Building an Indicator Base for Healthy Housing Issues in Oakland

Prepared for the
Alameda County Healthy Homes Alliance

November 2013

URBAN STRATEGIES COUNCIL

Urban Strategies Council is a social impact organization that uses research, policy, innovation, and collaboration to achieve equity and social justice. The Council's mission is to eliminate persistent poverty by working with partners to transform low-income neighborhoods into vibrant, healthy communities.

Authors:
Steve King
Steve Spiker
John Garvey
Nic Aulston

Urban Strategies Council
1720 Broadway, 2nd Floor
Oakland, California 94612
www.urbanstrategies.org

Contents

Table of Figures

Introduction

Project Overview

In late 2012, the steering committee of the Alameda County Healthy Homes Alliance (the Alliance) initiated a dialogue with Urban Strategies Council (the Council) about establishing a set of neighborhood level indicators that could help elucidate the connections between the health of Oakland residents and the homes they inhabit. Over the course of nearly one year, the Council worked with the Alliance to develop a research plan, refine a list of key indicators, and ultimately compile and analyze a broad array of data that will inform the policy efforts and strategic directions of the Alliance. This report is the concluding product of that fruitful partnership.

Scope of Research

We know intuitively and empirically that where you live has a profound impact on your well-being. At many different scales, geography and place leave an imprint on your physical and mental health—whether it is the policies of your home country or state, the quality of air surrounding your neighborhood, the perceived safety of the block around your home, or the structural integrity of your own residence. These various scales are not mutually exclusive; instead, they overlap to contribute to lived experiences for people in very specific places. For this report, our research necessarily spans these scales, but the real targets of our analysis are those metrics that lay at the intersection between housing units in Oakland and the health of their inhabitants.

A well-established body of academic, clinical, and community-level research has demonstrated that conditions within housing units can deeply impact the physical and mental health of individuals in those units, for better or worse. In many areas, the literature is conclusive: just as a dilapidated apartment with a cockroach problem can trigger asthma in a vulnerable child, so too can a well-maintained and properly managed apartment contribute to the positive well-being of its tenant. And so the goal of this report is not to provide evidence that these housing-health connections exist, but rather to compile an array of data so as to operationalize existing research locally for Oakland.

The report begins with a brief overview of several demographic indicators related to the race, ethnicity, and socio-economic status of Oakland residents. This is followed by a look at several important health outcomes that have a close connection to the built environment, and which vary substantially across Oakland neighborhoods. The remaining four sections of the report cover various aspects of the housing stock in Oakland, from age, density and tenure types, to affordability, habitability and quality.

A Note about Data

Using the existing literature as a point of departure, Urban Strategies Council fashioned a long list of potential relevant indicators. The types of data that could inform a study such as this are numerous;

however, the availability of those data has been a significant limiting factor. To effectively and accurately tell a story about a specific city, local data are of paramount importance. Yet reliable local data can be exceedingly scarce, particularly at a neighborhood or individual record level.

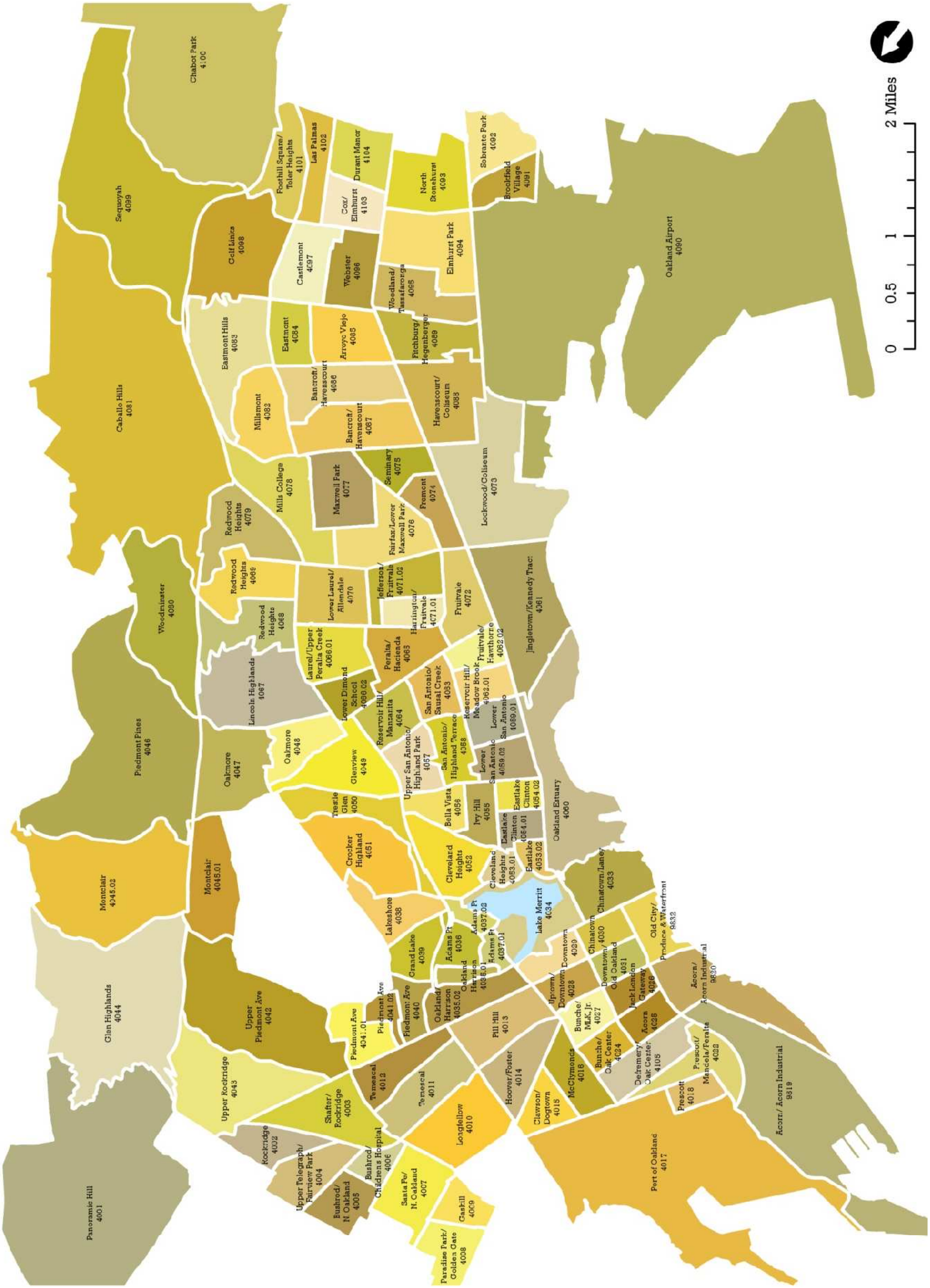
One specific reason for the lack of quality local data is the fact that the U.S. Census has greatly scaled back the types of detailed information collected during the decennial Census. In its place, the American Community Survey (ACS) publishes one, three, and five-year estimates of relevant metrics at various geographic levels. At the neighborhood level (Census tract or smaller), this ACS data is—in nearly every instance—highly problematic and fraught with error, despite its widespread (mis)use.

