Economic Effects of the T-Third on Bayview

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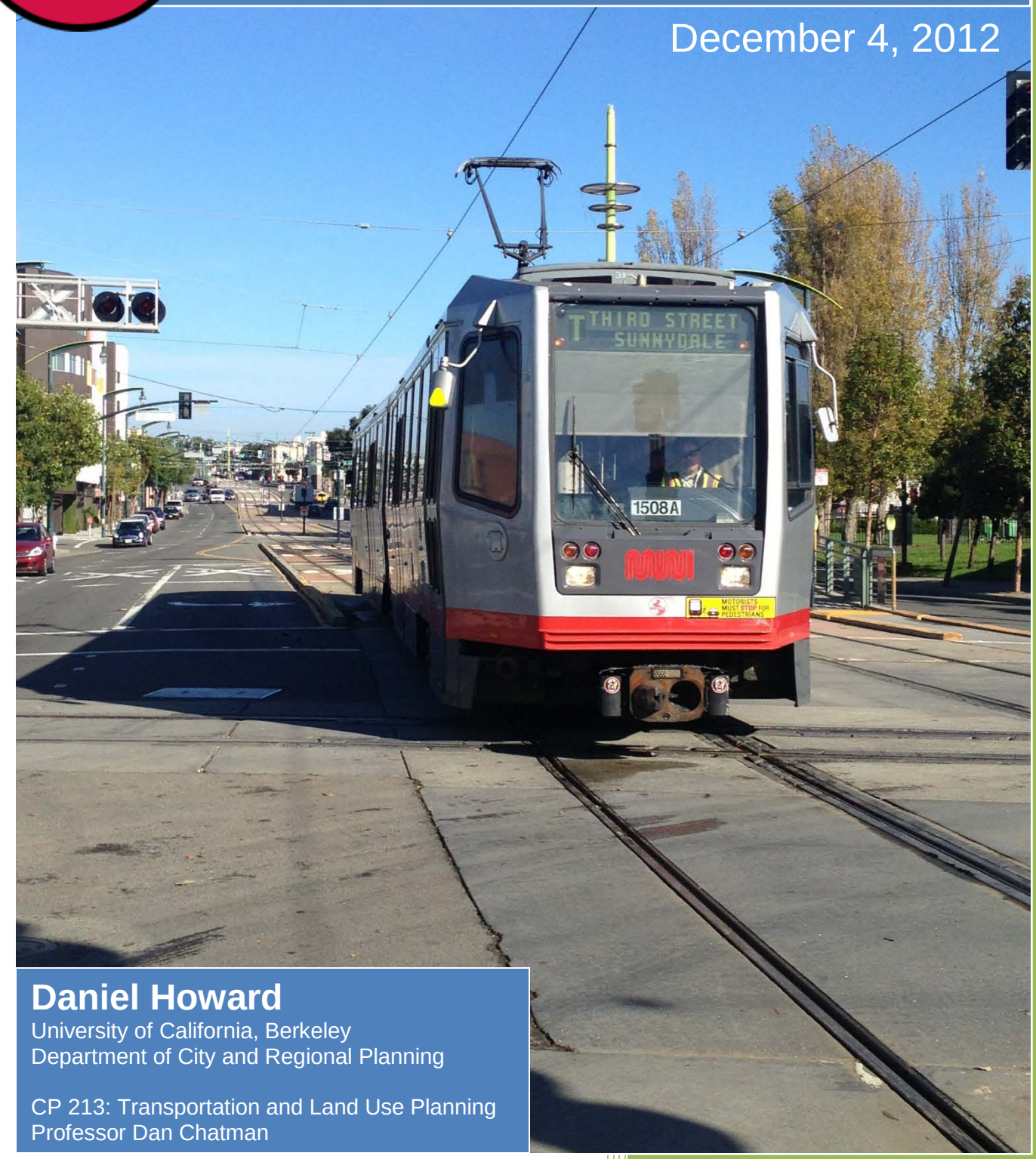

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Introduction

Over the past two decades, city planners and transit officials have promoted investments in light rail as instruments of economic development [1]. Light rail has been touted as providing economic benefits to communities, helping to justify the high political and monetary costs of constructing new lines. For example, Debrezion, et al. quantified this benefit as a 2.4% increase in housing value for every 250 meters closer to a station, based on a meta-analysis of home prices near rail stations [2].The Muni T-Third light rail line provides an opportunity to study the effects of an investment in new rail service on the economy of a declining area.

The T-Third was completed in 2006 and runs from the Market Street Subway in downtown San Francisco south through Mission Bay, Dogpatch, and Bayview-Hunters Point. Proponents claimed that the line would "bring wealth and jobs to the city's relatively isolated Bayview-Hunters Point neighborhood, a mostly African American and blue-collar enclave that missed out in the 1990s economic boom" [3]. At the time, Bayview remained economically depressed despite many attempts to revitalize the area through various schemes. Proponents also made the claim that the area is underserved by transit and the largely transit-dependent residents needed light rail to provide relief from congestion affecting existing bus lines [4].

In order to evaluate these claims, I conducted a longitudinal analysis of Bayview and the T-Third corridor using 2000 and 2010 American Community Survey data on home values, the number of owner-occupied units, the number of units constructed between these years, and median rents in an effort to understand the complex relationship between a transportation system and surrounding land uses. The data indicate that the T-Third did provide a modest economic benefit to Bayview homeowners, but that this effect is more pronounced in areas nearer to downtown. From this case study, I conclude that investment in light rail does improve a neighborhood's economic outlook, but other factors, such as proximity to existing activity centers and amenities, major public and private investments, and the character of the neighborhood can magnify or negate this effect. Planners must consider the full range of financial and political tools, as well as the characteristics of a community, if they seek to use light rail as a means of economic revitalization.

