. This led to the use of unrestricted capital from Tipping Point and bonds from the state. Similarly, the major aspects of the design of the project—from the use of a single, small-unit design to the number of units on the site and the site programming—were also driven by the need to meet the project's cost and timeline goals. The final design of the project is not typical for PSH in the city. The city's public agencies have policies that encourage larger units and higher-cost design items (such as large windows) based on the theory that these features will make residents work harder to maintain their units, resulting in improved housing stability. The goals also drove the team to tap existing but relatively new and non-traditional development methods such as the Streamlined Ministerial Approval Process and off-site construction.

1064 Mission provides a useful contrast as that project was also committed to a defined and ambitious timeline, though the commitment came from federal disposition policies. The site of 1064 Mission was owned by the U.S. Department of Health and Human Services (HHS). The property was transferred to the city for \$1 on the condition that the new owner would commit to a deed restriction that all uses on the site be for the benefit of people experiencing homelessness and any improvements be completed within three years of the transfer agreement. If these terms were not met HHS could take back the property and improvements or impose large penalty payments. This requirement drove much of the development and resulted in a relatively quick development timeframe.

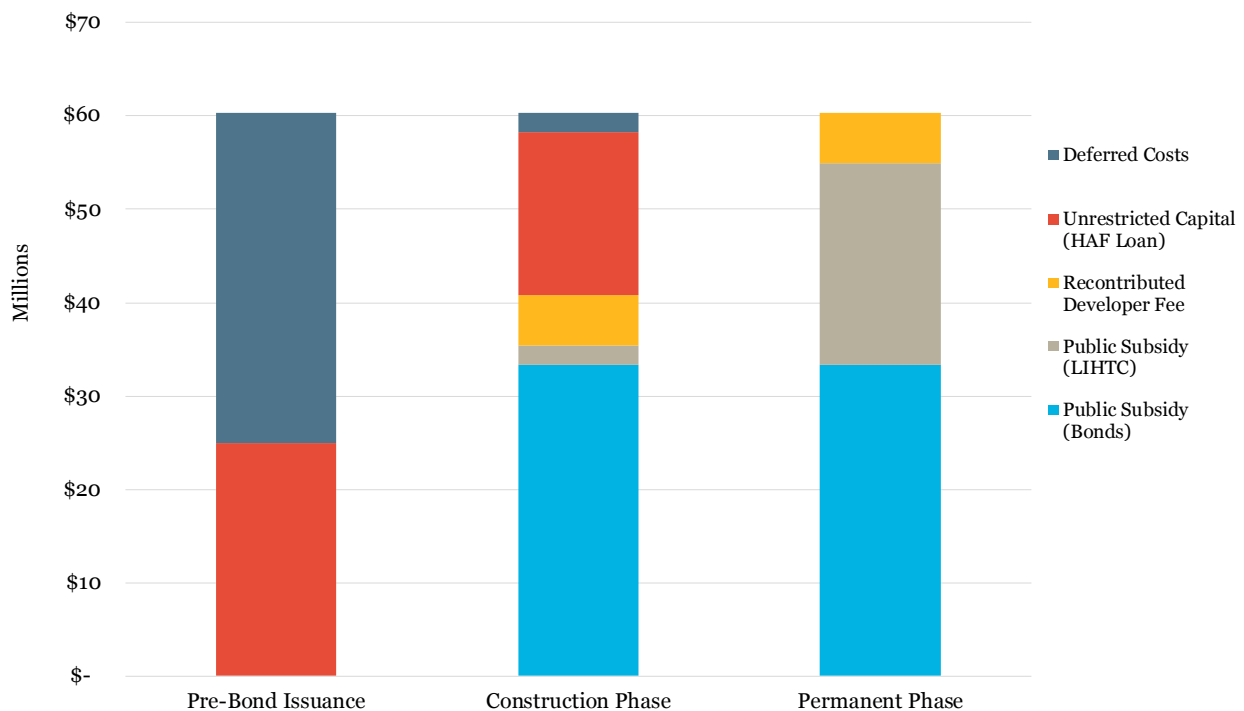
Unrestricted Capital Deployed During Construction Brought Substantial Flexibility and Streamlining to the Development Process

Tipping Point provided HAF with \$50 million with the primary purpose of supporting affordable housing developments to be completed faster and at lower cost. The secondary purpose was to establish a revolving fund to support additional, future deals. There were no other terms. Tipping Point had no expectation of any return on its investment and the funders were comfortable with the risk that funds would stay in the deals. HAF used these funds to (i) buy the 833 Bryant property (these funds were to be returned but will now stay in the development) and (ii) make a low-cost loan to Mercy Housing to support the construction of 833 Bryant.