This unfortunate reality has made the collection and accessibility of locally produced data—as opposed to state or national administrative datasets—much more important to understanding neighborhood level phenomena. Such fine grained information is particularly crucial to making informed, data-driven decisions related to local policies or targeted outreach to specific subpopulations.

It follows that we have attempted to collect as much neighborhood level data as possible. In most instances, data are either originally reported at the Census tract level, or we have chosen to aggregate raw data to the Census tract level. In several instances, we have had to resort to using data reported at the zip code, or even metropolitan statistical area.

As the majority of data in the report are at Census tract geographies, we created a map showing Census tracts with approximate neighborhood names for use as a reference (see Map 1). Note that there is little consensus in Oakland over neighborhood names and boundaries; Map 1 is simply provided as a guide to orient the reader to Oakland's Census tracts.

Map 1: Oakland Census Tracts/Neighborhoods



Demographics

Race and Ethnicity

While this report is largely focused on data about housing, the residents whose health may be impacted by housing provide the overarching impetus for this analysis. According to the 2010 U.S. Census, Oakland is home to 390,724 residents. These people come from a variety of backgrounds and live in equally diverse array of neighborhoods. This section explores the diversity of Oakland's residents, and the places where they live in the City.

The underlying rationale for beginning with race and ethnicity and other socio-economic indicators is that research has shown that low-income households and communities of color disproportionately live in substandard housing. There is not a causal link, but it is important to be cognizant of specific groups or neighborhoods that may bear the brunt of unhealthy housing issues.

In a recent study conducted by Brown University[1], Oakland was ranked the fifth most diverse city in the United States. This diversity is expressed in historic neighborhoods with strong cultural identities. The following sequence of maps uses data from the 2010 U.S. Census to explore these different neighborhoods and highlight Oakland's four largest racial and ethnic identities: African-American or Black, White, Hispanic or Latino, and Asian.

African-American or Black – 27.3% of all residents
Oakland has the second largest Black or African-American population of all cities in California. In 2010, 106,637 Black or African-American people lived in Oakland. While West and East Oakland are home to Oakland's traditional Black neighborhoods, the reality is that Black residents are spread across Oakland's flatland neighborhoods, as well as the East Oakland hills (see Map 2). Between 2000 and 2010, there was a 23 percent decline in Oakland's Black population; Black residents now represent 27 percent of the population in Oakland, compared to over 35 percent in 2000.

White – 25.9% of all residents
Map 3 shows the concentration of residents identifying as White throughout Oakland by Census tract. Visually, the map is nearly an inverse of Map 2, which displayed the African-American population across the City. With the exception of Jack London Square and the neighborhoods around Lake Merritt, there is a uniformly low concentration of White residents throughout Oakland's flatland neighborhoods. At least two out of three residents in neighborhoods like Piedmont, Trestle Glen, Montclair, and Rockridge identified as White. In 2010, 20 Census tracts (15 percent of all tracts in Oakland) had more than 70 percent of residents being White.

Hispanic or Latino – 25.4% of all residents
The Fruitvale neighborhood has long been the traditional neighborhood for Hispanic or Latino residents in Oakland. In the 2010 Census, 74.8 percent of residents in this district identified as Hispanic or Latino. However, the growth of the Hispanic population has resulted in an expansion of neighborhoods where Hispanic residents are living in Oakland. In particular, the flatland neighborhoods from the Fruitvale to the

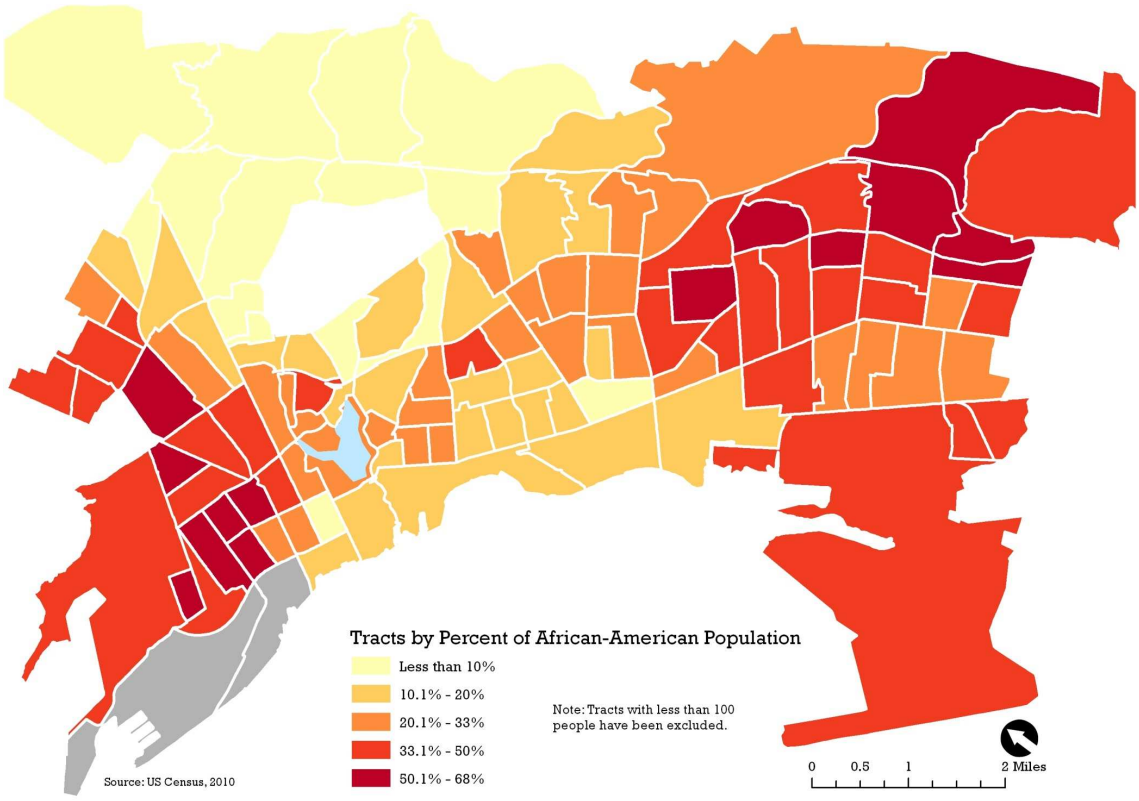
[1] http://www.s4.brown.edu/us2010/Data/Report/report08292012.pdf (Last visited 10/28/2013)