FIGURE 1: T-THIRD LINE [7]

The T-Third Line

One can trace the origins of the T-Third line to the results of a 1994 study, called the "Bayshore Corridor Systems Planning Study" [5], "which examined ten alternatives along three different routes (Bayshore Boulevard, Third Street and the Caltrain right-of-way). The alternatives covered a range of transit modes, including diesel bus, electric trolley bus, rapid transit and light rail." [6]. Following the study, community input, and Public Utilities Commission review, Muni began planning for a light rail system down the center of Third Street, terminating at the Bayshore Caltrain station.

Following a comprehensive study of the area, Muni released the Environmental Impact Report (EIR) for the project in 1998. According to the EIR,

> The Project would address deficiencies in the transit system serving the communities in the southeastern part of San Francisco, including deficiencies that exist at present and those that are anticipated to exist during the 20-year planning horizon (2015). In addition, the Project is also intended to serve as a key infrastructure improvement to help support the economic and physical revitalization of the Bayview Hunters Point commercial core along Third Street and the planned development in Mission Bay [4].

FIGURE 2: LRV AND DEVELOPMENT ALONG THIRD ST IN BAYVIEW (TRACT 233)

The EIR identified the deficiencies as: the unreliability of existing Muni bus service south of downtown; the perception of residents along Third Street that they do not have the same access to transit as residents in the rest of the city; and the projected increase in both travel demand and travel times along the corridor between 1995 and 2015. These increases were calculated based on population and employment forecasts and converted into trips using ITE estimates and the four step model of transportation demand forecasting [4].

The T-Third light rail line replaced the existing bus line, the 15-Third, which carried over 25,000 riders daily in 1995. If the T-Third were not built, the entire Muni system was expected to require 40 additional buses by 2015 to handle demand (not including buses purchased as replacements). The project was expected to require 25 new light rail vehicles and allow 30 to 35 buses to be taken out of service by 2015, while accommodating the projected increase in travel demand [4]. Ultimately, the T-Third cost $648,460,000 to build, with $123,380,000 from Federal Transit Administration grants, $160,700,000 in state funding, and $364,380,000 in local funding, largely from sales taxes and bridge toll revenue [7]. These values include "infrastructure investment that would accompany light rail implementation, in terms of street redesign, sidewalk improvements, and landscaping" [4].

As of 2011, the T-Third carries about 15,600 riders daily, but a direct comparison cannot be made between this value and the 1995 15-Third ridership estimate, because the 15-Third and the T-Third follow different routes north of King Street which vary significantly in terms of demand for transit. Moreover, the 2011 number is an estimated percentage of the riders on the T-Third portion of the K and

T lines, which together form one route [8]. Nevertheless, it is reasonable to conclude that ridership is less than expected; the T-Third will not reach its 2015 projected target of 80,000 riders daily [4].

Analysis of Bayview Housing Data

Data from the 2010 American Community Survey were compared to data from the 2000 American Community Survey in order to evaluate whether significant changes in real estate values, ownership and new construction occurred in Bayview between these two census years. Although the line opened to the public in 2007, comparing housing data between these two years ensures that the effects of land speculation are taken into account, since the project proposal was completed in 1999 [6]. For the purpose of this report, data from census tracts 9809, 612, 230.01, 230.03, 231.02, 231.03, 232, 233, and 234 comprise the Bayview study area depicted in blue in Figure 3. Tracts 231.03 and 9806 were omitted from the analysis in an attempt to keep effects on land values related to the Hunters Point Shipyard redevelopment separate from the effects of the construction of the T-Third (pictured below in red).

