Family Zoning Plan: Economic Impact Report

Office of the Controller
Office of Economic Analysis

Items 250700 & 250701
October 29, 2025

Introduction

- Two proposed ordinances would change zoning controls to permit more housing on a large segment of San Francisco, particularly on the western half of the city. They implement changes to the Housing Element of the City's General Plan, a planning document whose revisions were adopted in 2023.
- The Ordinance in file #250700, the Zoning Map Amendment, would generally raise allowable building heights along commercial corridors and transit lines, to permit mid-rise and some high-rise development.
- The Ordinance in file #250701 implements the Housing Choice-San Francisco program, which offers an alternative to the State Density Bonus program.
- The Office of Economic Analysis (OEA) has prepared this report because the proposed legislation may have a material impact on the city's economy. This report uses a model that estimates potential new development, in order to assess economic impact. That model is not a replacement for the City's estimates of realistic capacity under Government Code § 65583.2.

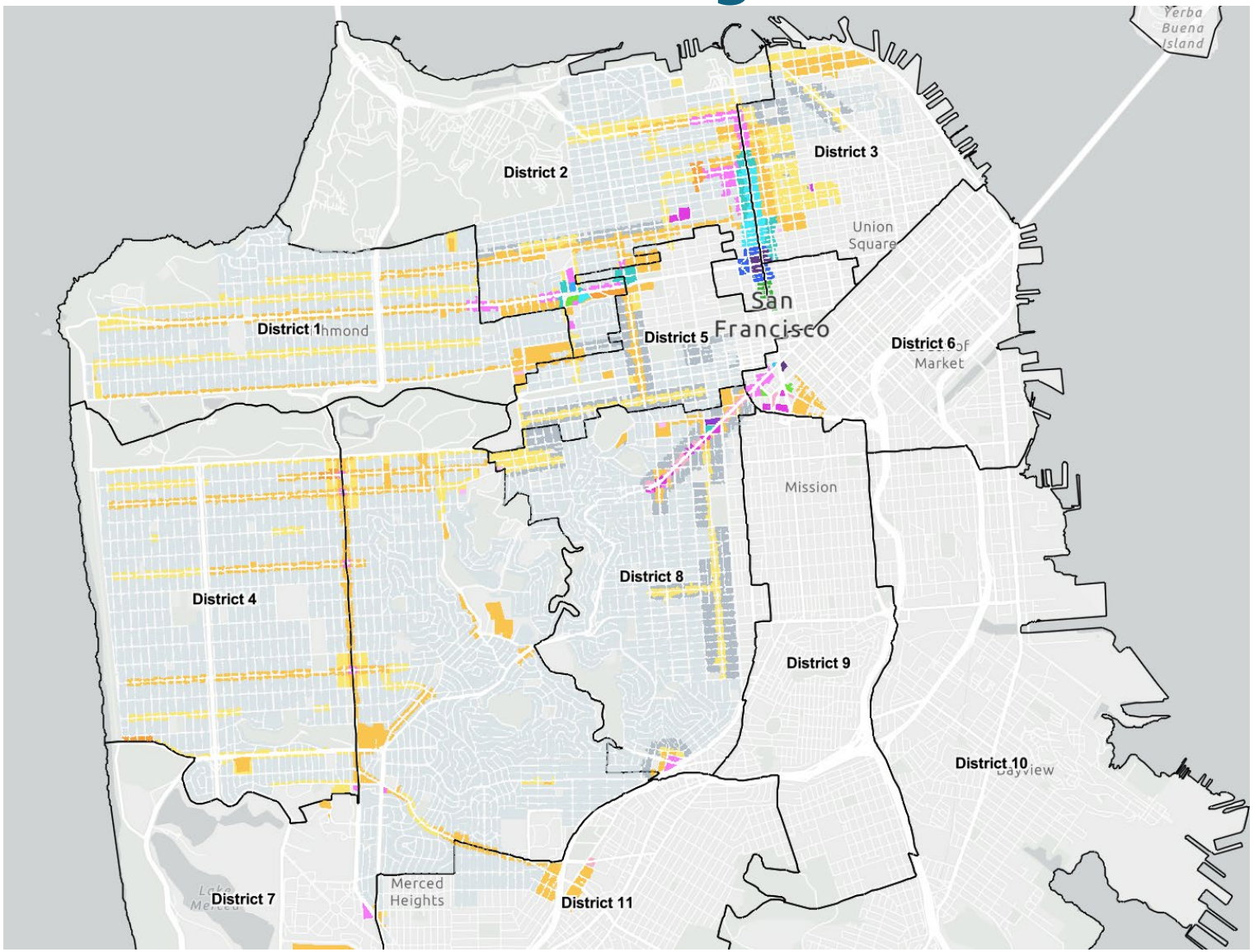
Zoning Map Amendment: Key Provisions

- The Zoning Map Amendment would make changes to allowable building heights and bulk, and/or zoning districts, in over 92,000 parcels in the city.
- The vast majority are residential parcels, whose allowable heights would either remain at 40 feet, or rise to 50 or 65 feet.
- On these and many other rezoned parcels, the Housing Choice San Francisco program (described on the next page) relaxes existing controls on the number of housing units allowed on a parcel.
- Allowable heights are generally increased to 65 to 85 feet along many commercial corridors, with development along wider streets near transit stations or major lines increased to 85 feet.
- Heights above 140 feet are allowed on certain streets that currently allow high-rise development or have larger parcels, at key intersections, and near certain major transit routes and stations. The map on page 5 provides additional details.

Housing Choice San Francisco – Key Provisions

- The Housing Choice San Francisco program, or "Local Program", gives developers an alternative to the State Density Bonus.
- Many of the rezoned residential parcels are too small to be eligible for the State Density Bonus, but may achieve greater density through the use of the Local Program.
- Local Program users also gain benefits associated with housing unit mix, methods of complying with inclusionary housing requirements, rear-yard and setback requirements, broad code flexibility, and certain process changes.
- The ordinance has several other provisions, including limiting the maximum size of new residential units, reducing allowable parking, and restricting new curb cuts. These policy changes are not considered in this report.
- Additionally, the proposed ordinance gives displaced businesses the right to relocate anywhere in the city where their activity is permitted by zoning, without a conditional use permit, and waives development impact fees associated with the relocation.

Details of the Rezoning



The map to the left, from the City Planning department, indicates which parcels in the city will be rezoned, and to which heights. It reflects the plan as of July.

Gray parcels will be zoned for low-rise, 40-50 feet housing developments. This includes single-family residential zones, within which greater density will be permitted via the Local Program.

Yellow and orange parcels will be upzoned to mid-rise development of 65-105 feet.

Pink and purple parcels will have height limits ranging from 120-180 feet, and the blue and green parcels will be upzoned for high-rise development, of 240 feet or greater.

The Rezoning and the Regional Housing Needs Assessment

- Each jurisdiction in California is required to have its Housing Element be certified by the State's Housing and Community Development Department.
- Certification involves, among other things, ensuring that the City has the zoning capacity to meet the city's obligations under the State's Regional Housing Needs Assessment (RHNA).
- RHNA is a Statewide planning process, in which future needs are forecasted for metropolitan areas, and then allocated to the individual cities and counties that administer land use planning.
- In San Francisco's case, the RHNA obligation requires the City to have realistic capacity for approximately 82,000 new housing units, at different economic levels, within an 8-year planning period ending in 2031.
- Of this 82,000 unit requirement, the City must create capacity for approximately 36,000 units.

Substitutions and Proposed Amendments

- On September 30, a new version of #250700 was substituted by Mayor Lurie, which made relatively minor zoning changes on a number of parcels. This analysis reflects those changes.
- On October 21, Supervisor Melgar proposed an amendment that would prohibit the use of the Local Program on any parcel containing more then two existing housing units, which would involve the demolition of a unit subject to rent control.
- Also on October 21, Supervisor Sauter introduced an amendment that creates incentives for developers to replace lost commercial space.
- As the language of these two amendments was made public less than one week ago, this report does not attempt to model their economic impact.

Economic Impact Factors

- When the City relaxes zoning controls, by reducing density restrictions or increasing allowable heights, more development projects will become financially feasible, and the supply of housing in the city will rise.
- This increased supply will put downward pressure on housing prices in the city. Cheaper housing benefits city residents who move within the city, and also makes San Francisco more affordable for new arrivals.
- The development of new housing also stimulates investment and employment in construction and related industries.
- The population growth associated with new housing also stimulates the local economy, by expanding the numbers of workers and consumers.
- On the other hand, the limited amount of vacant lots in the city means that new housing generally involves the loss of existing buildings, including both residential and commercial properties. This can impose relocation and other costs on residential and commercial tenants.