East Oakland border with San Leandro have seen a significant rise in the Hispanic population (see Map 4). In the East Oakland flatland tracts east of High Street, there was a 26 percent increase in the Hispanic population between 2000 and 2010; this population growth is evident in the high concentration of Hispanic residents around Elmhurst, Brookfield Village, and Stonehurst.

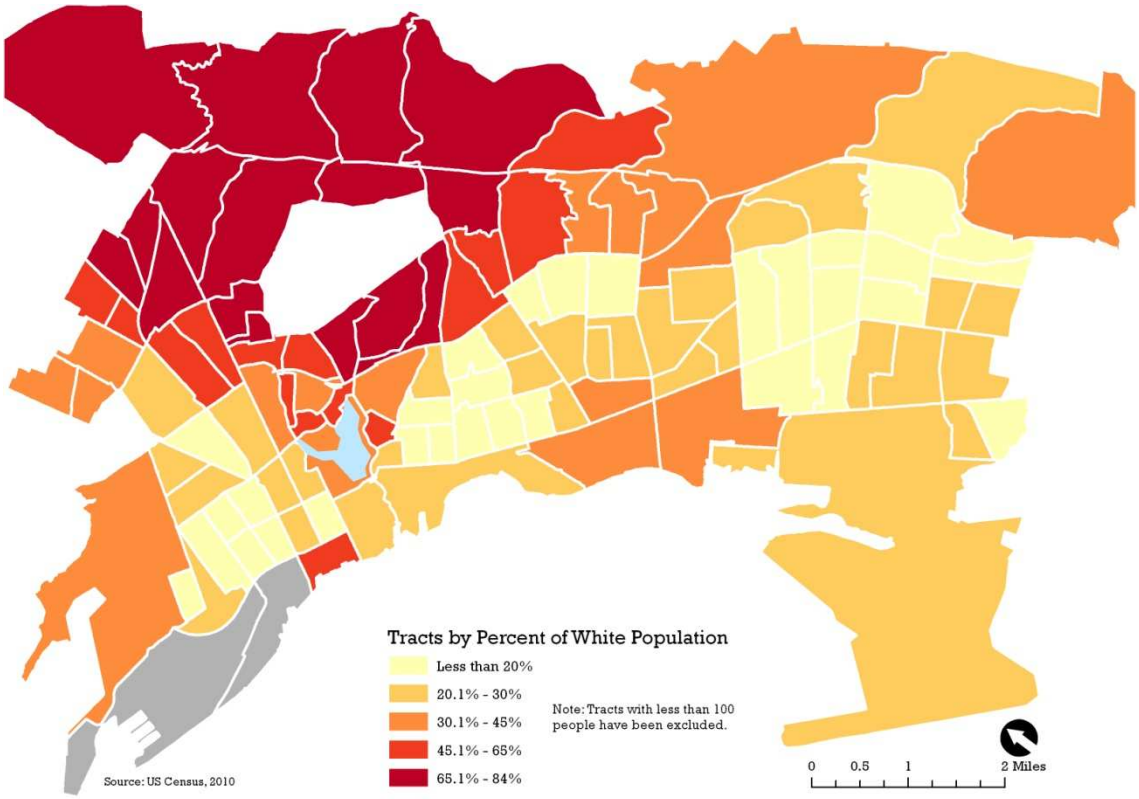
Asian – 16.7% of all residents

Asian residents are highly concentrated among several neighborhoods around downtown Oakland and extending east around Lake Merritt, particularly Eastlake and the lower San Antonio (see Map 5). In the Chinatown district adjacent to downtown, 88.7% of the 2,788 residents identified as Asian in the 2010 Census. These neighborhoods with particularly high concentrations of Asian residents are quite diverse in themselves, with a mix of residents of Chinese, Vietnamese, Laotian, and Cambodian decent. Asian residents rarely constitute the majority of the population within a given Census tract—only six Census tracts in Oakland have a majority of Asian residents compared to 41 tracts with a majority of White residents.