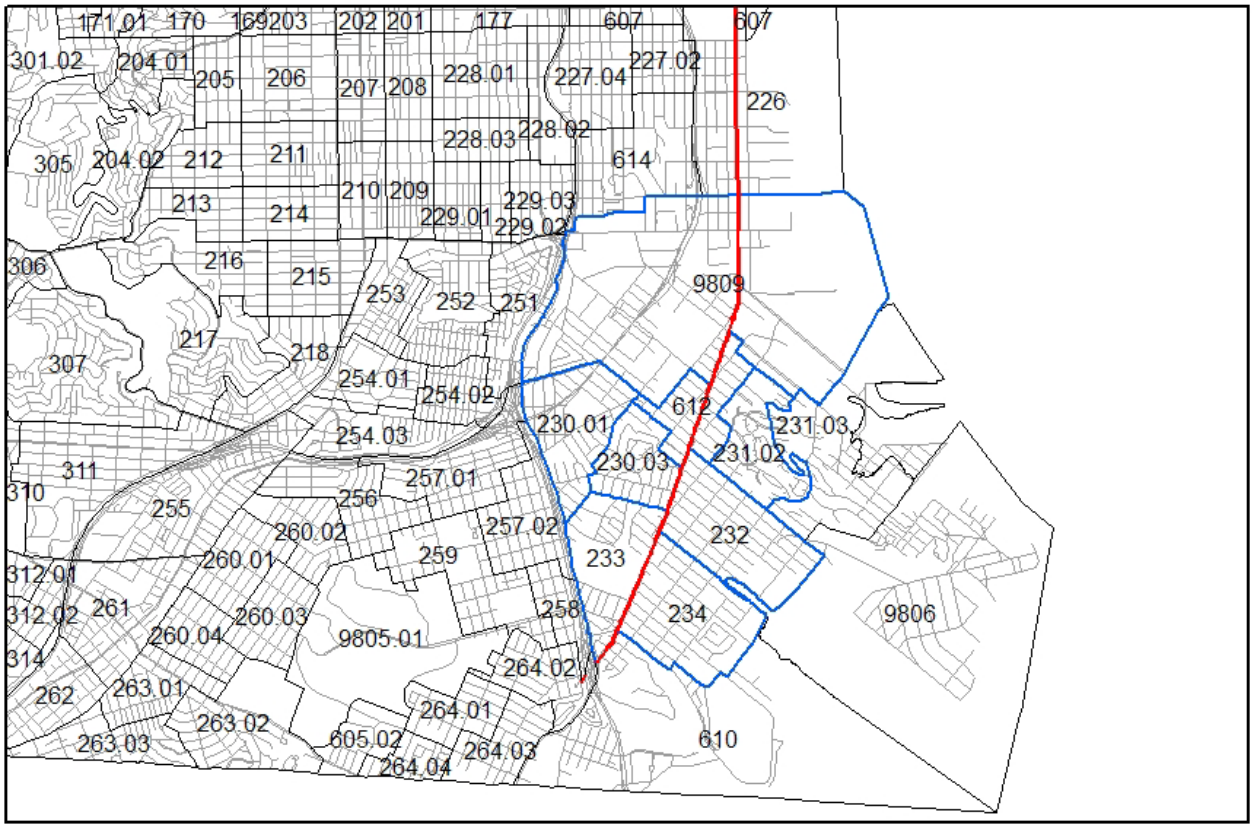


FIGURE 3: BAYVIEW STUDY AREA AND CENSUS TRACTS

Initially, the median home values for owner-occupied homes in 2000 and 2010 were compared between the study area and the rest of San Francisco. The 2000 home value was subtracted from the 2010 home value and then normalized as a percent increase or decrease from the 2000 value. This was done to control for differences in median home value between the various tracts and to control for larger national or regional economic trends, assuming that these trends affect all tracts in the city of San Francisco proportionally. These data, depicted in Figure B1, show that median home values in the Bayview study area increased at a greater rate than the rest of San Francisco over the ten year period.

Citywide, home values increased an average of 68.5% between 2000 and 2010 [9], [10]. The tracts with median housing values that increased at a rate that was not statistically different from the mean (within a 95% confidence interval of 59% to 78% increase) are shown in tan. Tracts with median home values that increased greater than the mean are depicted with shades of green, and tracts with home values that increased less than that of the mean are displayed in yellow. Tracts with decreasing median home values over the ten year period are shown in red. As shown, home prices in the Bayview study area increased around 120%, roughly twice the rate of the average San Francisco census tract, providing strong evidence that the introduction of the line did improve home values.

Many of the tracts in Bayview are owner-occupied, however data on renters must also be included given the large percentage of the San Francisco population who rent their primary residence. As shown in Figure B2, the three tracts to the west (which contain new condominium development) are 61-80% owner-occupied, while the older, more established parts of Bayview have mostly renters. Figure B3 shows the results of the same analysis described above, this time using rents instead of home values. The citywide mean increase in rent was 33% over the ten year period [9], [10]. As in Figure B1, the tracts with median rent increases that were not statistically different from the mean are depicted in tan. The data show a mixed effect on rents in the Bayview area: tract 233, which contains many newly constructed units, saw median rents increase over 100%; while neighboring tract 234 saw a decrease in the median rent. Overall, it can be said that rents increased in the Bayview tracts slightly more than the average for the rest of the city.

FIGURE 4: 5800 THIRD ST, NEW MARKET-RATE UNITS (TRACT 233)

The majority of new residential construction between 2000 and 2010 took place along the T-Third corridor. Figure B4 depicts the percentage of dwelling units in each census tract that were constructed between 2000 and 2010. 51% of the units in tract 9809 did not exist in 2000, which explains why no data were available for this tract in the earlier part of the analysis [10]. New development in Mission Bay and Dogpatch can also be attributed to both the T-Third as well as a concerted effort by the municipal planning department to concentrate new development in these areas. Newly constructed units make up a significant portion of the housing in Bayview's western tracts, which helps to explain the large increases in rents and home values observed in these areas. The traditional center of Bayview (tracts 612, 231.02, 231.03 and 232), which did not attract new construction, also did not experience an increase in real estate prices of the same magnitude as the areas that did. Such increases in rents and home values, while they are still on average greater than the rest of the city, are likely due to land speculation. According to local realtors, "commercial and residential property speculators [were] already inquiring" about purchasing Bayview properties in 2002 [3]. Further, between 2000 and 2010 the percentage of Bayview residents who own their homes decreased significantly, again suggesting land

speculation played a role in housing value increases over this period. This is counter to the citywide trend, where on average the percentage of residents who own their homes increased in the same period, as depicted in Figure B5.

Bayview Today

The preceding analysis of housing data from the American Community Survey suggests that the T-Third contributed to increased housing prices in Bayview. Moreover, the high percentage of newly constructed units in the area along the T-Third corridor are a strong indicator that the line is encouraging new development, and with it economic revitalization. Projects such as the "troubled $75 million mixed-use development at 5800 Third Street [are] evidence that the long-sought revitalization is finally taking root" in a location that was previously occupied by abandoned warehouses [11]. Further, a Fresh and Easy grocery store was included in the ground floor of the development where previously there hadn't "been a new grocery store in the Bayview in 20 years" [11]. Bayview was previously identified as a "classic food desert" by the city's director of housing, Olson Lee, due to the lack of a grocery store in the community [11]. Prior to 2011, residents without cars were reliant on liquor stores, convenience stores, and fast food restaurants [11] to obtain food. The developer of 5800 Third St, attracted to the site by the adjacent rail station, actively worked to bring Fresh and Easy to the development, providing the community with this important resource that would not otherwise have been introduced [11].

