San Francisco Bay Area's Building Permits & Housing Crisis
Are new developments helping or hurting the crisis?

Mid-Point Work in Progress Report
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Introduction

San Francisco and the larger Bay Area region are becoming unlivable and it is not simply because it is too unaffordable. The Bay Area hasn't built enough housing – and it hasn't for the last century. It isn't that cities don't have enough land, the issue is simply that the cities' zoning regulations, politicians, and citizens have restricted the ability to receive building permits. The result is the haunting, ambiguous effects of *'gentrification'*.

This project seeks to locate where buildings are actually being permitted and if those buildings are relieving the lack of housing, cost of living, and gentrification indicators. To understand if the building permits are pushing the Bay Area into a deeper stage of gentrification, the project will follow these steps:

Step 1. Gather Permits – Analyze 2008-2022 building permits for the cities of San Francisco, Oakland, & Berkeley – focusing on their neighborhood location, amount of housing units, amount of affordable units, and legal status

Step 2. Analyze Changes – Determine which neighborhoods receive the most permits and if those same neighborhoods also have:

- Housing Market Increases – *via Home Prices, Rental Costs, Evictions*
- Changing Demographics – *via Race, Income, Age, Employment, Education*
- Historically Adverse Policies – *Exclusionary Zoning, Racial Discrimination*

Step 3. Compare Gentrification – Qualitatively & Quantitatively compare permitting, housing, and demographics between neighborhoods, cities, and regions – suggest which agencies help or hurt their citizens the most

This project's ultimate deliverable will be a report that selects neighborhoods & cities with the most concerning permitting & gentrification rates. It will be difficult to directly link building permits to housing costs, but the report will end by estimating the observed permit metrics' effects on the crisis as a whole.

Author's Side Note

I originally focused on comparing multiple Bay Area Cities *(including Oakland, Berkeley, & Walnut Creek)* using detailed permitting metrics – but the data might be too intense for the Capstone. For now, I will be focusing on the City of San Francisco and immediately accessible data. In the final draft, I aim to add in more cities and deeper analysis

This <u>Work in Progress Report</u> will aim to give a general picture of the final draft report and the current status. The structure of the report starts with a **Literature Review**, lists the **Data** to be used, frames the **Methods of Technical Implementation**, and finishes with the **Initial Analysis** of San Francisco's building permits (Step 1).

Literature Review

The San Francisco Bay Area is having a housing crisis and it has for a while. The core of the crisis is relatively simple. The Bay Area's housing supply is not meeting housing demand – and it hasn't since the 1960s. The result of this imbalance is that the Bay Area has become the most expensive area of the United States to live. Since 1990, Bay Area counties have been at the top of the United States' Housing Price Index counties – with at least 7 counties being in the top 10 every year.[1] San Francisco, which has sat at the top of the Housing Price Index, had its housing price increase by 39% from 2010 to 2020 but only had a 7% increase in housing units.[2] Once we start to look into, *Why the Bay Area can't build more housing?* or *What are the larger economic, social, and political effects?*, is when this housing crisis becomes an even deeper, complicated state of gentrification, inequality, and exclusion. To understand the cause and effects of this crisis, we have to lay down the theory & studies explaining the (1) housing economy of the bay, (2) difficulty of discussing & researching this topic, (3) local governance & the permitting process, and (4) stages of gentrification & displacement.

<u>Strict Regulations & the Housing Economy</u>

Housing demand doesn't necessarily obey borders. If a newly hired tech worker wants to move to the San Francisco Bay Area, they will use Craigslist to find an apartment within 10 miles of their job. If a developer wants to build a multi-family house, they are at the mercy of the city government's layers of anti-growth land use policies and public hearing bodies.