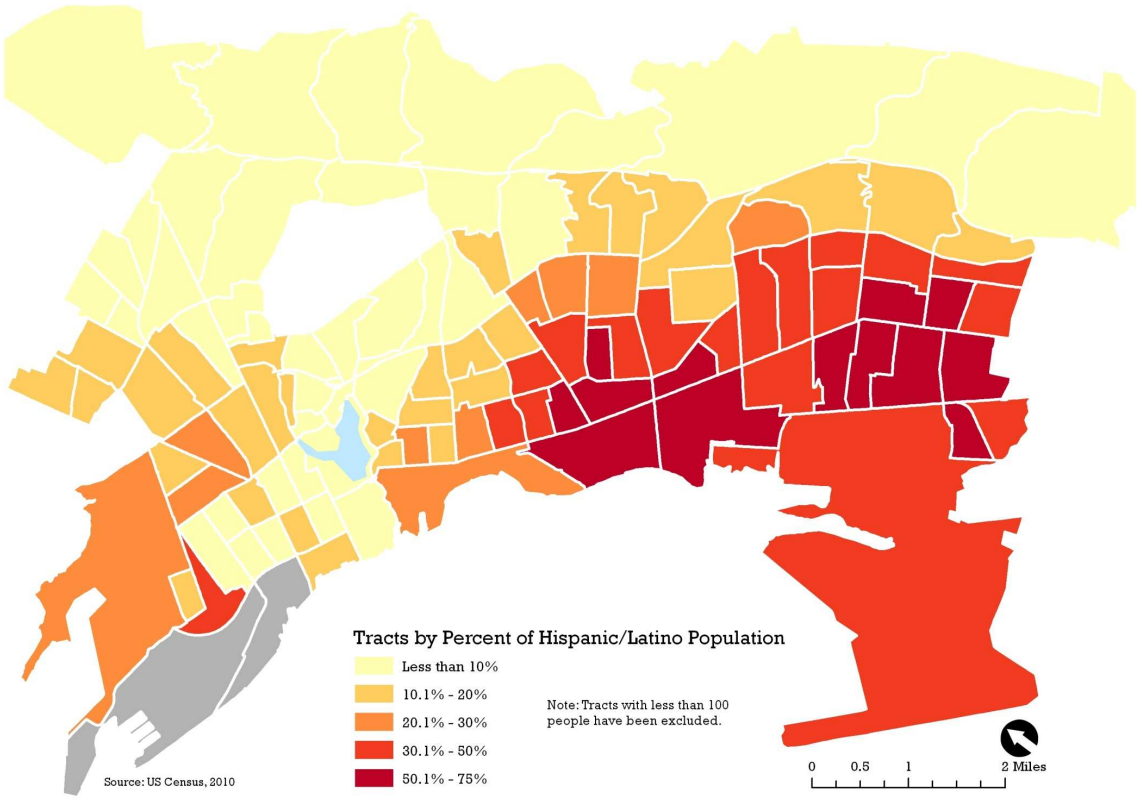
Map 2: Percentage of African American Population by Census Tract, 2010



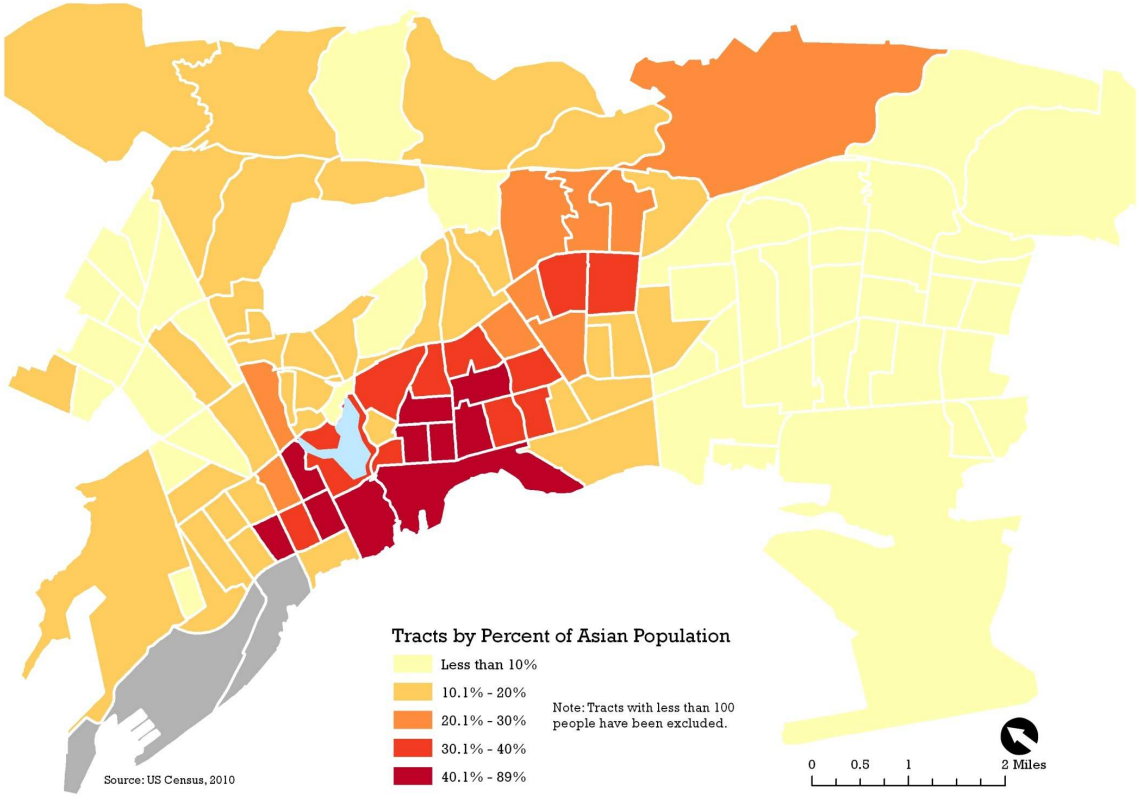
Map 3: Percentage of White Population by Census Tract, 2010



Map 4: Percentage of Hispanic/Latino Population by Census Tract, 2010



Map 5: Percentage of Asian Population by Census Tract, 2010



Socio-Economic Indicators

We know that housing quality—or lack thereof—has been shown to be closely linked to socioeconomic circumstances. Equally, we are becoming aware of the traumatic impact that the stresses of living in poverty can have on the health outcomes of residents. This is particularly true for children whose positive growth and development is impacted by the harsh realities of growing up poor.

Our ability to measure poverty is hindered by the unfortunate quality of local data provided by the U.S. Census – the traditional source of poverty data. Instead, this report utilizes data provided by the Alameda County Social Services Agency that shows enrollment counts into social safety net programs. One of the primary eligibility requirements for these programs is income. And while these data provide a rich local source of information, they also are not perfect. Enrollment counts into these programs cannot be used as an exact proxy for poverty, as not all eligible residents actually enroll in the programs. It is widely understood that the need and eligible populations for these social programs far surpass enrollment.