Estimating the Likelihood of New Housing Development

- The amount of new housing that the rezoning will produce is an important contributor to its economic impact. To estimate this, OEA refined a statistical model that it has used since 2016 to estimate the impact of policy changes on housing production in the city[1].
- The model was the result of statistical analysis of housing production in San Francisco over the 2004-2024 period. Technical details on the model are provided in the Appendix.
- The first part of the model estimates the likelihood that multifamily housing will be developed on a given parcel, in a given year. The statistical analysis found that a parcel is more likely to develop when:
  - it has smaller existing buildings (or is vacant), and is located closer to downtown.
  - its zoning allows for a greater height, makes it eligible for the State Density Bonus, and does not restrict the number of units that may be constructed.
  - housing prices are relatively high, and construction costs are relatively low, compared to other years.

Estimating the Number of Units Produced

- The second part of the model estimates the number of units that will be produced when a parcel does develop housing. Based on past experience, the statistical analysis found that a parcel developing housing will produce more units when:
  - its land area and allowable maximum height are greater;
  - it is eligible for the State Density Bonus;
  - its zoning does not restrict the number of units that may be built.
- The OEA used the first part of the model to estimate the probability that housing will be built on a parcel over the next twenty years[2]. That probability was multiplied by the estimate of housing units from the second part, to create an expected number of housing units generated for each parcel over twenty years. When this is summed across all parcels, a citywide housing total is generated.
- This method was used to create estimates of housing production under the existing zoning, and the proposed rezoning. The difference is the estimate of housing that could be produced as a result of the proposed zoning changes.

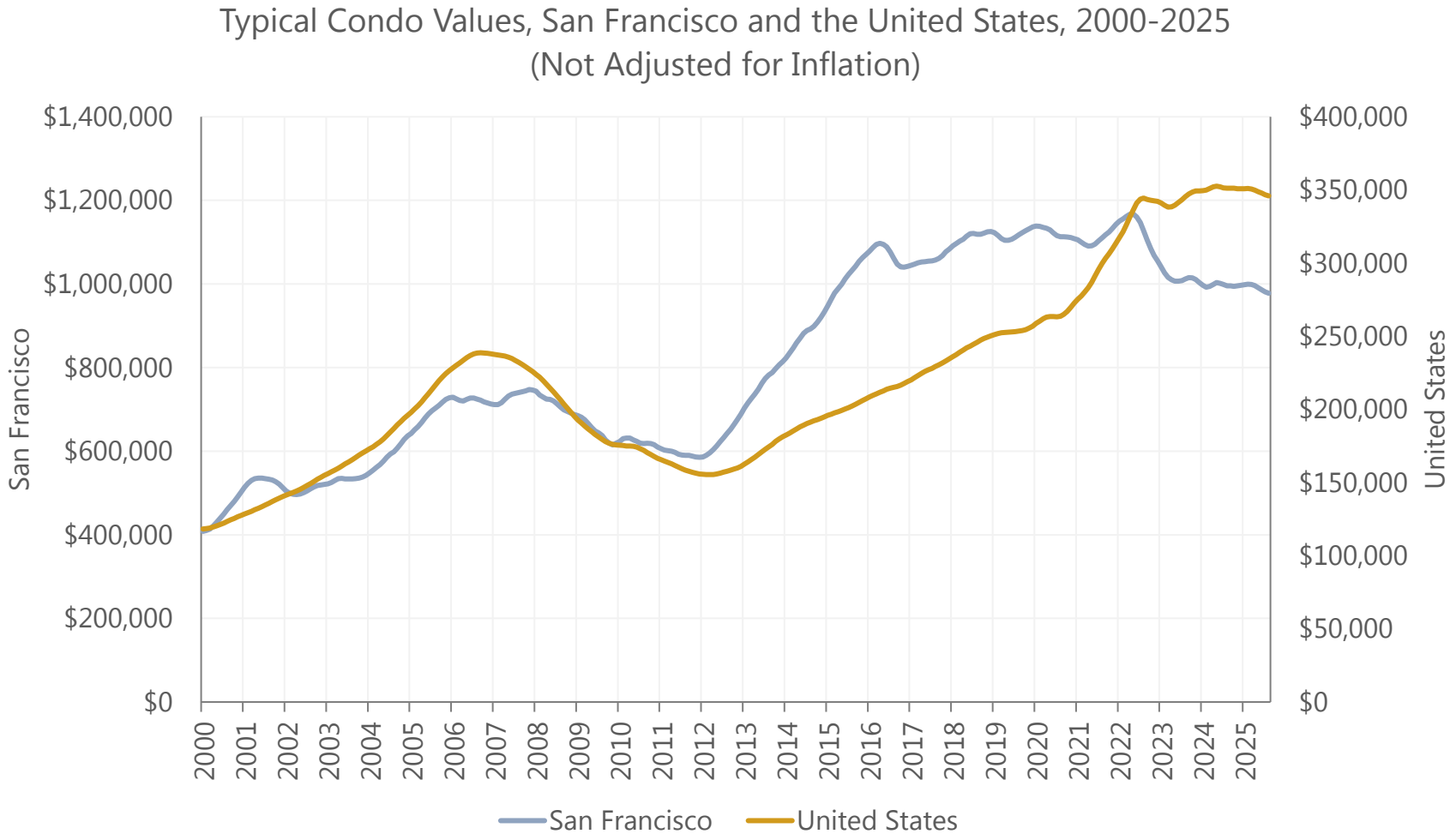
Limitations of the Housing Development Model

- The housing development model can forecast future housing development based on the city's past experience, but important caveats must be made.
- Because of data availability, not every factor that affects housing production could be included. Missing data may include features of the parcel itself, or policies that may have changed over the 2004-24 period, or vary within the aggregated zoning designations used by the model.
- Limited data also prevents the analysis of fine-grained policy changes in the proposed rezoning, such as restrictions on unit size and mix.
- Several new City and State policies that were intended to encourage housing production have been enacted in recent years, such as, for example, the City's 2023 Housing Production Ordinance (0248-23). The model may be unable to properly assess the impact of these policies in the future.
- Despite these limitations, the OEA believes this approach is well-suited to estimating housing production, for the purposes of economic impact reporting.

Future Housing Market Scenarios

- As noted earlier, the amount of housing that will be produced as a result of the rezoning, and its economic impact, will depend on future housing market conditions. This creates an additional level of uncertainty in the forecasts.
- Gauging future market conditions is further complicated by changes in the city's housing market since the COVID-19 pandemic, as described on the next page.
- To understand the scope of what could potentially happen, the OEA created two future scenarios for housing prices and costs in San Francisco.
- In a high-growth scenario, San Francisco's housing prices, relative to the U.S., return to pre-COVID levels by 2030, and grow at the city's pre-COVID rate after that. Construction costs are assumed to grow at the same rate as inflation.
- In a low-growth scenario, San Francisco's post-COVID relative housing prices are assumed to represent a "new normal," and housing prices are assumed to grow only at a national average level over the next twenty years. Construction costs are also assumed to grow at the same rate as inflation.