FIGURE 5: GROCERY IN 5800 THIRD ST DEVELOPMENT, ADJACENT TO T-THIRD STATION (TRACT 233)

Despite light rail's contribution to inciting development in Bayview, careful consideration of this case study urges caution to planners considering initiating a wave of economic revitalization with investment in a new light rail line. Within the T-Third corridor, Bayview was outperformed by the neighborhoods of Dogpatch and Mission Bay, using the same metrics described in the previous section and displayed in Figures B1 through B5. North of Bayview, the "rail expansion, coinciding with a soaring housing market, ignited construction of condominiums in neighborhoods that wrap around the city's eastern shore…anchored geographically by the AT&T Ballpark and the Mission Bay research center medical-school campus" [11]. In Mission Bay, the rail line "transformed a light industrial zone into a series of up-and-coming residential neighborhoods" [11]. This area developed quickly because it is adjacent to San Francisco's CBD, there was significant public investment in the area, and it was easy to redevelop the large industrial sites that made up Mission Bay at the time. This "boom, however, stopped just short of the Bayview, with its lack of political clout and financial resources" [11].

The character of Bayview is also very different than that of Mission Bay, which contributes with the political and financial obstacles referred to above to prevent redevelopment at the scale of what occurred in Mission Bay. Bayview has a large amount of existing housing stock, owing to its history as a working-class residential neighborhood, while Mission Bay is largely composed of former industrial sites. Redevelopment of Bayview's residential and commercial properties will be a much longer process, owing to the difficulty and expense involved in working with small parcels, either redeveloping them piecemeal or attempting to consolidate adjacent parcels. Further complicating matters is the opposition of the primarily African-American community to any development that is perceived as contributing to gentrification, the role of land speculators who purchase property in the area but do not maintain it, and the reputation of Bayview as a rough neighborhood [12], [13].

FIGURE 6: TYPICAL EXISTING HOUSING IN BAYVIEW, VAN DYKE AND 3RD (TRACT 232)

Conclusion

Based on the preceding analysis of economic indicators associated with housing, it can be concluded that the T-Third rail line likely contributed to an increase in value of the housing stock in Bayview and provided the impetus for new residential development along the corridor. While these are positive effects, whether the T-Third rail improvement was the most effective way to revitalize such a district remains to be seen. The analysis presented in this paper was limited in scope to housing values; several other economic indicators could be used to evaluate the claims made by the line's proponents. Example of such indicators include the effects of the line on commercial property values, increases in pedestrian traffic in the Third Street commercial district, or employment statistics.

That the T-Third contributed to increased real estate values in Bayview is counter to Giuliano's argument that "rail investment is not sufficient to promote economic development in declining areas" [14]. However, effects on land value were not as pronounced in Bayview as in other communities along the corridor, suggesting that the investment could have been more effective. This case study demonstrates the need for comprehensive planning that takes into account the characteristics of each community. Analysis of the T-Third corridor reveals solutions for one area may not be as effective in the next one, even for adjacent communities. As Loukaitou-Sideris and Tridib conclude in their study of the Los Angeles Blue Line, "it takes more than urban design guidelines and rail lines to create an inner city transit neighborhood. It takes sustained commitment, political will, a viable local economy, community participation, and substantial financial support to override the major obstacles that confront development there" [1]. Planners must integrate a system improvement with the existing characteristics of the community if they seek to encourage redevelopment with a transportation investment.