With that said, even a cursory analysis of this data illustrates that only looking at citywide data obscures the real disparities between Oakland neighborhoods. Oakland is home to both affluent neighborhoods of low-density housing and manicured yards, as well as poor communities with modest homes on small lots. The lived experiences of residents within these two neighborhood types are very different. This dichotomy in Oakland is manifested in the City's topography: the affluent, predominately White neighborhoods among the hills, and the low-income communities and communities of color spread throughout the City's flatland neighborhoods.

Maps 6 through 9—which display enrollment into CalWORKs, CalFresh, and Medi-Cal, respectively—consistently illustrate higher enrollment rates throughout the flatland communities of Oakland compared to those areas in the hills. Within the flatlands, enrollment rates are highest in West Oakland and East Oakland, with additional concentrations of Medi-Cal enrollees in the San Antonio and Fruitvale. In some neighborhoods, as many as one in three adults were enrolled in Medi-Cal, a program to provide health insurance to low-income residents. This startling fact is particularly pronounced for children: 14 Census tracts in Oakland have at least 900 children enrolled in Medi-Cal, with three tracts in the Fruitvale, Havenscourt, and Coliseum areas having more than 1,500 children enrolled in Medi-Cal.

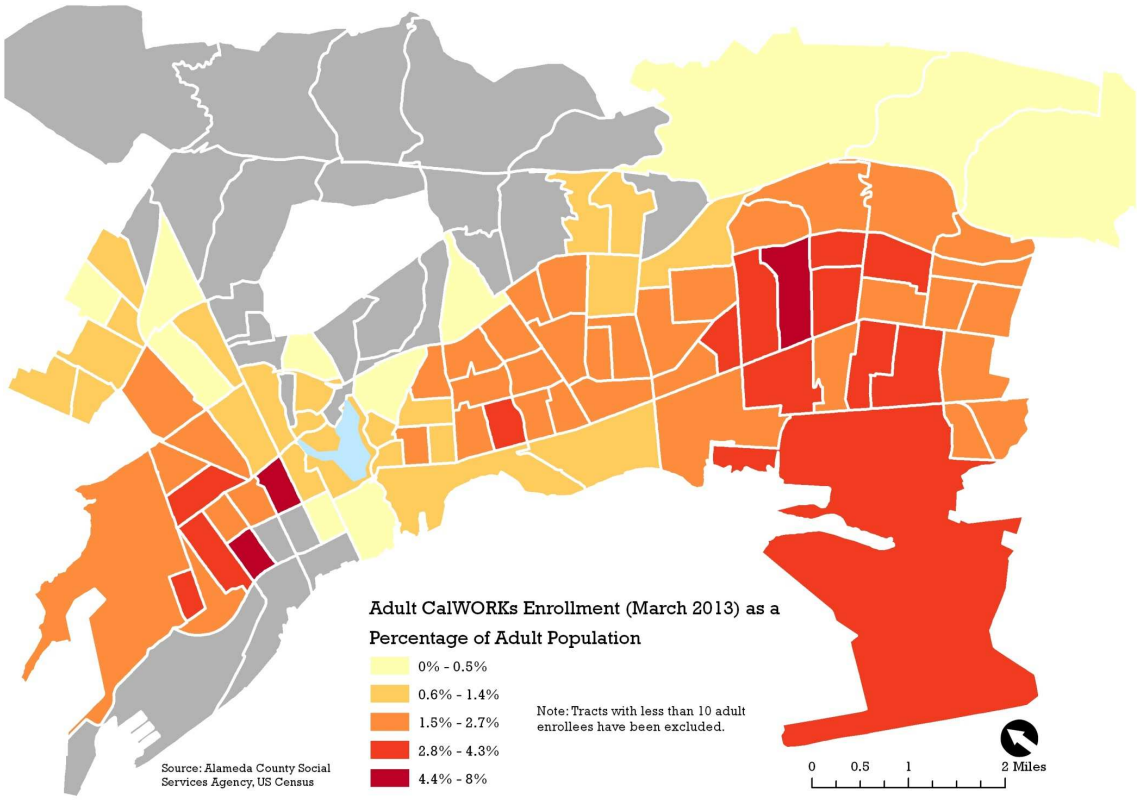
Basic Descriptions of Programs

CalWORKs is California's implementation of the federal Temporary Assistance for Needy Families (TANF) program, a cash aid program for eligible families. Eligibility is based largely on income and employment status of the principal earner in a family, as well as special needs requirements for family members.

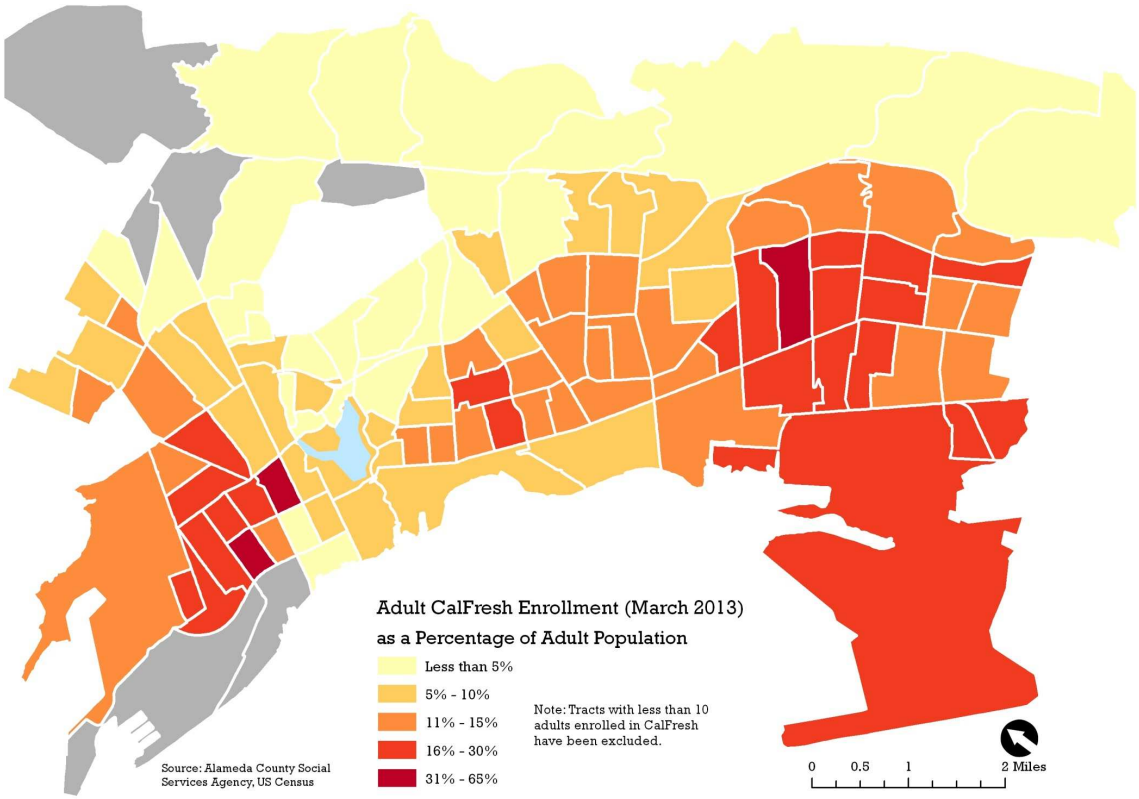
CalFresh is federally known as the Supplemental Nutrition Assistance Program (SNAP), or food stamps. Eligibility for this program is largely based upon household income. Generally, the maximum gross income limit is 130% of the federal poverty level; for 2013, the federal poverty level for a family of four is $23,550.