One of the larger models at play is the 'filter model'. The housing market has new and/or high quality homes that sit the top of the market for high income people. As the homes lower in quality, more middle income people can afford the middle quality homes. At the bottom is the lowest quality housing that the lowest incomes can afford. Sometimes homes can be repaired or demolished & re-constructed to raise their quality or the amount of units in the market.[3]

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[1] Bogin, Doerner, and Larson, "Local House Price Dynamics."
[2] US Census Bureau, "National, State, and County Housing Unit Totals: 2010-2019."
[3] O'Sullivan, "Chp 14: Why Is Housing Different?"

With the Bay Area, restrictive land use regulations limited the amount of homes that could be added to the market. With less homes in the market, there is less choices to choose from. This leads to (1) higher income people having to live in lower quality housing which (2) causes there to be less housing for lower income people to choose from. As a result, lower income people are priced out, evicted, and either move or become homeless.

With a limited availability of rental housing, the amount of homelessness has been observed to rise.[4] Glaesar & Gyourko, in *The Economic Implications of Housing Supply*, observe that stricter land use regulations come at the expense of less construction, higher home prices, and less population growth – calling out the Bay Area specifically in their study.[5]

<u>Difficulty of Discussing & Researching the Housing Crisis & Gentrification</u>

The housing crisis & the larger *'gentrification'* have largely remained ongoing and un-addressed as this the full problem is too immense and complicated for one local government to take responsibility, measure, and absolve. Japonica Brown-Saracino, in "Explicating Divided Approaches to Gentrification & Growing Income Inequality", emphasizes that gentrification is typically qualitatively viewed as a:

> *nearly unstoppable force bearing down on cities that exacerbates economic and racial inequalities and plays a prominent role in the spatial reorganization of urban life.*[6]

But how can you quantitively define or measure 'gentrification'? Brown-Saracino and other gentrification researchers highlight that it is more difficult to quantifiably measure all of the root causes and direct/in-direct effects of gentrification.[7] Let alone forming a policy solution to address the quantified measurements.

Because data is usually created by individual public agencies or hidden by private companies, it is difficult to measure gentrification across geographic scales, boundaries, and time. Quantitative research – with a limited geographic, time, or subject focus – might have null or adverse affects as a study could ignore important social, economic, or political causes. Without an influential body of work that can

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[4] Hanratty, "Do Local Economic Conditions Affect Homelessness?"

[5] Glaeser and Gyourko, "The Impact of Zoning on Housing Affordability."

[6] Brown-Saracino, "Explicating Divided Approaches to Gentrification and Growing Income Inequality," 516.

[7] Desmond and Perkins, "Housing and Household Instability"; Humphries et al., "Does Eviction Cause Poverty?"

directly be related to a single area, local policymakers and the public will continue to sustain exclusionary zoning and practices.

Because local government typically has siloed data and data illiteracy, it is difficult to get accurate measurements of the permit process. Luckily, many West Coast cities contract Accela to manage their permitting system through software and structured data. Accela is difficult to navigate but it does have a secret but public API. Because of my work with Walnut Creek, I have already created Python scripts that pull permit timelines from Accela, process each task into time measurements, then aggregate them. My personal contacts at San Francisco & Berkeley would allow me to perform a similar function with their permits as well.

<u>Local Governance & Permitting Process</u>

The issue isn't the lack of development interest or developable area. The under-supplied housing is the result of exclusionary local regulations and the difficulty of finding & forming policy that will prevent negative effects. In the Bay Area, and many other U.S. cities, the permitting process is long and expensive with many opportunities for public hearing bodies to pressure public representatives to deny projects. Besides affecting housing supply and costs, the local regulations have indirectly or directly resulted in racial discrimination, rising homelessness, and increased economic inequality.

Building Construction Permits can be notoriously difficult to receive – with many cities having systematic methods of slowing down the process. The public hearing bodies, that are supposed to provide transparency to the process, now are points where NIMBY (Not in My Backyard) residents can publicly pressure officials to legally or illegally halt the projects. The San Francisco Bay area is known for its housing crisis and difficult permitting processes.