The interest and fees on the loan cover HAF’s costs of administering the funds. Critically, these funds were available early in the development process, were able to be put at risk, could be used for a very wide range of uses, and came with little to no regulatory baggage.

As noted above, in 833 Bryant, these dollars are taken out with bonds and tax credits during the construction and permanent phases, and with debt service supported by local subsidies post-construction. HAF used Tipping Point’s Chronic Homelessness Initiative funds to provide the project with a \$25 million loan to fund all expenses until bond issuance, and a substantial portion of expenses until conversion. Upon origination of the bond-funded construction loan, approximately \$8 million was returned to HAF, and the remainder will be returned with the entrance of most of the tax credit equity at conversion.

Figure 2: 833 Bryant Capital Stack



Using these funds to cover extensive development expenses before public subsidies were deployed allowed 833 Bryant to avoid many compliance review processes that would have slowed development and required revisions to the project design, and also allowed the project to run development processes in parallel. Receipt of public subsidies, particularly local subsidy, comes with many additional layers of compliance review, each of which not only takes time, but also carries the risk of temporarily halting the development process entirely.

833 Bryant avoids local subsidies entirely until after the building is completed. It did so because the regulations that accompany local subsidy during construction were deemed incompatible with achieving the cost and timeline goals. For example, developments receiving local subsidies must meet the stipulations of Small Business Enterprise (SBE) hiring. The requirements are intended to support the local economy of the city and provide economic opportunities for local residents. These rules stipulate that contracts of \$10,000 or more are reviewed for the frequency with which certified small firms are hired. This introduces two mechanisms for delay and increased costs. The first is that the development team is selected based on the lists of SBEs provided by the city, as opposed to the capacity of the firm and cost of their services. Developers have reported instances where SBEs became overwhelmed by the demands of the project and a second firm needed to be contracted to provide identical services, increasing costs and slowing development. Even the hiring of high-capacity SBEs can slow development, as services need to be advertised for a minimum of 30 to 60 days before a firm may be selected.

The design of the project is also affected as MOHCD requires designs be reviewed by the Office of Disability, Historic Preservation office, and the Department of Energy—to ensure that the project conforms to green building and stormwater standards—among other requirements. The public subsidies that took out the Tipping Point capital—CalHFA bonds with associated LITHC—have many layers of compliance review as well but did not require any changes to the development team or design of the project. Even bonds issued by the city of San Francisco would have come with a number of regulations that would have forced changes in the development team and project design.

Not only does each additional requirement come with a new risk of delay, but the process of applying for public subsidies also means that many parts of putting projects together need to be put on hold until subsidies have been awarded. Having a pool of unrestricted capital allowed 833 Bryant, for example, to not have to wait for its bond allocation before placing its order for off-site units. This allowed the project to begin construction even as it was negotiating its lease with the city of San Francisco. 1064 Mission, on the other hand, was tied to a development process that needed to proceed one step at a time. Transfer of the site from the federal government, for example, required that the development team show that the project was fully funded and entitled. Furthermore, 1064 Mission was delayed by 45 days solely due to documentation requests from the federal government.

Freed from the additional design requirements that come with most housing subsidies, 833 Bryant was designed with the primary goal of providing quality, cost-efficient housing. A sizable portion of the total

savings realized in 833 Bryant arise from the design of the building, which includes small units and efficient programming. For example, the project has very little common space and the units are stacked vertically and there is no need for excess circulation spaces. There is a single floor plan for all units, allowing the off-site manufacturer to program one large construction run, maximizing their production efficiency. While there are non-apartment uses in the building, including two small retail spaces and offices for the supportive services staff, these uses comprise a relatively small portion of the total building area.