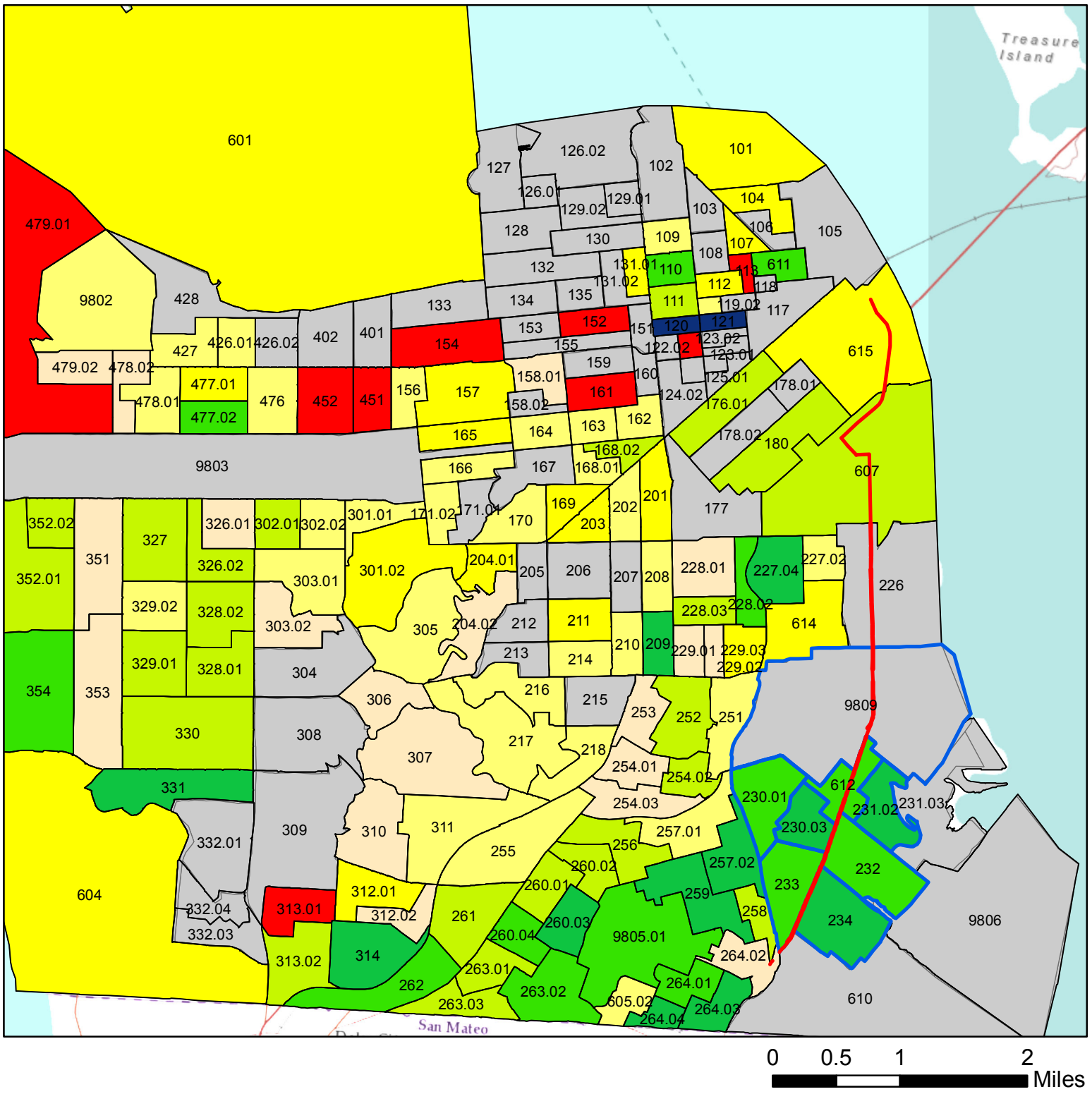
FIGURE 7: TYPICAL EXISTING STRUCTURES IN BAYVIEW'S CORE (TRACT 230.03)

FIGURE 8: TYPICAL ABANDONED INDUSTRIAL LOT IN SOUTH BAYVIEW (TRACT 234)

FIGURE 9: ABANDONED LOTS NEAR BAYVIEW'S CORE (TRACT 612)

FIGURE 10: REDEVELOPMENT NEAR STATION IN BAYVIEW'S CORE (TRACT 612)