Medi-Cal provides health coverage for people with low-incomes and limited ability to pay for health coverage.

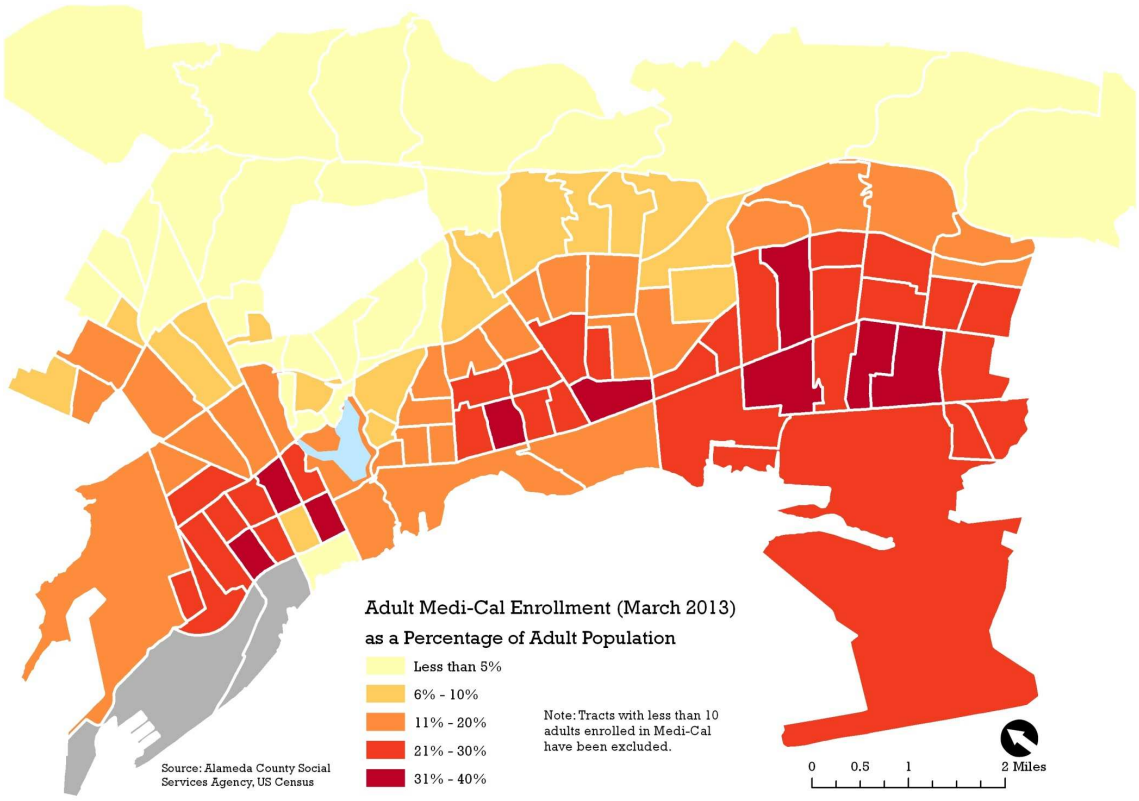
Map 6: Percentage of Adult Population Enrolled in CalWORKs by Census Tract, March 2013