San Francisco and U.S. Housing Price Trends Since 2000



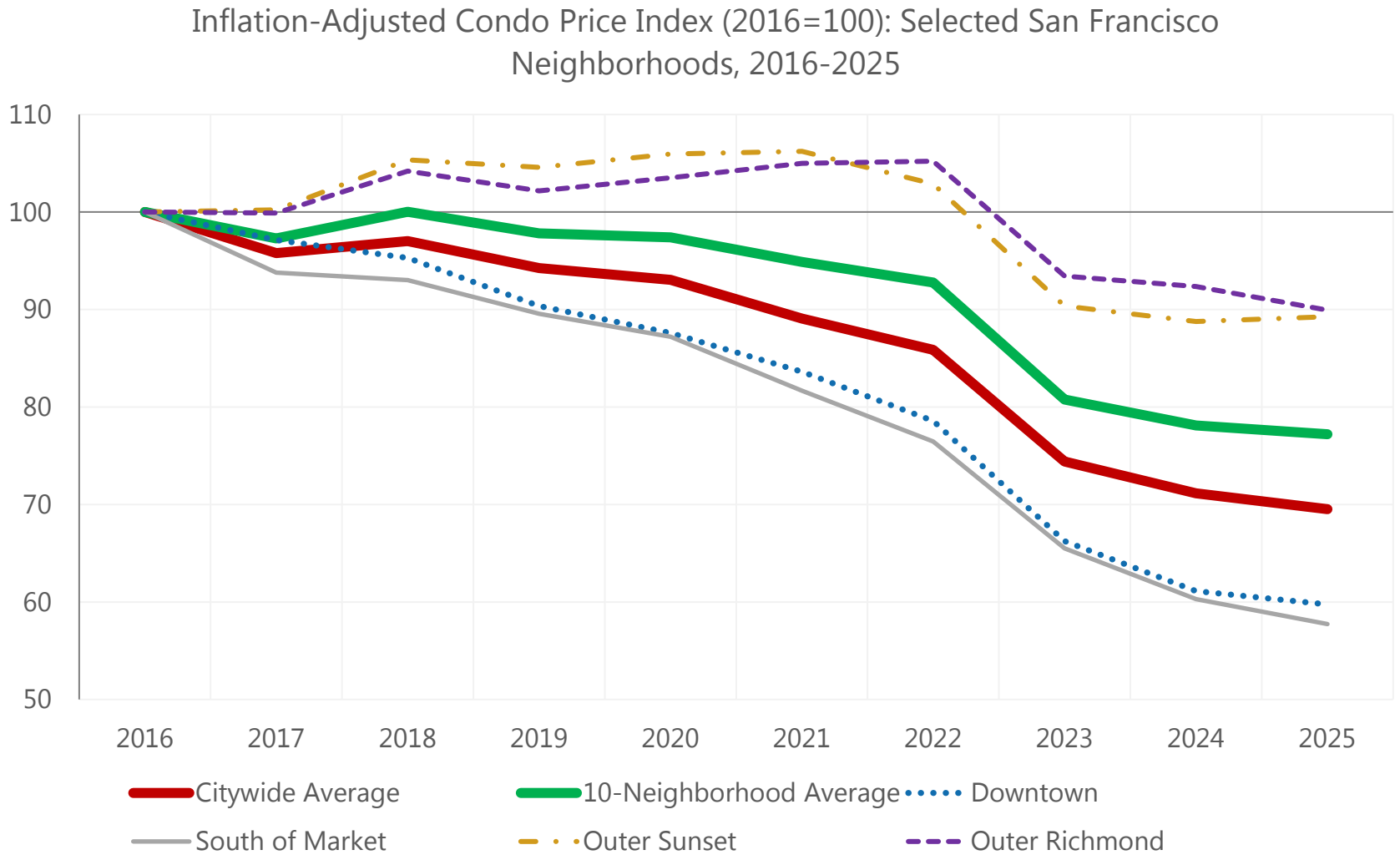
While San Francisco's housing has always been expensive, during the 2010s, average San Francisco condo prices rose much faster than the rest of the U.S., to as much as 5 times the typical U.S. price.

Since 2020, however, San Francisco condo prices have declined, despite rising inflation and rising U.S. condo prices. Adjusted for inflation, typical San Francisco condo prices in 2025 are 25% lower than they were in 2019.

Among other factors, the increase in remote office work during COVID has reduced the value of a residence near large office employment centers like downtown San Francisco.

Source: Zillow. Data retrieved October 1, 2025.

Housing Price Trends Within the City



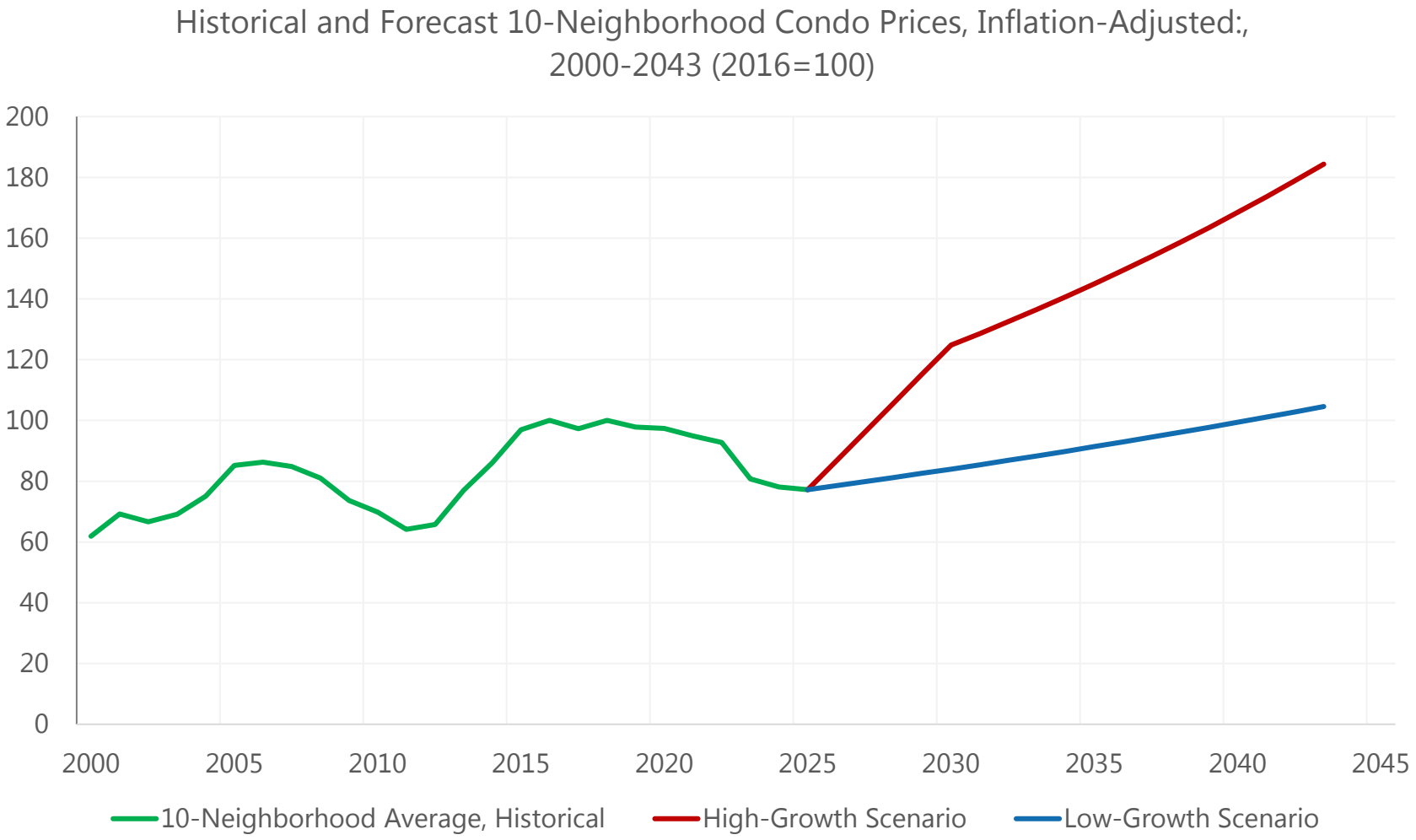
Source: Zillow. Data retrieved October 1, 2025.

The reduced value of a downtown location has also shifted multifamily price patterns within the city.

Condos in neighborhoods like Downtown and South of Market have experienced inflation-adjusted price drops of more than 40% since 2016, while the Richmond and Sunset have fallen by far less.

Because most multifamily housing in the city is near downtown, but most of the proposed rezoning is not, the use of a citywide average condo price index is inappropriate. This analysis uses an average price across the 10 Zillow neighborhoods most affected by the zoning, which is somewhat higher than the citywide average.