The design of 1064 Mission is far less cost-efficient than it could have been because the use of public subsidies required additional processes that affected the project's design. In many regards 1064 Mission will be very similar to 833 Bryant: it is permanent supportive housing composed of 100 percent small studio units developed by Mercy Housing with off-site construction by Factory_OS. The project is much larger, with 256 units, compared to 833 Bryant's 145. In theory economies of scale might be expected to result in a lower per-unit total development cost for 1064 Mission. However, excluding acquisition costs, 1064 Mission will cost about 25 percent more. 1064 Mission will cost \$509,826 per unit, relative to \$382,917 for 833 Bryant. Much of this higher cost came from cost-inefficient design decisions that arose due to design review. For example, the Planning Department expected the project to have an active use on the first floor on Mission Street. For this reason, the project includes a large commercial kitchen which will provide space for a culinary arts training program for unhoused individuals as well as building residents. The project also has a large amount of community space. The number of units in the project relative to

the size of the site is substantially lower than 833 Bryant because of community concerns over the total number of units in the project. The developers estimate that an additional 20 units could have been easily accommodated in the site, through a combination of making the units smaller and reprogramming space from community uses to residential uses. The studio units in 1064 Mission are about 35 percent larger than the units in 833 Bryant, measuring 350 square feet compared to 833 Bryant's 260 square feet.

The design of Mission Bay Block 9 was made even more cost-inefficient than 1064 Mission in large part because of additional layers of public review. Mission Bay Block 9 will be 140 units of permanent supportive housing composed of 100 percent studios developed by BRIDGE Housing and Community Housing Partnership with off-site construction by Factory_OS. The units for this project, however, cost 33 percent more than 833 Bryant, at \$573,218 per unit. The high per-unit costs were driven in large part because this supportive housing project contains relatively little housing. The lot for Mission Bay Block 9 is about three times the size of 833 Bryant, but the project will have fewer units. The dearth of housing on the site is largely due to design review that was required because the Office of Community Investment and Infrastructure (OCII, formerly the San Francisco Redevelopment Authority) provided the land and subsidy. OCII required that the program for the site conform to plans passed in the 1990s, which limited the number of affordable units on the site. The developers had initially programmed the site for nearly twice as many units, with 120 senior units and 130 units for adults, instead of the 140 total units that were constructed. The initial design had a height that was in line

with the municipal building across the street and a traditional courtyard between the two buildings. Additionally, the project needed to be approved by the San Francisco Board of Supervisors. During the public hearing at the Board, residents voiced their concern over the number of units in the project, resulting in further reductions in the number of units. As a result, over one-quarter of the site is not housing at all, but a landscaped community garden.

While unrestricted capital allows for a more flexible design and development process, deploying capital before traditional public subsidies requires mitigating the risks to the capital that is spent. HAF established a series of fallback plans to ensure that the private capital put into the project could be taken out with public subsidies from bonds and the lease with the city. If the project had not received a bond allocation, for example, the team would have partially replaced these funds with proceeds from a 501(c)(3) bond issuance. Because these bonds would not have associated tax credits the project would still face a \$15 million gap that would have been filled with the Tipping Point dollars. If the project did not receive a bond allocation and the city was unwilling to provide a lease, the program of the building would shift to mixed-income housing to the maximum rents allowed under the Streamlined Ministerial Approval Process, which would also open up a gap to be filled with the Tipping Point funds. Both of these fallback options were fully analyzed and discussed with the development team and funders. However, the city of San Francisco was highly motivated to support the deal. The development of new permanent supportive housing for unhoused individuals was a major priority of the administration and providing these units quickly and at relatively low cost was also supported. Even so, the project

will be partially subsidized with Tipping Point funds indefinitely because the land, purchased for \$8 million, will eventually be transferred to the city for \$1.