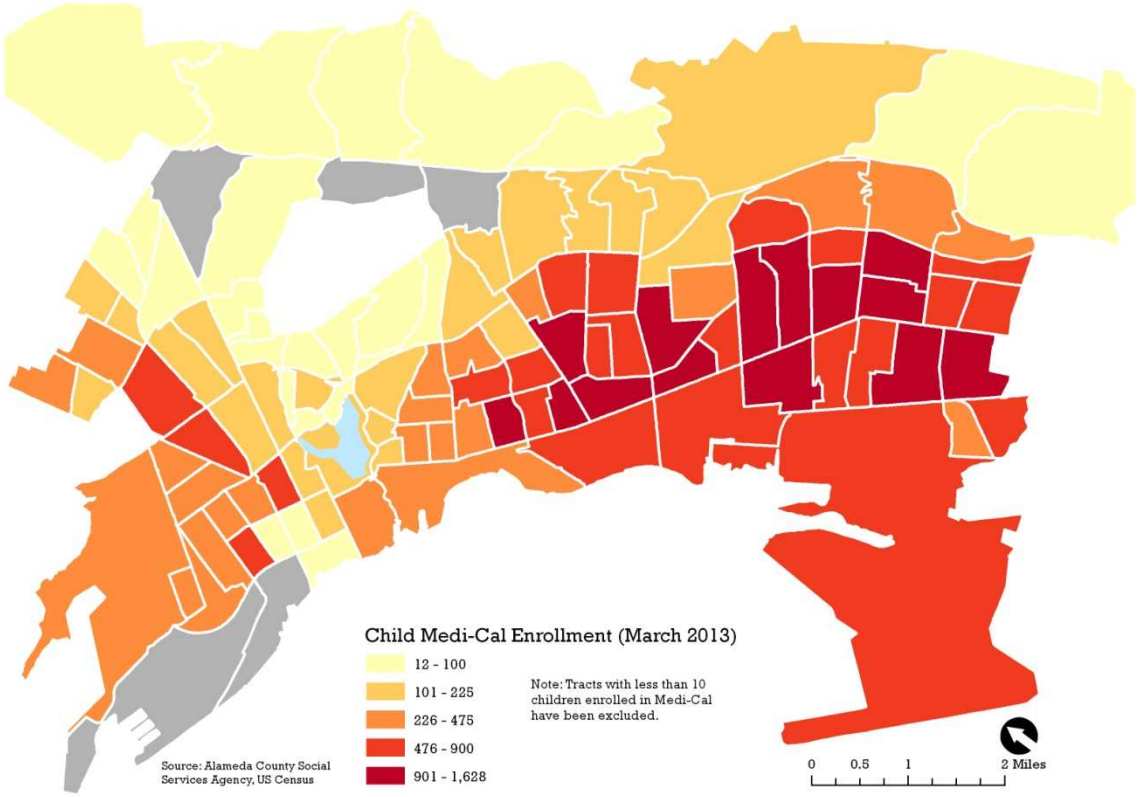
Map 7: Percentage of Adult Population Enrolled in CalFresh by Census Tract, March 2013



Map 8: Percentage of Adult Population Enrolled in Medi-Cal by Census Tract, March 2013



Map 9: Number of Children Enrolled in Medi-Cal by Census Tract, March 2013



Population Density

Population density is a measure of the number of people within a specific geographically defined area. The calculation of population densities allows for the comparison of populations in different geographies, in addition to highlighting where concentrations of people live.

Citywide, Oakland has a relatively low population density of around 7,000 people per square mile. Although the citywide density is low due to the hill communities, expansive parks in the hills, and large Port of Oakland properties, there are neighborhoods in Oakland with notably high population densities (see Map 10). The Adams Point, Eastlake, lower San Antonio and Fruitvale neighborhoods all have densities above 25,000 people per square mile, and as high as 39,000 people per square mile. For comparison, New York City has an overall population density of nearly 27,000 people per square mile, while San Francisco has a density of 17,246 people per square mile.

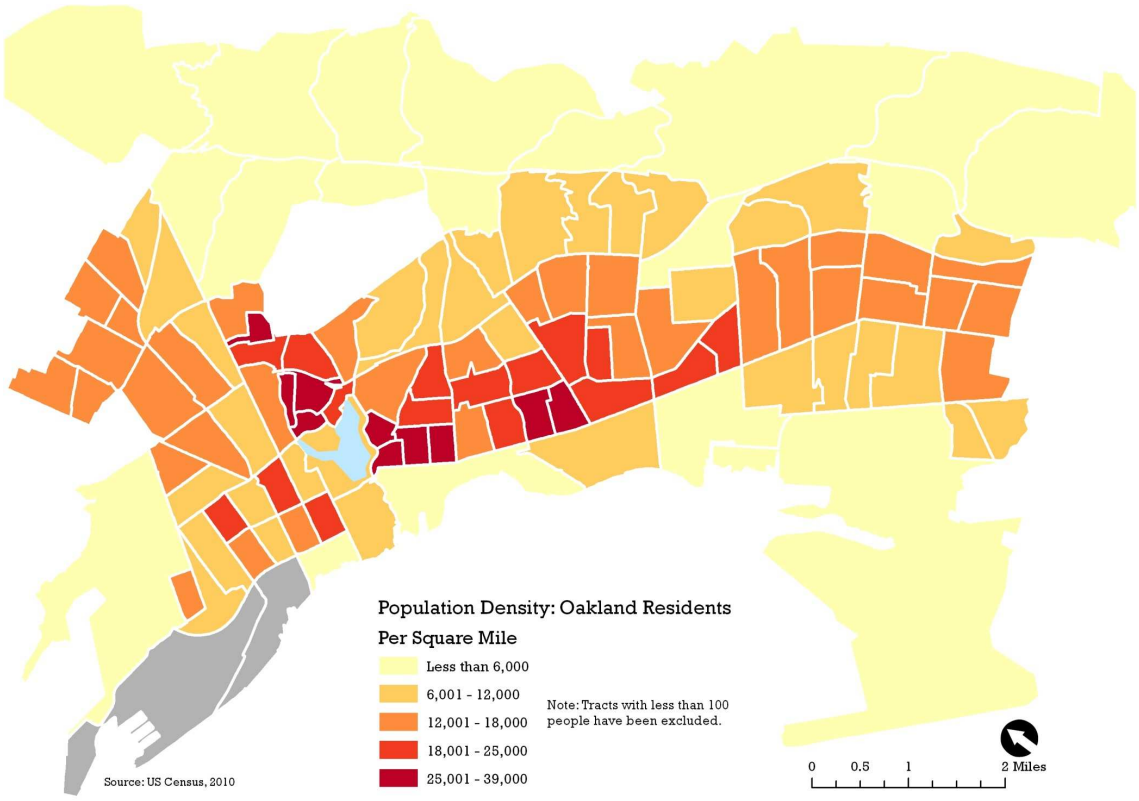
The population density pattern changes when looking specifically at the population of children under the age of 18 in Oakland (see Map 11). The communities north of Lake Merritt, although having relatively high population densities, are mainly composed of adults. The flatland communities stretching from the San Antonio to East Oakland have particularly high densities of children compared to the rest of Oakland.