High and Low Growth Scenario Price Forecasts

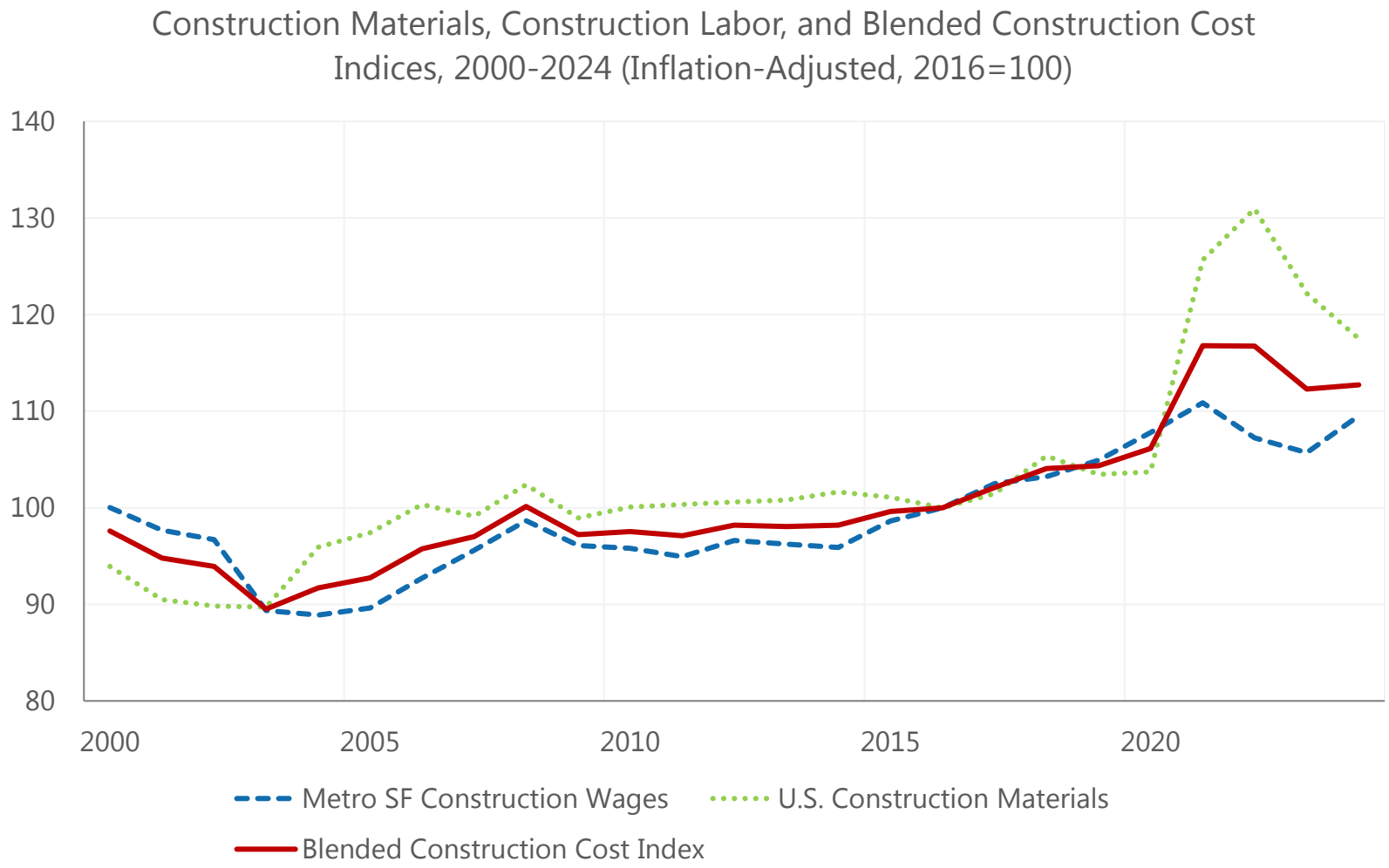


Our high-growth scenario assumes that San Francisco's housing prices, relative to the U.S., return to pre-pandemic levels by 2030, and then grow at the city's long-term average rate until 2045. This implies a rapid growth in housing prices over the next five years, of over 10% per year.

In the low-growth scenario, the post-COVID housing market represents a new normal, and San Francisco housing prices are assumed to grow only at the U.S. long-term rate at 1.8% per year, in inflation-adjusted dollars. Under this assumption, San Franciso housing prices would not recover to their pre-COVID peak, in inflation-adjusted dollars, until 2041.

Source: Zillow. 10 Neighborhoods are Buena Vista, Polk Gulch, Inner Sunset, Marina, Mission, North Waterfront, Outer Sunset, Outer Richmond, Inner Richmond, and Western Addition.

Construction Cost Trends and Scenarios



Source: Bureau of Economic Analysis; U.S. Census Bureau, "Quarterly Workforce Indicators

The housing development model uses two measures of construction costs: materials cost and local construction industry wages. They are blended into a single index for modeling purposes. Details are in the Appendix.

The cost of construction materials and local wages have grown faster than overall inflation, particularly in the last few years. In 2024, real construction materials costs were 18% higher, and real local wages were 10% higher, than they were in 2016.

In both the high-growth and low-growth scenarios, the blended index is assumed to grow at 0% (after inflation) over the 2026-2045 period. This reflects an assumption that both labor and material costs inflation will revert to the broader rate of inflation in the long term.

Housing Production Forecasts Under Current Zoning

Planning District	Historic, 2000-24	Low-Growth Scenario Forecast, 2026-45	High-Growth Scenario Forecast, 2026-45
Buena Vista	975	43	90
Central	72	192	390
Downtown	289	112	230
Ingleside	0	58	120
Inner Sunset	123	28	59
Marina	131	126	263
Mission	187	197	406
Northeast	449	136	283
Outer Sunset	15	16	33
Richmond	0	23	47
South Central	0	6	11
Western Addition	997	658	1,265
Total	3,238	1,594	3,199

Source: For historic housing production, San Francisco Planning Department

Generally, the housing development model forecasts that the current zoning will produce fewer units in the next 20 years than the numbers of units that were produced in the last 20 years.

The table to the left only covers the portion of each planning district that is in the proposed rezoning area. In total, under the current zoning, the model forecasts 1,594 or 3,199 units under the low- and high-growth forecasts, respectively, while 3,238 units were built in the same areas over the 2000-2024 period.

On the next two pages, the model's forecasts of the additional housing created by the proposed zoning is discussed.

Forecast Net Effect of the Zoning

- As shown in the table below, under the low-growth and high-growth scenarios described earlier, the rezoning would lead to 8,504 and 14,646 additional housing units, beyond what would be produced under current zoning, over the next 20 years.

Low Growth Scenario	**Units**
20-Year Housing Production, Existing Zoning	1,594
20-Year Housing Production, Proposed Rezoning	10,098
Effect of Proposed Rezoning	8,504

High Growth Scenario	**Units**
20-Year Housing Production, Existing Zoning	3,199
20-Year Housing Production, Proposed Rezoning	17,845
Effect of Proposed Rezoning	14,646

Summary by Current Zoning District

		Low-Growth			High-Growth		
Current Zoning[3]	Number of Parcels	Average Housing Likelihood, Current	Average Housing Likelihood, Proposed	Change in Housing Units	Average Housing Likelihood, Current	Average Housing Likelihood, Proposed	Change in Housing Units
RH1	43,009	0.001%	0.205%	798	0.003%	0.446%	1,731
RH2	26,486	0.002%	0.259%	576	0.005%	0.565%	1,250
RH3_RM1	13,741	0.009%	0.347%	547	0.018%	0.756%	1,186
Office/Commercial	114	0.570%	0.780%	48	1.185%	1.639%	104
Public	239	0.060%	1.450%	3,483	0.122%	2.560%	4,814
Density-Restricted Multifamily	7,079	0.336%	0.490%	3,007	0.674%	1.026%	5,467
Form-Based Multifamily	2,053	0.725%	0.725%	46	1.502%	1.502%	94
Total	92,721			8,504			14,646

The table to the left breaks out the results by current zoning. It illustrates how many rezoned parcels are in the RH-1, RH-2, and RH-3 or RM-1 residential zones, primarily in the western side of the city. These areas will see a substantial increase in the likelihood of developing housing over the next 20 years, but the chances are still small, so those 83,000+ parcels are only forecast to produce about additional 4,200 housing units by 2045, in the high growth scenario.

Fewer Public parcels (generally owned by the City or SFUSD) are larger, and more likely to develop housing through the rezoning, though this depends on the owner's decisions.

Estimating the Loss of Existing Residential Units

- To evaluate the economic impact, OEA calculated the net increase in housing units.
- In the low-growth scenario, 463 more units would be lost under the proposed zoning than under current zoning, over the 20-year forecast period. In the high-growth scenario, 1,031 more housing units would be lost. These losses represent a 6-8% of the housing units gained as a result of the rezoning. Amendments proposed on October 20th may reduce these losses, along with overall housing production.
- The loss of existing housing slightly dampens the housing price reductions associated with the rezoning, and may impose financial harms on existing tenants. City and State law heavily restricts, but does not prohibit, the eviction of tenants for the purpose of demolition, or the demolition of rent-controlled housing. These events have been quite rare in recent decades. If this occurs, tenants are entitled to relocation payments.
- Without any way to meaningfully estimate the number of evictions or demolitions of rent-controlled units, or the financial impact on tenants, this report does not attempt to quantify these potential costs.

Impacts on Housing Prices

- The responsiveness of housing prices to increases in housing supply is a function of price elasticities of supply and demand, which the OEA has estimated in past research[4].
- The elasticities imply that the proposed rezoning would lead to a -2.5% to -4.2% change in housing prices in the city, depending on the scenario. For context, those percentages are also expressed in terms of current housing prices and apartment rents.