Figure B1: Change in Home Values 2000 to 2010



Legend

- T Third Line
- Study Area
- No Data Available

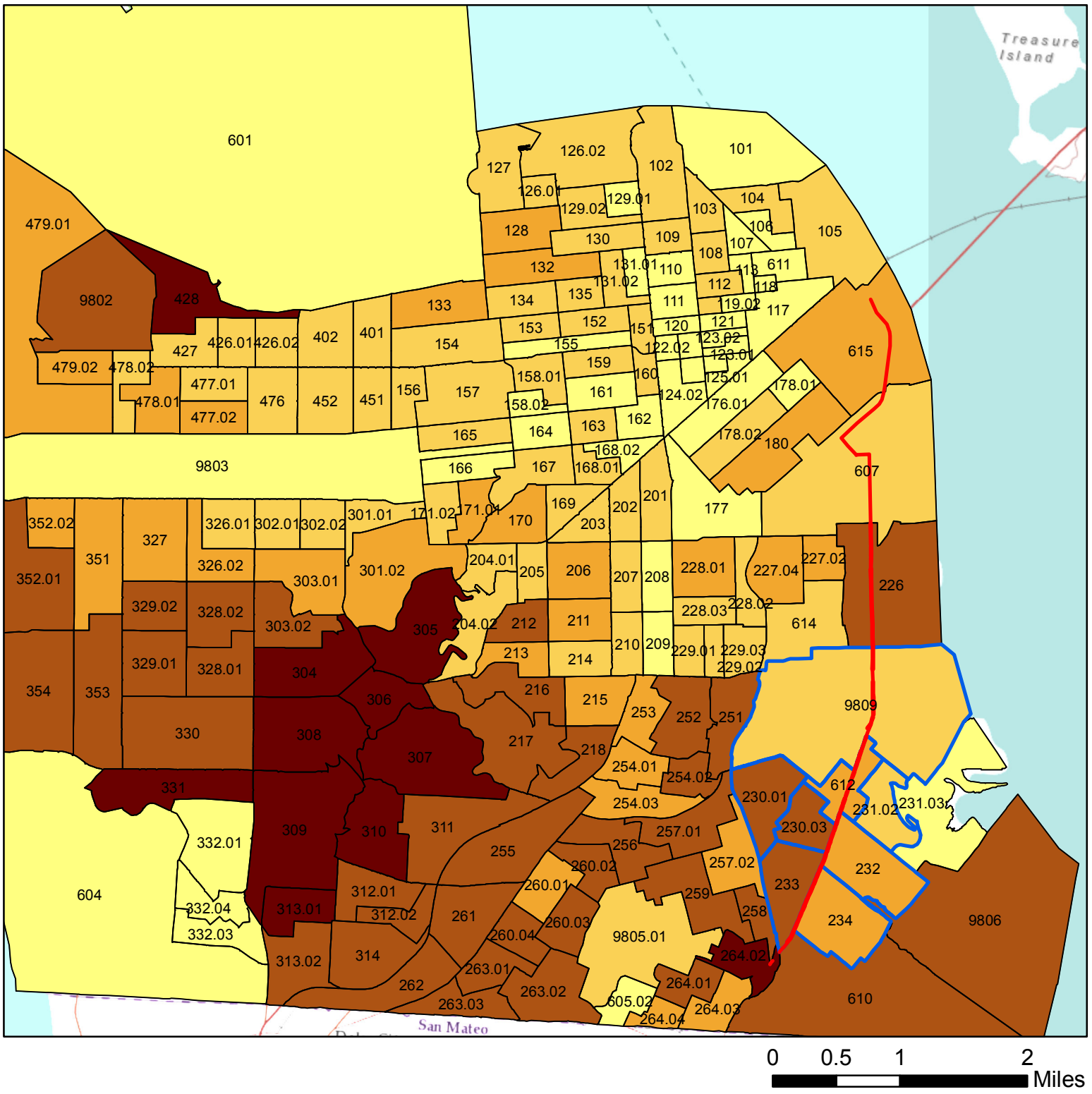
Percent Change in Median Home Value*

- Decrease in Home Value
- 0.1% - 30%
- 30.1% - 59%
- 59.1% - 78% (Mean Increase)
- 78.1% - 100%
- 100.1% - 120%
- 120.1% - 150%
- 150.1% - 200%
- 200.1% - 300%
- Greater than 300.1%

Source: U.S. Census Bureau ACS 2000, 2010

* Owner-occupied units.

Figure B2: Owner-Occupied Units, 2010



0 0.5 1 2 Miles

Legend

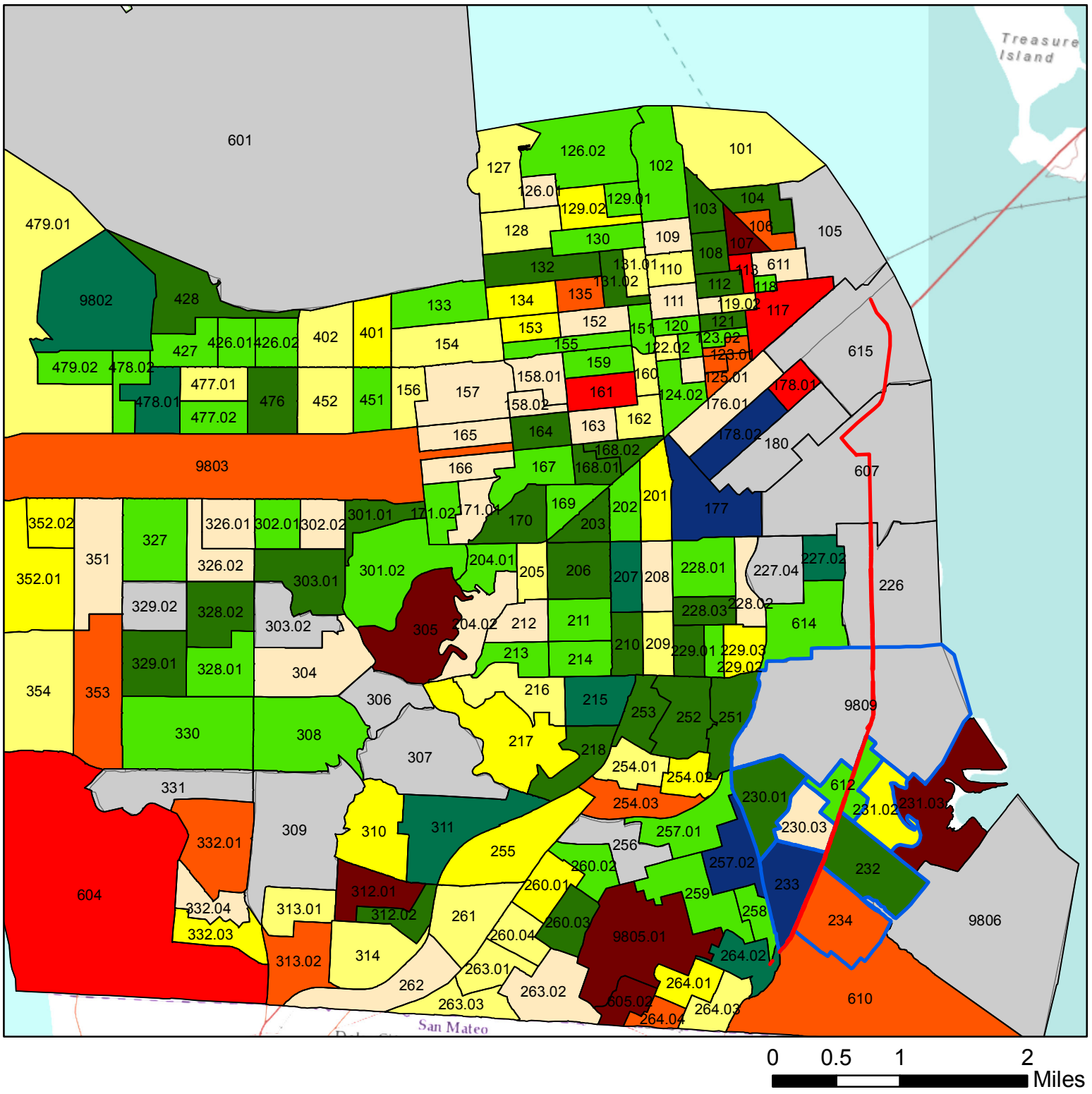
- T Third Line
- Study Area
- No Data Available