Regulatory Streamlining through the Streamlined Ministerial Approval Process Removes Development Risk and Speeds Development Timeline

The Streamlined Ministerial Approval Process, passed in 2017, provides a less-onerous public approvals process on a set timeline to certain affordable housing projects in California cities that have been under-producing housing. Specifically, the law ensures that the review of planning applications for eligible projects does not require conditional use permits, and thus is entirely ministerial. This reduces the burden to entitle projects and provides a cap on the amount of time the local government has to review and provide a decision for eligible projects. The act also shields eligible projects from challenges under the California Environmental Quality Act (CEQA), which has been used in the past to hinder real estate development and has likely contributed to the state's housing affordability crisis.¹⁸ 833 Bryant applied for coverage under the Streamlined Ministerial Approval Process in January 2019 and received approval in May.

The swift entitlement process for 833 Bryant, made possible by the Streamlined Ministerial Approval Process allowed the project to benefit from many cost efficiencies. The HAF acquired the site in October 2018 and submitted its entitlement application in December 2018, and the project was fully entitled by April 2019. The application for development, which included detailed architectural drawings,

was reviewed by the city to ensure compliance with building and zoning codes. The savings from the Streamlined Ministerial Approval Process arise in part from the law's guarantee of a surety of the entitlements process. Projects need to conform to a set of rules that are known to the developer and cannot be changed mid-way through the development process and the municipality must approve or deny the project within 90 days. This allows the development team to put together an application that conforms to known rules. This is not the typical process, and developments often change their design substantially based, for example, on citizen concerns that are raised months or years after the project first applied. The deadline imposed on cities by the Streamlined Ministerial Approval Process also ensures that the back-and-forth between the city and the developer over what is or is not to code and granting of waivers and concessions is resolved on a set timetable. The speed at which 833 Bryant moved through review cut the direct expenses that come with more involved reviews (such as the production of an Environmental Impact Report), allowed the project to lock-in construction costs early, and ensured that the project's design was established relatively early in the development timeline.

In contrast to the speedy entitlement of 833 Bryant, Parcel O was developed before the passage of the Streamlined Ministerial Approval Process and suffered cost increases arising from a convoluted development process and numerous changes to the project design. Parcel O is a 108-unit development in Hayes Valley, with 20 percent of units reserved for formerly homeless residents. Most of the project has larger units designed for families, so while the project has fewer units than 833 Bryant, it is a larger building. Parcel O

required a conditional use permit, which triggered a study of, among other things, the shadows that the building would cast. The study revealed that the building would cast a small shadow on a nearby playground for approximately one hour a day, one month out of the year. The project was redesigned to eliminate the shadow, but the redesign resulted in the loss of four units. The developer could have petitioned against the loss of the units, but this would have required producing a focused EIR, as the shadow was considered to be an impact important enough to be covered by CEQA. The delay that the production of a focused EIR would have caused the project was decided to be more detrimental to the project than the redesigned loss of four units. The project was also delayed by six months due to MOHCD's request that the developer delay their application to California's Tax Credit Allocation Committee (TCAC) until MOHCD could review bids for the project, and the requirement that the Board of Supervisors approve funding for the project. The earliest the project could go to the Board for approval was August, but the Board of Supervisors is on recess in August. The collective impact of these delays increased costs by at least \$500,000. An additional \$500,000 in costs were added because the Mayor's Office of Disability, having misclassified a portion of the building during plan review, determined after the project was completed that a portion of the building was a means of egress that needed to be accessible per ADA requirements. This required demolishing a portion of the newly constructed building and re-building it to a different design. The project also relied on cap-and-trade dollars, which required a fully entitled project to include an archaeological review. This review added \$300,000 in direct costs to the project.

Off-Site Construction Allows Development Processes to Run in Parallel

The units for 833 Bryant were constructed off-site at Factory_OS, a union-staffed facility located on a decommissioned naval base in Vallejo, CA. Research suggests that off-site construction has the potential to provide meaningful cost and time savings over traditional stick-built construction.¹⁹ For 833 Bryant, the greatest efficiencies from off-site construction were realized in conjunction with the quick entitlements process made possible by using flexible capital before deploying public subsidies and from the development process under the Streamlined Ministerial Approval Process. 833 Bryant was able to lock-in the design of the project relatively early, which took advantage of the cost efficiencies made possible with modular construction. Modular construction can achieve greater cost efficiencies by allowing the construction of the building simultaneously with or in advance of site work. The relatively swift finalization of design and completion of entitlements allowed the developer to direct Factory_OS to begin producing units in January 2020, though bonds for the project were not issued until August. Thus, the package of cost efficiencies for 833 Bryant allowed the project to avoid 7 months of construction cost inflation and interest carry. The contract for the units was approximately \$9.5 million, which, assuming 8 percent annual hard cost inflation and the bond rate of 2.82 percent would be \$440,000 in avoided cost inflation and \$160,000 in interest payments for a total savings of about \$600,000.