	Low Growth Scenario	**High Growth Scenario**
Net Change in Housing Supply (units produced less demolitions)	8,041	13,615
Percentage Change in Housing Supply[5]	2.0%	3.4%
Price Elasticity of Demand	-0.7	-0.7
Price Elasticity of Supply	0.1	0.1
Percent change in housing prices	-2.5%	-4.2%
Corresponding change in condo prices[6]	-$24,500	-$41,600
Corresponding change in annual apartment market rents[7]	-$903	-$1,529

Estimating Relocation and Disruption Costs

- To account for the impact on commercial businesses, OEA estimated potential displacement costs. Details are provided in the Appendix.
- Displaced businesses are estimated to occupy commercial space ranging from approximately 1.5 to 2.6 million square feet, depending on the scenario. This displacement would occur over twenty years, and it is highly likely that the rezoning would lead to an increase in the amount of commercial space in the city.
- Annual business disruption and relocation costs range from $16 to $28 million, in today's dollars.

	Low Growth	High Growth
Loss of occupied commercial space (million sf)	1.5	2.6
Disruption-relocation cost/sf	$190	$190
Annual disruption/relocation cost (2025 $ million)	$16	$28

REMI Economic Impact Simulation

- Based on the economic impact factors described earlier, the OEA used the REMI model to measure the net economic impact of the changes associated with the high and low growth scenarios to the city's economy over the 2026-2045 period:
  - An increase in the city's residential capital stock of $8.0 billion (low growth) to $13.5 billion (high growth) in today's dollars, representing the investment associated with the new units forecast under the two scenarios. These figures are calculated by multiplying the net increase in units by average prices.
  - A reduction in citywide housing prices, reaching 2.5% (low growth) and 4.2% (high growth) by 2045.
  - Annual business disruption and relocation costs for retail businesses of $16 million (low growth) and $28 million (high growth) in today's dollars, until 2045.

Economic Impact Assessment

- In the low-growth scenario, the city's GDP would be $560 million larger, in today's dollars, on average over the 2026-45 period. Total employment in the city would be approximately 3,000 more than under the current zoning, on average over the period.
- In the high-growth scenario, the city's GDP growth would be $940 million larger than under current zoning, in 2025 dollars. Employment would be about 5,000 higher.
- Employment gains are expected in every sector, but would be most heavily concentrated in the construction, health care, real estate, and accommodations and food services sectors.
- Despite the displacement of businesses, retail trade is forecast to grow as a result of the population and economic growth created by the proposed rezoning, adding about 210 jobs in the low-growth scenario and about 350 jobs in the high-growth scenario.
- Like most major policies, the proposed rezoning involves benefits and costs. Our analysis suggests the proposed rezoning's positive impact on the city's economy, from lower housing prices and construction, outweighs the negative impact from displaced businesses, by a factor of approximately 22:1.

Conclusions

- The context for housing development in San Francisco has changed profoundly in the past several years. Since 2019, after adjusting for inflation, condo prices in San Francisco have dropped by 25%, while our blended construction cost index has risen by 8%.
- Given this starting point, an expansive rezoning effort, like the proposed Family Zoning plan, will be challenged to match the 2010s levels of new housing development in the city, even under an optimistic high-growth scenario.
- Nevertheless, under both scenarios considered in this report, the proposed rezoning would lead to a significant increase in the city's housing supply, and have broadly positive effects on housing prices and the city's broader economy. The benefits of new residential investments and lower housing prices are projected to outweigh the costs of business interruption and displacement by a factor of roughly 22:1.
- If market conditions were such that the 36,000 unit target was achieved, as a result of the rezoning, the economic impact on the city would likely be significantly more positive than the estimates in this report.

Footnotes

1. See, for example, Inclusionary Housing Working Group: Preliminary Report September 2016.
2. Three large parcels were excluded from the analysis: Laguna Honda Hospital, and the USF Main and Lone Mountain campuses. While all three parcels receive height increases in the proposed rezoning, their size and unique uses makes them unsuitable for the model. If the model could accurately estimate the amount of housing likely to occur on those parcels, the total housing estimate reported in this report would be larger.
3. These are the aggregate zoning classifications used by the model. See the Appendix for details.
4. See Potential Effects of Limiting Market-Rate Housing in the Mission.
5. Assuming 406,000 housing units in the city.
6. Based on Zillow's 2025 average condo prices for San Francisco.
7. Based on 2025 average apartment asking rents, from ApartmentList.

Appendix

- Housing Development Model
  - Methodology
  - Data sources
  - Model coefficients and performance
  - Scenario Inputs
  - Zoning District Classification
  - Logic of Applying the Model to the Proposed Rezoning
- Estimates of Business Interruption and Relocation Costs

Appendix: Housing Development Model: Methodology

- The housing development model is a two-stage step model. The first stage is a logistic regression, covering every parcel in the city, except those subject to a development agreement, over the 2004-2024 period.
- The dependent variable of the logistic regression is 1 if the parcel produced housing in a given year, and 0 otherwise. Parcels that produce housing in a given year were removed from the dataset for subsequent years. Independent variables, reflecting existing land use, market conditions, and zoning, are listed on the next page.
- The second stage is a regression model including all parcels that produced multifamily housing with more than 10 units, over the 2004-24 period. The dependent variable is the number of units produced on the parcel, and the independent variables are the parcel's "building envelope" (its area multiplied by its allowable height), and two interaction variables: the building envelope times a dummy indicating if the parcel was eligible for the State Density Bonus in that year, and the building envelope times a dummy indicating if the parcel was subject to density-restricted zoning in that year. The intercept of the model was fixed at zero.

Appendix: Housing Development Model: Methodology

- The models' coefficients were used in a forecast that calculated the log-likelihood of development for each rezoned parcel, in each of the forecast years 2026-2045, using the site and zoning information, and the price and cost assumptions for each year (shown on the next page). The log-likelihoods were converted into annual probabilities, from which a 20-year probability of development was calculated.
- The model coefficients were also used to calculate a units estimate; the 20-year probability times the units estimate is the expected number of units produced on that parcel in the 20-year forecast period.
- The forecast model was run for both the current and the proposed zoning. See the section "Logic of Applying the Model to the Proposed Rezoning" for more details.
- Three parcels were excluded from the forecast: Laguna Honda Hospital, the University of San Francisco Main Campus, and the University of San Francisco Lone Mountain Campus. While some housing may be built on those parcels in the forecast period, the model is not well-suited for large parcels with unique uses like these.

Appendix: Housing Development Model: Data Sources

Variable Description	Variable	Data Source
Height limit for site in ft	Height_Ft	Planning Department, Zoning Districts
Area for lot in 1000 sq ft	Area_1000	Planning Department, Land Use Database 4/16/25
Extisting building square footage in 1000 sq ft	Bldg_SqFt_1000	Planning Department, Land Use Database 4/16/25
Residential Existing Use using ResUnits (Dummy)	Res_Dummy	Planning Department, Land Use Database 4/16/25
Historic Status for Parcel (Dummy)	Historic	Planning Department, Land Use Database 4/16/25
Real Construction Cost Variable, 2 years prior	Construc_Cost_Real	a 60/40 average of Real Construction Materials PPI and Real San Francisco MSA Construction Wages, 2016=100
10-Neighborhood Housing Price Index (Zillow), Real, 2 years prior	Zillow_Price_Real	SF real condo prices per Zillow, 2016=100
Dummy indicating eligibility for State Density Bonus, 2016 forward	SDB_2016_5Plus	Calculated from Zoning Districts
Zoning dummy: Office/Commercial	zp_OfficeComm	Planning Department, Zoning Districts
Zoning dummy: Density Restricted Multifamily, RTO = Form Based	zp_DRMulti_RTO	Planning Department, Zoning Districts
Zoning dummy: Form Based Multifamily, RTO = form based	zp_FBDMulti_RTO	Planning Department, Zoning Districts
Zoning dummy: Industrial / Production, Distribution & Repair	zp_PDRInd	Planning Department, Zoning Districts
Zoning dummy: Public/Open Space	zp_Public	Planning Department, Zoning Districts
Zoning dummy: Redevelopment Area	zp_Redev	Planning Department, Zoning Districts
Zoning dummy: Residential 2-Family (2 Units per Lot)	zp_RH2	Planning Department, Zoning Districts
Zoning = Residential 3-Family or Res Mixed (1/800 sqft)	zp_RH3_RM1	Planning Department, Zoning Districts
Planning District dummy variables	DIST_<District Name>	Planning District from Assessor's Secured Roll DB