Percent of Units That Are Owner-Occupied

- 0% - 20%
- 21% - 40%
- 41% - 60%
- 61% - 80%
- 81% - 100%

Source: U.S. Census Bureau ACS 2000, 2010

Figure B3: Change in Rents, 2000 to 2010



0 0.5 1 2 Miles

Legend

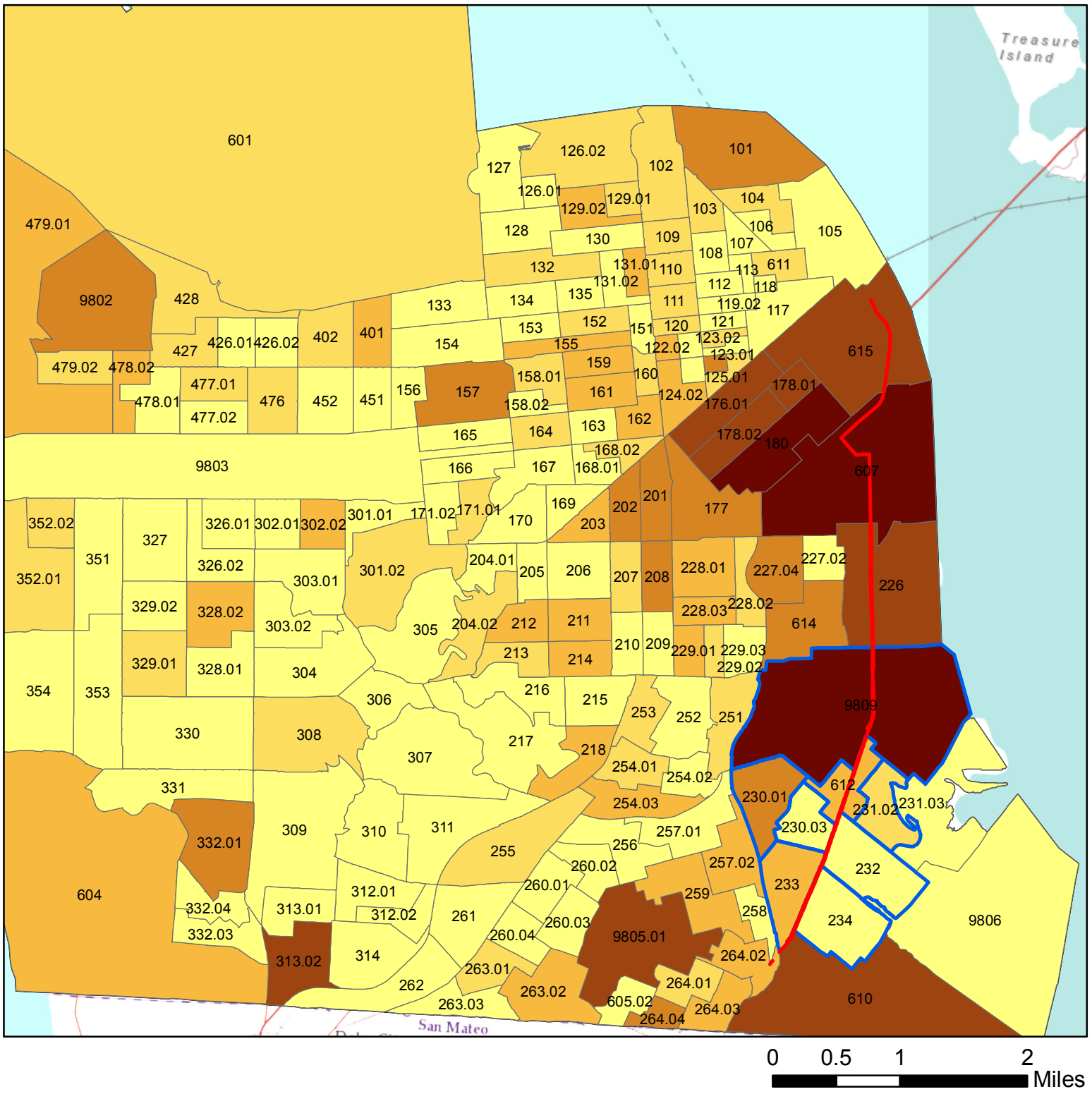
- T Third Line
- Study Area
- No Data Available

Percent Change in Median Rent

- Greater than 50% decrease
- -49.9% - -25%
- -24.9% - 0%
- 0.1% - 15%
- 15.1% - 28.2%
- 28.3% - 38.5% (Mean Rent Increase)
- 38.6% - 55%
- 55.1% - 75%
- 75.1% - 100%
- Greater than 100% increase