Casa de la Misión provides a useful comparison to 833 Bryant, as Casa de la Misión also received the Streamlined Ministerial

Approval Process designation and was funded without construction subsidies from the city. But Casa de la Misión differs in that it was constructed entirely on-site. Casa de la Misión is substantially smaller than 833 Bryant, with 45 studio units and approximately 1,100 square feet of street-level commercial space. The studios are only slightly larger than 833 Bryant's at about 300 square feet, relative to Bryant's 260. Excluding acquisition costs Casa de la Misión will cost approximately 50 percent more on a per-unit basis, or \$612,000 per unit, relative to approximately \$382,917 for Bryant. Most of these cost differences are driven by the efficient design of 833 Bryant, though 833 Bryant is also slightly less costly on a gross square foot basis (about 3 percent less costly). The gross square foot cost savings are somewhat attenuated by the smaller units of 833 Bryant, which would be expected to result in higher savings per square foot, all else being equal.

The direct cost and time savings that come from off-site construction at 833 Bryant are real, but the off-site construction industry is not fully established, which adds risks and blunts the even greater savings that off-site construction could potentially achieve. This construction method is still not standard, which requires assembling a development team (particularly architects and contractors) that have prior experience with off-site construction. Off-site construction allows for economies of scale that exceed stick-built construction, but these benefits are most fully realized with large orders of single unit types. If each production run is limited to units that are custom-designed for a specific project, savings from economies of scale will be limited. Production runs of units that are used in multiple projects could unlock further savings but requires coordination

across projects that is rarely seen today. Construction timeline savings from off-site mostly arise from the ability to construct units at the same time as site work is being completed. This requires that the design of the project be finalized early, which can be difficult in a lengthy entitlement process when the design may be required to change unexpectedly, and that the unit construction costs be funded early, which can be a challenge with existing subsidy programs.

Conclusion

Though not yet complete, 833 Bryant is on track to provide substantial cost and timeline savings relative to similar projects in San Francisco. These savings are made possible through a package of cost efficiencies that allow the project to follow a development process that is more flexible and lower risk in some ways (although comes with risk for the unrestricted capital) and allows the development to be oriented around the production of quality units at relatively low cost to a much greater extent than is typical. The development provides lessons for the future development of affordable housing, particularly permanent supportive housing, in a few ways.

First, it provides a model for development, mostly by showing the potential of unrestricted capital. 1064 Mission and Mission Bay Block 9 are two of many projects that use the Streamlined Ministerial Approval Process and off-site construction, but 833 Bryant shows that the savings that these two measures can achieve can be substantially magnified with the kind of funding that Tipping Point provided. The source of funding is far less important than its terms. In the case of 833 Bryant, the unrestricted funding substantially changed the development process because the funds (i) were fully available early in the develop-

ment process, (ii) could be put up at risk, (iii) could be applied to a very wide range of uses, and (iv) came with little to no regulatory requirements.

Much of the risk, however, was not that the funds would be “wasted,” but instead that they would remain in the deal, much as traditional subsidy does. For example, the acquisition of 833 Bryant was funded with Tipping Point capital that was initially expected to be returned to HAF through lease payments from the city. However, the budget crunch caused by the COVID-19 pandemic resulted in cuts to these planned payments. Now these funds will stay with the deal indefinitely, much as traditional subsidy would, instead of being revolved into other development projects. Creative structuring of unrestricted capital, however, can help ameliorate these risks. HAF structured their support to 833 Bryant primarily as loans priced to cover HAF’s costs. If preservation of capital was a higher priority, other structures, such as overcollateralization, could be used to deal with the risks of loss of capital over time.