Appendix: Logistic Regression Coefficients

Variable Description	Variable	Coeff	StdErr	WaldChiSq	Prob>Chi Sq
Intercept	Intercept	(1.6226)	1.2829	1.5998	0.2059
Height limit for site in ft	Height_Ft	0.0017	0.0007	4.9693	0.0258
Area for lot in 1000 sq ft	Area_1000	0.0049	0.0009	30.6563	0.0000
Envelope Area in 1000 sq ft (area/1000*ht/10)	Env_1000_Area_Height	0.0002	0.0001	5.0369	0.0248
Extisting building square footage in 1000 sq ft	Bldg_SqFt_1000	(0.0023)	0.0007	10.7241	0.0011
Residential Existing Use using ResUnits (Dummy)	Res_Dummy	(0.8231)	0.1222	45.3669	0.0000
Historic Status for Parcel (Dummy)	Historic	(1.0378)	0.1271	66.6847	0.0000
Real Construction Cost Variable	Construc_Cost_Real	(0.0992)	0.0129	58.8929	0.0000
SF Housing Price Index (Zillow), Real	Zillow_Price_Real	0.0143	0.0053	7.1326	0.0076
Dummy for State Density Bonus, 5+ Unit Sites, 2016 forward	SDB_2016_5Plus	0.6303	0.1608	15.3724	0.0000
Zoning = Office/Commercial	zp_OfficeComm	4.2634	0.4873	76.5337	0.0000
Zoning = Density Restricted Multifamily, RTO = Form Based	zp_DRMulti_RTO	4.2450	0.4523	88.0989	0.0000
Zoning = Form Based Multifamily, RTO = form based	zp_FBDMulti_RTO	5.0508	0.4640	118.4768	0.0000
Zoning = Industrial / Production, Distribution & Repair	zp_PDRInd	3.4115	0.4790	50.7257	0.0000
Zoning = Public/Open Space	zp_Public	1.2491	0.8385	2.2190	0.1363
Zoning = Redevelopment Area	zp_Redev	4.5361	0.4999	82.3213	0.0000
Zoning = Residential 2-Family (2 Units per Lot)	zp_RH2	0.2674	0.6672	0.1607	0.6885
Zoning = Residential 3-Family or Res Mixed (1/800 sqft)	zp_RH3_RM1	1.3187	0.6064	4.7289	0.0297

Appendix: Logistic Regression Coefficients (Continued)

Variable Description	Variable	Coeff	StdErr	WaldChiSq	Prob>Chi Sq
District = South Bayshore	DIST_SBayshore	(1.4824)	0.3179	21.7380	0.0000
District = Bernal Heights	DIST_BernalHts	(1.7011)	0.6087	7.8100	0.0052
District = South Central	DIST_Scentral	(1.7307)	0.3867	20.0267	0.0000
District = Central	DIST_Central	(1.1523)	0.3353	11.8102	0.0006
District = Buena Vista	DIST_BuenaVista	(2.5369)	1.0188	6.2010	0.0128
District = Northeast	DIST_Northeast	(1.4171)	0.2539	31.1439	0.0000
District = Western Addition	DIST_WestAddition	(0.6831)	0.2362	8.3630	0.0038
District = South of Market	DIST_SOMA	(0.0756)	0.1903	0.1579	0.6911
District = Inner Sunset	DIST_InnerSunset	(1.6187)	0.4882	10.9939	0.0009
District = Richmond	DIST_Richmond	(2.8019)	0.5355	27.3716	0.0000
District = Ingleside	DIST_Ingleside	(1.8670)	0.4925	14.3711	0.0002
District = Outer Sunset	DIST_OuterSunset	(2.6147)	0.6098	18.3867	0.0000
District = Marina	DIST_Marina	(1.2492)	0.3253	14.7457	0.0001
District = Mission	DIST_Mission	(1.0938)	0.2380	21.1176	0.0000

Omitted Variables for Groups of Dummy Variables:

Omitted zoning = RH1

Omitted district = Downtown

Appendix: Units Regression Coefficients

Variable Description	Variable	Coeff	St Error	T-Stat
Simple building envelope (area/1000 * ht/10)	Env_1000_Area_Height	0.4252	0.0159	26.72
State Density Bonus * Simple Bldg Envelope (5+ Unit Sites, 2016 forward)	SDB_2016_5Plus_EnvFull	0.4385	0.0389	11.28
Simple Bldg Envelope only if density-restricted	Zoning_DR_EnvFull	(0.1601)	0.0174	(9.22)

Note: Model removes largest 5% (Positive and Negative) residual outliers

Appendix: Model Performance

Logistic Regression	
Number of Observations	3,369,573
Number with Dependent Variable = 1	422
Pseudo R-Square	0.000611
Max Rescaled R-Square	0.244596

Units Regression	
Number of Observations	383
R-Sq	0.867779
Adj R-Sq	0.866735
Dependent Mean Value	81.87206
Standard Error of Regression	48.40184

Appendix: Zoning Classifications

- The table below shows the correspondence between the City's zoning districts, and the aggregate zoning variables in the model.

Zoning Variable	Zoning Districts
zp_RH1	C-2/RH-1(D); RH-1(D)/C-2; C-M/RH-1; M-1/RH-1; NC-1/RH-1; NC-1/RH-1/RH-2; NC-2/RH-1; NC-2/RH-1(D); NC-3/RH-1; NCD/RH-1; NCD/RH-1(D); NC-S/RH-1; NCT-OCEAN/RH-1(D); NCT/RH-1(D); P/P-W/RH-1; P/RH-1; P/RH-1(D); P/RH-1/RH-1(D); P/RH-1/RH-2; RH-1; RH-1(D); RH-1(D)/NC-2; RH-1(D)/RH-1; RH-2/RH-1; RH-2/RH-1(D); RH-1(D)/RH-2; RH-1(D)/RM-1; RH-1(S); RH-1/C-M; RH-1/M-1; RH-1/NC-1; RH-1/NC-2; RH-1/NC-3; RH-1/NC-S; RH-1/RH-1(D); RH-1/RH-2; RH-1/RH-2/RM-1; RH-1/RM-1; RM-1/RH-1; RH-3/RH-1
zp_RH2	NC-1/RH-1/RH-2; P/RH-1/RH-2; RH-2/RH-1; RH-2/RH-1(D); RH-1(D)/RH-2; RH-1/RH-2; RH-1/RH-2/RM-1; M-1/RH-2/RM-1; MUR/RH-2; NC-1/RH-2; NC-2/RH-2; NC-3/RH-2; NCD/RH-2; NC-S/RH-2; NCT-GLEN PARK/RH-2; NCT-OCEAN/RH-2; NCT/RH-2; P/RH-2; P/RM-1/RH-2; RH-2; RH-2/NC-1; RH-2/NC-2; RH-2/NC-3; RH-2/RH-3; RH-2/RM-1; RM-1/RH-2; RH-2/RM-2; RM-2/RH-2; RH-2/RM-3; RM-3/RH-2; RH-3/RH-2
zp_RH3_RM1	RH-1/RH-2/RM-1; M-1/RH-2/RM-1; P/RM-1/RH-2; RH-2/RH-3; RH-2/RM-1; RM-1/RH-2; RH-3/RH-2; RH-1(D)/RM-1; RH-1/RM-1; RM-1/RH-1; RH-3/RH-1; C-2/RH-3; C-2/RM-1; C-2/RM-1/RM-4; C-M/RM-1; HP-RA/RM-1; M-1/RM-1; M-2/RH-3; NC-1/RM-1; RM-1/NC-1; NC-2/RH-3; NC-2/RM-1; NC-3/RH-3; NC-3/RM-1; NCD/RH-3; NCD/RH-3/UPR MARKET; NCD/RH-3/UPR MARK; NCD/RH-3/VALENCIA; NCD/RM-1; NCD/RM-1/SACRAMENTO; NCD/SACRAMENTO ST; NCD/SACRAMENTO/RM-1; NCD/RM-1/SACRAMEN; NCT-DIVISADERO/RH-3; NCT-DIVISADERO/RM-1; NCT/RH-3; NCT/RM-1; P/PM-R/RM-1; P/RH-3; P/RM-1; PM-MU2/PM-OS/PM-R/RM-1; PM-R/RM-1; RH-3; RH-3/C-2; RH-3/HAYES; RH-3/M-2; RH-3/NC-2; RH-3/RM-1; RM-1/RH-3; RH-3/RM-2; RM-2/RH-3; RH-3/RM-3; RM-3/RH-3; RH-3/RSD; RH-3/VALENCIA; RM-1; RM-1/C-M; RM-1/C-M/M-1; RM-1/NC-3; RM-1/RM-2; RM-1/RM-3; RM-1/RM-4; RM-1/SACRAMENTO
zp_OfficeComm	C-2/RH-3; C-2/RM-1; C-2/RM-1/RM-4; C-M/RM-1; RH-3/C-2; RM-1/C-M; RM-1/C-M/M-1; C-2/RH-1(D); RH-1(D)/C-2; C-M/RH-1; RH-1/C-M; C-2; C-2/M-1; C-2/M-1/P; C-2/P; C-3-G; C-3-G/C-3-R; C-3-G/C-M; C-3-G/RC-4; C-3-O; C-3-O(SD); C-3-O(SD)/P; C-3-O(SD)/TB DTR; C-3-O/C-3-O(SD); C-3-O/C-3-R; C-3-O/C-3-S; C-3-O/C-3-S/P; C-3-O/TB DTR; C-3-R; C-3-S; C-3-S/P; C-M; C-M/M-1; CMUO; CMUO/MUR; CMUO/P; MUO; NCD/C-2; P/C-3-R; RM-3/C-2; RM-4/C-2; WMUO