There is existing research that analyzes the overall American building permitting process and how it contributes to the housing economy. Overall, the local government's permitting process is purposely difficult to navigate as a result of public hearing bodies – specifically Berkeley, CA[8] & San Francisco[9][10] – and/or land use regulations[11]. Literature evaluate how public hearing bodies favor older,

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[8] Dougherty, "The Great American Single-Family Home Problem."
[9] McNee and Pojani, "NIMBYism as a Barrier to Housing and Social Mix in San Francisco."
[10] Egan, "The Economics of San Francisco Housing."
[11] Glaeser and Gyourko, "The Impact of Zoning on Housing Affordability."

wealthier, and white communities.[12][13][14] Some quantitative studies reinforce this claim with users surveys[15] and meeting minutes[16].

<u>Stages of Gentrification & Displacement</u>

"Does the gentrifier bring in the coffee shop, or does the coffee shop bring in the gentrifier?"

Datasets

1. San Francisco Permitting Data

    Source   [SF Open Data](#)

    Format   geojson

    This data is a cleaned set of permit dating back to the 00s. It has an impressive amount of columns related to the permit's type and development. It is very unique for a city to have this strong of a grip over their permit data – it is mostly due to San Francisco's size and open data program.

2. Accela Permitting Records – *for San Francisco, Berkeley, & Oakland*

    Source   [Accela Public API](#)

    Format   json

    Accela is a private permitting software for local governments. It is difficult to understand and pull the permit data on both the city government and public sides. The result is that both staff and citizens do not really run analysis on the permits on a larger scale.

    I uniquely can access Accela API data as I (1) am not data-illiterate, (2) have an understanding of the larger permitting process, (3) have experience working with Accela's propriety data system, and (4) have a project to apply this data.

    The large issue with pulling this data through the Accela API is that it is difficult to immediately scale up the data pull as every city has a different Accela data formats and permit categories.

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[12] Einstein, Glick, and Palmer, *Neighborhood Defenders*.
[13] Schaffner, Rhodes, and Raja, *Hometown Inequality*.
[14] Trounstine, *Segregation by Design*.
[15] Einstein, "The Privileged Few."
[16] Einstein, Palmer, and Glick, "Who Participates in Local Government?"

3. Census Demographic & Economic data

- Census Block Level

    o Use ACS to get different years

    o Age, income, population, racial breakdown

- City Level

    o Population

4. Historic Redlining maps

5. UC Berkeley's Urban Displacement project

Source   website maps

Format   shapefiles at Census Tract level

- Indicators of gentrification, amount of housing change, affordability, displacement typologies

6. Housing & Transportation Affordability index

Source   H+T Index

Format   tables to join to Census Tract or Block Group

- Measures how much it costs for different aspects of housing & transportation

Methods of Technical Implementation

Step 1: Gather Permits

1. Collect Permit Data

- Access pre-cleaned data in city's open portals

    o For this mid-point summary, I have been using San Francisco's precleaned data

- Most data will have to be pulled through the Accela API for each city

    o With every city's data system and permit terminology different, it will take a while to get matching data for each city

2. Find permit lengths *(optional)*

3. Locate permit data and aggregate at the neighborhood/block level

Step 2: Analyze Changes

4. Statistically compare the permit data

- Make visualizations understanding different trends in permitting times and variables

    o *e.g. There are more permits in the Tenderloin (underdeveloped, impoverished area) in 2019 than in 2010*

- Use spatial autocorrelation to determine if there is a relationship between permit changes

5. Gather demographic, economic, and displacement/gentrification indicators at the Census Tract/Block Group level

6. measure the linear relationship of permit counts and indicators

Step 3: Compare Gentrification

7. Get charts comparing neighborhoods, cities, and the overall region

- *e.g. Berkeley had less permits per citizen than San Francisco in the 2010-2019 period*

Initial Analysis