833 Bryant also provides insight into the impacts of policies and funding programs that pose hindrances to the timely and cost-effective development of affordable housing, particularly permanent supportive housing. For example, much of the savings that 833 Bryant achieved came from bypassing the required development processes to entitle and fund affordable housing. Stakeholders interviewed for this project were, for the most part, supportive of the larger goals of these additional process requirements, such as the preservation of archaeological assets, community engagement, and creating a lively streetscape. The onerousness and risk to the housing project, however, was deemed disproportionate to the benefit

coming from advancing these goals. A shadow occasionally cast on a playground is a negative impact, but hardly seems proportionate to the loss of four affordable homes.

Similarly, the design processes typical for affordable housing in the city often favor a mix of uses, such as the inclusion of the clinic and culinary training center in 1064 Mission and the large community garden in Mission Bay Block 9. A mix of uses at the project level, particularly when they support the local residents, including the tenants, can be a substantial benefit. But additional uses increase the cost of the project and the timeline for the development. These non-apartment uses also frequently use the same sources of subsidy as residential uses. For example, every source of subsidy for 1064 Mission can be applied to residential uses. The additional costs and time associated with the development of non-residential uses in PSH projects should be weighed against the fewer units produced with each project and units being built later. San Francisco is by no means unique in this regard, and most cities that have a substantial number of people experiencing chronic homelessness could likely provide more homes if they re-balanced the goal of having mixed-use developments with the goal of housing the unhoused.

The Streamlined Ministerial Approval Process provides a model for speeding the development process for affordable housing in specific situations. A similar approach might benefit the development of PSH in San Francisco, given the dire need. Design and process requirements that come with development and funding sources could be streamlined for the development of PSH projects. The Streamlined Ministerial Approval Process itself could be improved,

as the application for approval under the law requires a site permit application, which in jurisdictions like San Francisco, is a very substantial package. Lessening the design review requirements by liberalizing waivers and concessions could also be considered.

Finally, the case of 833 Bryant highlights the efficiency gains that are possible when affordable development stakeholders, in both the private and public sectors, are focused primarily on providing decent-quality housing as quickly as they can for as many families as they can. The stakeholders for 833 Bryant shared this goal and were able to work together to achieve substantial cost and time savings. It is not common for the stakeholders of affordable developments to commit to defined time and cost goals and there are powerful incentives to add design elements that increase costs and extend the development timeline. Incorporating defined and meaningful cost and time goals into the process of developing affordable housing, either through subsidy programs or through other means, could be a means of bringing cost discipline to housing production and making the best use of scarce subsidy dollars. Across the country the lack of affordable housing remains a far more pressing problem than the quality of affordable housing that is built. A focus on producing quality housing speedily and controlling costs will result in more families being stably housed with the limited subsidies available.

ENDNOTES

1. Watson, N. E., et al. (2020). “Worst Case Housing Needs: 2019 Report To Congress.” Worst Case Housing Needs. Retrieved from:<https://www.huduser.gov/portal/publications/worst-case-housing-needs-2020.html>.
2. CBPP. (2019). “Federal Rental Assistance Fact Sheets.” Center on Budget and Policy Priorities. Retrieved from:<https://www.cbpp.org/research/housing/federal-rental-assistance-fact-sheets>.
3. U.S. HUD. (2020). “CoC Homeless Populations and Subpopulations Reports.” Retrieved from:https://www.hudexchange.info/programs/coc/coc-homeless-populations-and-subpopulations-reports/?filter_Year=&filter_Scope=NatlTerrDC&filter_State=&filter_CoC=&program=CoC&group=PopSub.
4. GAO. (2018). “Low-Income Housing Tax Credit: Improved Data and Oversight Would Strengthen Cost Assessment and Fraud Risk Management.” U.S. Government Accountability Office. Retrieved from: <https://www.gao.gov/products/GAO-18-637>.
5. Applied Survey Research. (2020). “San Francisco Homeless Count & Survey Comprehensive Report 2019.” San Francisco Homeless Point-in-Time Count & Survey.
6. Leifheit, K., et al. (2020). “Expiring Eviction Moratoriums and COVID-19 Incidence and Mortality.” SSRN Scholarly Paper, Social Science Research Network. Retrieved from:<https://doi.org/10.2139/ssrn.3739576>.
7. Woodhall-Melnik, J. & Dunn, J. (2016). “A Systematic Review of Outcomes Associated with Participation in Housing First Programs,” *Housing Studies* 31, no. 3: 287–304, <https://doi.org/10.1080/02673037.2015.1080816>; Bamberger, J. & Dobbins, S. (2014). “Long-Term Cost Effectiveness of Placing Homeless Seniors in Permanent Supportive Housing.” Community Development Investment Center Working Paper (San Francisco, CA: Center for Community Development Investments, Federal Reserve Bank of San Francisco). Retrieved from:<https://www.frbsf.org/community-development/publications/working-papers/2014/july/long-term-cost-effectiveness-homeless-seniors-permanent-supportive-housing/>.
8. San Francisco Planning. (2020). “San Francisco’s Community Stabilization | Homelessness Prevention and Supportive Housing.” Retrieved from:<https://projects.sfplanning.org/community-stabilization/homelessness-prevention-and-supportive-housing.htm>.