Appendix: Zoning Classifications (Continued)

Zoning Variable	Zoning Districts
zp_DRMulti_RTO	NC-2/P; NC-3/P/RM-3; NCD/P; NC-S/P; P/NC-S; P/NC-2; P/RC-4; P/RM-2; P/RM-3; C-2/RM-1/RM-4; C-3-G/RC-4; NCD/C-2; RM-3/C-2; RM-4/C-2; NC-1/RM-1; RM-1/NC-1; NC-2/RH-3; NC-2/RM-1; NC-3/RH-3; NC-3/RM-1; NCD/RH-3; NCD/RH-3/UPR MARKET; NCD/RH-3/UPR MARK; NCD/RH-3/VALENCIA; NCD/RM-1; NCD/RM-1/SACRAMENTO; NCD/SACRAMENTO ST; NCD/SACRAMENTO/RM-1; NCD/RM-1/SACRAMEN; RH-3/HAYES; RH-3/NC-2; RH-3/RM-2; RM-2/RH-3; RH-3/RM-3; RM-3/RH-3; RH-3/RSD; RH-3/VALENCIA; RM-1/NC-3; RM-1/RM-2; RM-1/RM-3; RM-1/RM-4; RM-1/SACRAMENTO; NC-1/RH-1/RH-2; NC-1/RH-2; NC-2/RH-2; NC-3/RH-2; NCD/RH-2; NC-S/RH-2; RH-2/NC-1; RH-2/NC-2; RH-2/NC-3; RH-2/RM-2; RM-2/RH-2; RH-2/RM-3; RM-3/RH-2; NC-1/RH-1; NC-2/RH-1; NC-2/RH-1(D); NC-3/RH-1; NCD/RH-1; NCD/RH-1(D); NC-S/RH-1; RH-1(D)/NC-2; RH-1/NC-1; RH-1/NC-2; RH-1/NC-3; RH-1/NC-S; 24TH-MISSION; 24TH STREET- NOE VALL; 24TH-NOE; BROADWAY; BROADWAY NEIGHBORHOOD; C-2/RM-4; CASTRO STREET NEIGHBO; CASTRO; CCB; CRNC; CR-NC; CRNC/CVR; CR-NC/CVR; CRNC/RM-4; CVR; DTR/RC-4; FILLMORE; HAIGHT; HAIGHT STREET NEIGHBO; HAYES; HAIGHT STREET NEIGHBO; INNER CLEMENT; INNER CLEMENT STREET; INNER SUNSET; INNER SUNSET NEIGHBOR; M-1/NC-2; M-1/RM-2; M-1/RSD; NC-1; NC-1/RM-2; NC-1/RM-3; NC-2; NC-2/M-1; NC-2/NC-3; NC-3/NC-2; NC-2/RM-3; NC-2/RM-4; NC-3; NC-3/RC-4; NC-3/RM-3; NC-3/RM-4; NCD; NCD/; NCD/24TH STREET- NOE VALL; NCD/24TH STREET-; NCD/24TH-MISSION; NCD/24TH-NOE; NCD/24TH-NOE-VALLE; NCD/24TH-NOE-VALLEY; NCD/BROADWAY; NCD/BROADWAY NEIG; NCD/BROADWAY NEIGHBORHOOD; NCD/CASTRO; NCD/CASTRO STREET; NCD/CASTRO STREET NEIGHBO; NCD/EXCELSIOR OUTER MISSI; NCD/EXCELSIOR OUT; EXCELSIOR OUTER MISSI; NCD/FILLMORE; NCD/HAIGHT; NCD/HAIGHT STREET; NCD/HAIGHT STREET NEIGHBO; NCD/HAYES; NCD/HAYES NCT; NCD/HAYES NCT/RTO; NCD/INNER CLEMENT; NCD/INNER CLEMENT STREET; NCD/INNER SUNSET; NCD/INNER SUNSET NEIGHBOR; NCD/IRVING STREET NEIGHBO; NCD/IRVING STREET; NCD/IRVING; IRVING STREET NEIGHBO; NCD/JAPANTOWN NEIGHBORHOO; NCD/JAPANTOWN NEI; JAPANTOWN NEIGHBORHOO; NCD/JUDAH STREET NEIGHBOR; NCD/JUDAH; NCD/JUDAH STREET; JUDAH STREET NEIGHBOR; NCD/NC-1; NCD/NC-2; NCD/NC-3; NCD/NCT; NCD/NO BEACH; NCD/NORIEGA STREET NEIGHB; NCD/NORIEGA STREE; NCD/NORIEGA; NCD/NORTH BEACH NEIGHBORH; NCD/NORTH BEACH N; NCD/NORTH BEACH; NCD/NORTHBEACH; NCD/NORTH BEACH/RM-1; NCD/NORTHBEACH/RM-1; NCD/OUTER CLEMENT; NCD/OUTER CLEMENT STREET; NCD/OUTER CLEMENT STREET; NCD/PACIFIC; NCD/PACIFIC AVENU; NCD/PACIFIC/RM-3; NCD/PACIFIC;RM-3; NCD/PACIFIC AVENUE NEIGHB; NCD/POLK; NCD/POLK STREET N; NCD/POLK STREET NEIGHBORH; NCD/POLK/RC-3; NCD/POLK/RC-4; NCD/RC-3; NCD/RESIDENTIAL- HOUSE, O; NCD/RESIDENTIAL-; NCD/RM-2; NCD/RM-3; NCD/RM-3/PACIFIC; NCD/RTO; NCD/SACRAMENTO; NCD/SACRAMENTO STREET NEI; NCD/TARAVAL STREET NEIGHB; NCD/TARAVAL STREE; NCD/TARAVAL; NCD/UNION; NCD/UNION STREET; NCD/UNION STREET NEIGHBOR; NCD/UPPER FILLMORE NEIGHB; NCD/UPPER FILLMOR; NCD/UPPER FILLMORE; NCD/UPPERFILLMORE; NCD/UPPER MARKET STREET N; NCD/UPPER MARKET; NCD/UPR MARKET NC; NCD/UPR MARKET; NCD/UPR MARKET NCT; NCD/UPR MARKET NCT/; NCD/VALENCIA; NCD/WEST PORTAL; NCD/WEST PORTAL A; NCD/WEST PORTAL AVENUE NE; NCD/BAYVIEW; NCD/COLE VALLEY; NCD/CORTLAND AVENUE; NCD/GEARY BOULEVARD; NCD/GEARY BOULEVA; NCD/GEARY BOULEVARD/RH-2; NCD/GEARY BOULEVARD/RM-1; NCD/INNER BALBOA STREET; NCD/INNER BALBOA S; NCD/OUTER BALBOA STREET; NCD/ OUTER BALBOA STREET; NCD/OUTER BALBOA S; NCD/LOWER HAIGHT STREET; NCD/LOWER HAIGHT S; NCD/LOWER HAIGHT STREET/RH-3; NCD/LOWER POLK STREET; NCD/MISSION BERNAL; NCD/INNER TARAVAL STREET; NCD/INNER TARAVAL; NCD/SAN BRUNO AVENUE; NCD/LAKESIDE VILLAGE; NCD/LAKESIDE VILLAG; NC-S; NC-S/PM-R; NC-S/RM-3; NCT-DIVISADERO/RM-3; NCT/RM-3; NCT/RM-4; NO BEACH; OUTER CLEMENT; POLK; RC-3; RC-3/POLK; RC-3/RM-3; RC-4; RC-4/NC-3; RC-4/RH DTR; RC-4/RM-4; RED/SLR; RM-2; RM-2/M-1; RM-2/NC-1; RM-2/NC-2; RM-2/NO BEACH; RM-2/RM-3; RM-2/RM-4; RM-3; RM-3/NC-1; RM-3/NC-2; RM-3/NC-3; RM-3/NC-S; RM-3/RC-3; RM-3/RM-4; RM-4; RM-4/CR-NC; RM-4/NC-2; RM-4/NC-3; RM-4/RC-4; RSD; RSD/SLR; SACRAMENTO; SLR; SSO; UNION; UPR MARKET; VALENCIA; WEST PORTAL