Source: U.S. Census Bureau ACS 2000, 2010

Figure B4: Newly Constructed Units, 2010



0 0.5 1 2 Miles

Legend

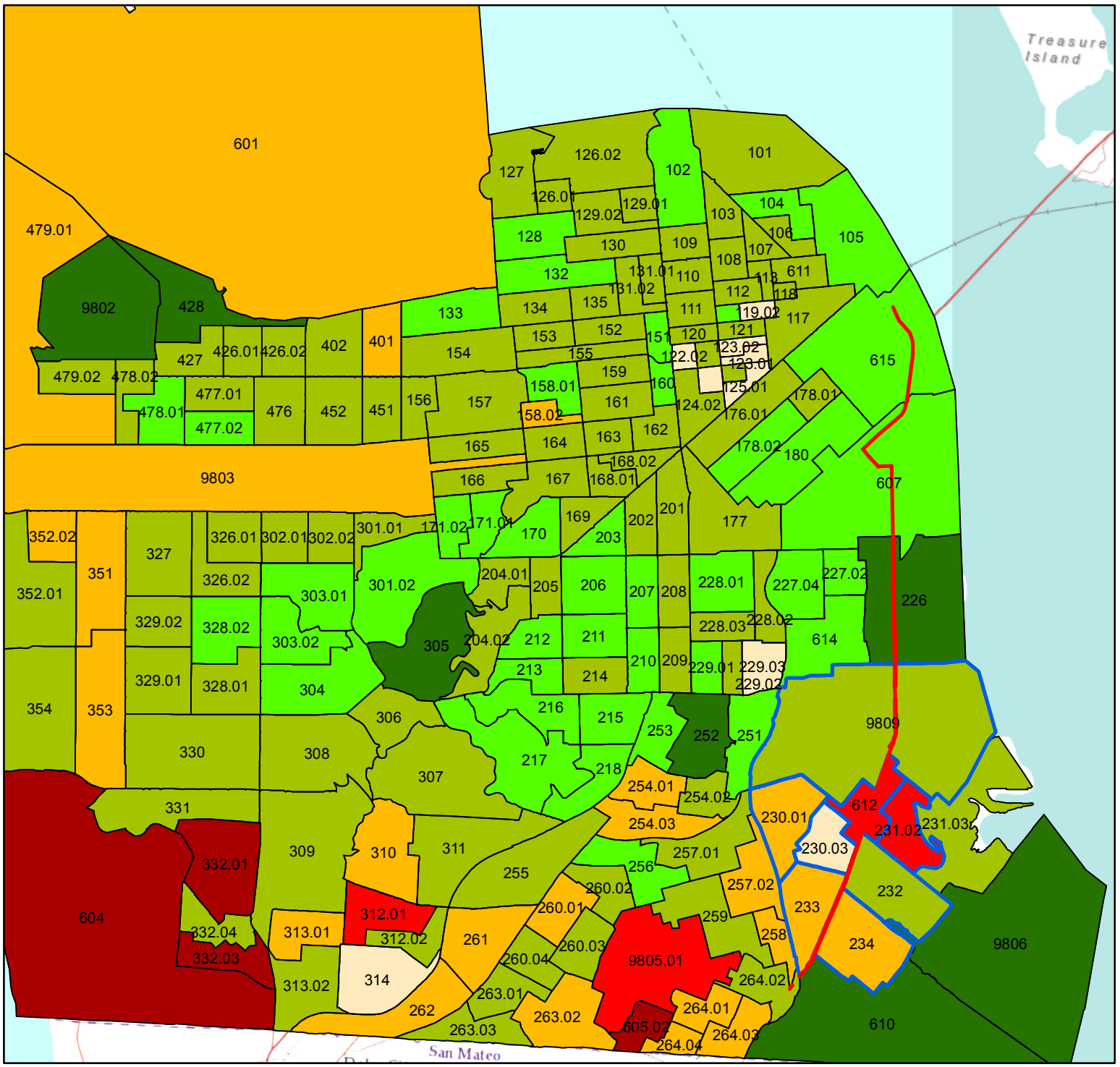
- T Third Line
- Study Area
- No Data Available

Percent of Units Constructed Between 2000 and 2010

- Less than 1.5%
- 1.6% - 4%
- 4.1% - 8%
- 8.1% - 20%
- 20.1% - 50%
- Greater than 50%

Source: U.S. Census Bureau ACS 2000, 2010

Figure B5: Change in Owner-Occupied Units, 2000-2010



Legend

- T Third Line
- Study Area
- No Data Available

Change in Percent of Owner-Occupied Units

- Less than -50%
- -49.9% - -25%
- -24.9% - -1%
- -0.9% - 1%
- 1.1% - 25%
- 25.1% - 50%
- 50.1% - 75%

0 0.5 1 2 Miles

Source: U.S. Census Bureau ACS 2000, 2010

Appendix C: Data From Analysis of ACS 2000, 2010, Bayview Tracts

Tract	612	9809	230.01	231.02	232	233	234	230.03
Owner-Occupied Units, 2000	952	0	952	183	191	952	691	952
Owner-Occupied Units, 2010	475	39	792	374	676	400	478	822
Renter-Occupied Units, 2000	322	487	322	120	461	322	459	322
Renter-Occupied Units, 2010	574	139	509	806	621	199	523	264
Percentage of Owner-Occupied Units, 2000	74.7%	0.0%	74.7%	60.4%	29.3%	74.7%	60.1%	74.7%
Percentage of Owner-Occupied Units, 2010	45.3%	21.9%	60.9%	31.7%	52.1%	66.8%	47.8%	75.7%
Change in Percentage of Owner-Occupied Units	-29.4%	21.9%	-13.8%	-28.7%	22.8%	-7.9%	-12.3%	1.0%
Median Home Value, 2000	$265,900	No Data	$265,900	$220,100	$239,200	$265,900	$263,100	$265,900
Median Home Value, 2010	$551,500	No Data	$563,400	$550,000	$505,100	$564,100	$588,600	$605,300
Change in Median Home Value	$285,600	No Data	$297,500	$329,900	$265,900	$298,200	$325,500	$339,400
Change in Median Home Value as a Percent of 2000 Home Value	107.4%	No Data	111.9%	149.9%	111.2%	112.1%	123.7%	127.6%
Median Rent, 2000	$702.00	$1,809.00	$702.00	$689.00	$667.00	$702.00	$790.00	$702.00
Median Rent, 2010	$1,013.00	No Data	$1,220.00	$707.00	$1,167.00	$1,738.00	$706.00	$930.00
Change in Median Rent	$311.00	$0.00	$518.00	$18.00	$500.00	$1,036.00	-$84.00	$228.00
Change in Median Rent as a Percentage of 2000 Median Rent	44.3%	No Data	73.8%	2.6%	75.0%	147.6%	-10.6%	32.5%

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