9. Goggin, B. (2018). "Measuring the Housing Permitting Process in San Francisco." *Turner Center for Housing Innovation (Blog)*. Retrieved from: <https://turnercenter.berkeley.edu/blog/measuring-the-housing-permitting-process-in-san-francisco>; Reid, C. (2020). "The Costs of Affordable Housing Production: Insights from California's 9 Percent Low-Income Housing Tax Credit Program." *Turner Center for Housing Innovation*. Retrieved from: <https://turnercenter.berkeley.edu/research-and-policy/development-costs-lihtc-9-percent-california/>.
10. Additionally, \$5,405,858 of developer fee is recontributed to the project for a total development cost of \$60.4 million, exclusive of acquisition costs.
11. Applied Survey Research. (2019). "San Francisco Homeless Count & Survey Comprehensive Report 2019."
12. The units in 833 Bryant are 260 square feet, which is above the 220 square foot minimum for new construction in San Francisco and much larger than units in single-room occupancy (SRO) developments. As of 2011 a limited number of units of 150 to 220 can be built. However, units of less than 300 square feet size are rarely built as new affordable housing in the city.
13. This package of cost efficiencies are not the only innovations at play at 833 Bryant. HAF's acquisition of the site, for example, represents a different approach to finding sites for affordable housing than are typically used in San Francisco. However, this brief focuses on cost and timeline savings, which the project intended to achieve largely through this package of four approaches.
14. Reid, C. & Raetz, H. (2018). "Practitioners Weigh in on Drivers of Rising Housing Construction Costs in San Francisco." *Turner Center for Housing Innovation*. Retrieved from: http://turnercenter.berkeley.edu/uploads/San_Francisco_Construction_Cost_Brief_-_Turner_Center_January_2018.pdf.
15. Brian Goggin, "Measuring the Housing Permitting Process in San Francisco," *Turner Center Blog (blog)*, July 24, 2018, <https://turnercenter.berkeley.edu/blog/measuring-the-housing-permitting-process-in-san-francisco>.
16. Reid, C. (2020). "The Costs of Affordable Housing Production: Insights from California's 9 Percent Low-Income Housing Tax Credit Program." *Turner Center for Housing Innovation*. Retrieved from: <https://turnercenter.berkeley.edu/research-and-policy/development-costs-lihtc-9-percent-california/>.

17. Raetz, H. et al. (2020). “The Hard Costs of Construction: Recent Trends in Labor and Materials Costs for Apartment Buildings in California.” Turner Center for Housing Innovation. Retrieved from: <https://turnercenter.berkeley.edu/hard-construction-costs-apartments-california>.
18. Barbour, E. & Teitz, M. (2005). “CEQA Reform: Issues and Options.” Public Policy Institute of California. Retrieved from: <http://www.ppic.org/publication/ceqa-reform-issues-and-options/>.
19. Reid, C. (2020). “The Costs of Affordable Housing Production: Insights from California’s 9 Percent Low-Income Housing Tax Credit Program.” Turner Center for Housing Innovation. Retrieved from: <https://turnercenter.berkeley.edu/research-and-policy/development-costs-lihtc-9-percent-california/>.

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