Appendix: Zoning Classifications (Continued)

Zoning Variable	Zoning Districts
zp_Public	C-2/M-1/P; C-2/P; C-3-O(SD)/P; C-3-O/C-3-S/P; C-3-S/P; CMUO/P; P/C-3-R; P/RM-1/RH-2; P/PM-R/RM-1; P/RH-3; P/RM-1; PM-MU2/PM-OS/PM-R/RM-1; P/RH-1/RH-2; P/RH-2; P/P-W/RH-1; P/RH-1; P/RH-1(D); P/RH-1/RH-1(D); Remove; HP-RA/M-1/M-2/P; HP-RA/M-2/P; M-1/M-2/P; M-1/P; M-2/MB-OS; M-2/MB-RA/P; M-2/P; MB-O; MB-O/MB-RA; MB-OS; MB-RA/P; MUG/P; NC-2/P; NC-3/P/RM-3; NCD/P; NC-S/P; NCT/P; NCT-3/P; NCT-3/RTO; P; P/C-3-O(SD); P/M-1; P/M-2; P/MISS BAY S PL; P/MISS BAY S PLN; P/MUR; P/NC-S; P/NC-2; P/PDR-2; P/PM-OS; P/PM-OS/PM-R; P/P-W; P/RC-4; P/RM-2; P/RM-3; P/TB DTR; P/RTO-C; P, RTO-C; PM-CF; PM-CF/PM-OS; PM-CF/PM-OS/PM-R; PM-MU1/PM-OS; PM-MU2/PM-OS/PM-R; PM-OS; PM-OS/PM-R; PM-OS/PM-R/PM-S; PM-OS/PM-S; Public
zp_FBDMulti_RTO	DTR/RC-4; NCD/HAYES NCT; NCD/HAYES NCT/RTO; NCD/NCT; NCD/RTO; NCD/UPR MARKET NCT; NCD/UPR MARKET NCT/; NC-S/PM-R; NCT-DIVISADERO/RM-3; NCT/RM-3; NCT/RM-4; RC-4/RH DTR; RED/SLR; P/PM-R/RM-1; PM-MU2/PM-OS/PM-R/RM-1; MUG/P; NCT/P; NCT-3/P; NCT-3/RTO; P/MUR; P/PM-OS/PM-R; P/TB DTR; P/RTO-C; P, RTO-C; PM-CF/PM-OS/PM-R; PM-MU1/PM-OS; PM-MU2/PM-OS/PM-R; PM-OS/PM-R; PM-OS/PM-R/PM-S; C-3-O(SD)/TB DTR; C-3-O/TB DTR; CMUO/MUR; NCT-DIVISADERO/RH-3; NCT-DIVISADERO/RM-1; NCT/RH-3; NCT/RM-1; PM-R/RM-1; MUR/RH-2; NCT-GLEN PARK/RH-2; NCT-OCEAN/RH-2; NCT/RH-2; NCT-OCEAN/RH-1(D); NCT/RH-1(D); DTR; DTR/M-1; M-1/RH DTR; M-2/MR-MU; M-2/P70-MU; MB-RA/MR-MU; MR-MU; MUG; MUG/RED; MUR; NCT; NCT-DIVISADERO; NCT-FOLSOM; NCT-GLEN PARK; NCT-HAYES; NCT-HAYES/RTO; NCT-HAYES/RTO-1; NCT-MISSION; NCT-UPPER MARKET; NCT-UPPER MARKET;; NCT-UPPER MARKET/RH-2; NCT-UPPER MARKET/RH-3; NCT-OCEAN; NCT-SOMA; NCT/NCT-3; NCT/RCD; NCT/RED-MX; NCT/RTO; NCT/RTO-M; NCT/UMU; NCT-1; NCT-2; NCT-3; NCT-3/NCT-HAYES; RTO-1/NCT-3; RTO/NCT-3; P70-MU; PDR-1-D/UMU; PDR-1-G/UMU; PM-MU1; PM-MU1/PM-R; PM-MU2/PM-R; PM-MU2; PM-R; RCD; RED; RED-MX; RED-MX/WMUG; RH DTR; RH DTR/SB-DTR; RH DTR/TB DTR; RTO; RTO-1; RTO/NCT; RTO-1/RTO-C; RTO-C; RTO-M; SB-DTR; SPD; TB DTR; UMU; WMUG
zp_PDRInd	DTR/M-1; M-1/RH DTR; M-2/MR-MU; M-2/P70-MU; PDR-1-D/UMU; PDR-1-G/UMU; M-1/NC-2; M-1/RM-2; M-1/RSD; NC-2/M-1; RM-2/M-1; C-2/M-1/P; HP-RA/M-1/M-2/P; HP-RA/M-2/P; M-1/M-2/P; M-1/P; M-2/MB-OS; M-2/MB-RA/P; M-2/P; P/M-1; P/M-2; P/PDR-2; C-2/M-1; C-M/M-1; RH-1/RH-2/RM-1; M-1/RH-2/RM-1; M-1/RM-1; M-2/RH-3; RH-3/M-2; M-1/RH-1; RH-1/M-1; HP-RA/M-1; HP-RA/M-2; M-1; M-1/M-1; M-1/M-2; M-1/PDR-1-B; M-1/PDR-2; M-2; M-2 (MB); M-2/MB-RA; M-2/PDR-2; M-2/SLI; MISS BAY S PLN/M-2; MISS BAY S PL; MISS BAY S PLN; MISS BAY S PLN/M-; PDR-1; PDR-1/PDR-2; PDR-1-B; PDR-1-B/PDR-2; PDR-1-D; PDR-1-G; PDR-2; SALI; SLI; SLI/M-2
zp_Redev	HP-RA/M-1/M-2/P; HP-RA/M-2/P; M-2/MB-RA/P; HP-RA/M-1; HP-RA/M-2; M-2/MB-RA; MISS BAY S PLN/M-2; MISS BAY S PL; MISS BAY S PLN; MISS BAY S PLN/M-; MB-RA/MR-MU; MB-O/MB-RA; MB-RA/P; P/MISS BAY S PL; P/MISS BAY S PLN; HP-RA/RM-1; HP-RA; MB-RA; MISS BAY N RED; MISS BAY N RED PLN; MISS BAY N RED PL; MISS BAY S RED; MISS BAY S RED PLN; MISS BAY S RED PL

Appendix: Logic of Applying the Model

- This section of the appendix describes in more detail how the model was used to produce estimates of future housing production.
- For the existing zoning (“baseline”), the application of the model is straightforward. Current zoning was encoded using the zoning classification on the previous page, and current allowable height was used as the height variable in the logistic regression, and to calculate building envelope in the units regression.
- For the proposed rezoning (“policy”), the logic used was as follows: based on the units regression, each 1000 square feet of building envelope results in 0.42 units. The State Density Bonus adds an additional 0.44 units. Parcels that elect to use the Local Program therefore need to accommodate at least 0.44 additional units per 1000 square feet of envelope if developers are to choose this option. For parcels where the Local Program was more desirable, and on parcels that are ineligible for the SDB, because their zoning and size prevents them from building more than 5 units, the Local Program was applied. For all other parcels the SDB was used.

Appendix: Logic of Applying the Model (Continued)

- Probabilities and units for any parcel using the State Density Bonus were calculated by:
  - In the logistic regression, using the first new height in the rezoning table for Height_Ft and in the Env_1000_Area_Height calculation.
  - In the units regression, using the first new height in the rezoning table to calculate Env_1000_Area_Height;
  - Incorporating the SDB_2016_5Plus_EnvFull effect;
  - Incorporating the Zoning_DR_EnvFull if applicable (i.e. the parcel is density-restricted.

Appendix: Logic of Applying the Model (Continued)

- Probabilities and units for any parcel using the Local Program were calculated by:
  - In the logistic regression, setting zp_FBDMulti_RTO = 1, to account for the relaxation of density controls in the Local Program;
  - In the logistic regression, using the second new height in the rezoning table for Height_Ft and in the Env_1000_Area_Height calculation.
  - In the units regression, using the second new height in the rezoning table to calculate Env_1000_Area_Height;
  - In the units regression, removing the SDB_2016_5Plus_EnvFull effect;
  - In the units regression, removing the Zoning_DR_EnvFull effect.

Appendix: Business Disruption / Relocation Costs

- The analysis makes the following assumptions about business disruption and relocation costs:
  - Lost space will be 10% vacant, so 90% of the loss represents the loss of occupied space.
  - Lost business net income (for 6 months of disruption): $5/occupied square foot.
  - Fixed labor costs (for 6 months): $10/occupied square foot.
  - Moving costs and build-out of space at new premises: $175/occupied square foot

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