Age

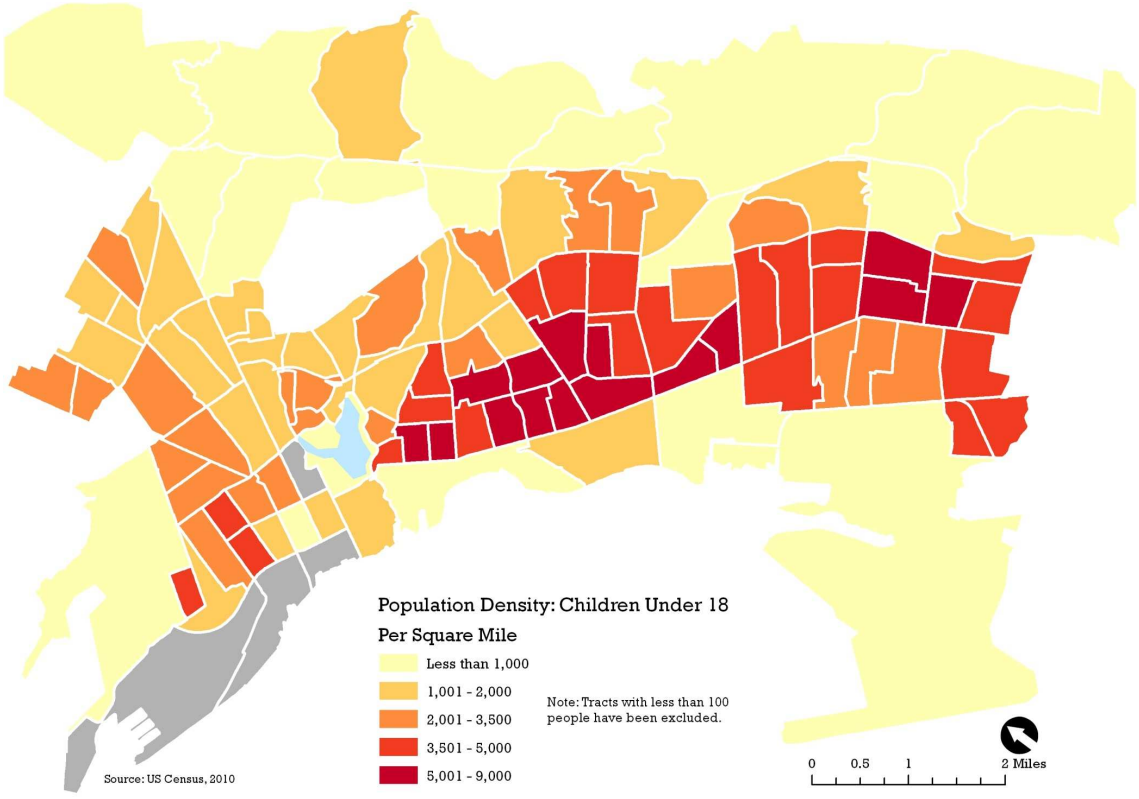
Between 2000 and 2010, the median age in Oakland increased from 33.3 to 36.2 years old. This is driven by three factors: the large decrease in the number of children in Oakland; the baby boom generation moving towards the retirement age of 65; and the small increase in the number of residents over 65 years old.

In 2010, there were 16,639 less children in Oakland than in 2000, a 20 percent decrease. This decrease is one and a half times more than Emeryville's entire population of 10,080 people. This decline in children is different neighborhood to neighborhood. In West Oakland, there was a 31 percent decrease in the number of school-aged children during the same time period. Even with this decline, Oakland was still the home for 83,120 children in 2010.

Map 10: Density of Oakland Residents Per Square Mile, by Census Tract



Map 11: Density of Oakland Children (Under Age 18) Per Square Mile, by Census Tract



Health Outcomes

In a city such as Oakland, a very basic thing like geography can have life altering impacts on health outcomes. While the select health outcomes presented here are not necessarily directly linked to housing units, there are evident geographic disparities that may be further exacerbated by housing conditions in specific neighborhoods.

Trailblazing research by the Alameda County Public Health Department has shown that geography—specifically, the neighborhood in which you live—can be a leading cause of certain detrimental health outcomes. The Department's *Life and Death from Unnatural Causes* report utilized data to demonstrate the unique power of place through the disparate experiences of two prototypical Oakland residents:

> Compared with a White child in the Oakland Hills, an African-American born in West Oakland is 1.5 times more likely to be born premature or low-birth weight, 7 times more likely to be born into poverty, 2 times more likely to live in a home that is rented. […] As a toddler, this child is 2.5 times more likely to be behind in vaccinations. By fourth grade, this child is 4 times less likely to read at grade level. […] As an adult, he will be 5 times more likely to be hospitalized for diabetes, 2 times as likely to be hospitalized for and to die of heart disease. […] Born in West Oakland, this person can expect to die almost 15 years earlier than a White person born in the Oakland Hills.[2]

In Oakland, place-influenced health outcomes are not evenly distributed among the population, just as the diverse Oakland population is not evenly distributed across the city. As the *Life and Death from Unnatural Causes* report demonstrates, geography can conceal profound disparities along racial, ethnic, and socio-economic lines that produce disturbing health outcomes. In this section, several specific health outcomes that have a close relation to the built environment are examined, which allow for further comparison to other indicators in the report.

Health data can be confusing. They are derived from many different sources, cover varying time periods, and tend to have errors for which are nearly impossible to control. The section focuses on rates of certain health conditions and events. A rate is a useful way of putting a certain condition in context—a measure of the frequency of an indicator among the population in question. For instance, within a specific zip code, there may be 68 cases of childhood hospitalization for asthma. In order to understand if this is more significant than a neighboring zip code with 89 cases, the rates within each zip code must be calculated and compared. The analysis in this section is based on data of age-adjusted rates provided by the Alameda County Public Health Department from 2009-2011. Age-adjusted rates are based on the number of incidences among the population of each zip code, and adjusted for the relevant subpopulation in question (i.e., children or adults).

In general, age-adjusted rates of health outcomes are not perfect measures because they are derived from incident counts over a specific time period, and use a static measure of population to produce a rate. Further, it is important to understand that most health data include not just the estimated rate of incidences, but also a range of possible values, expressed through an upper and lower confidence interval. If two zip codes have very different rates, but the confidence intervals overlap, there may not be a statistically significant difference between the two geographies. For this reason, it is important to be mindful of both the calculated rates and the confidence intervals when comparing one or more geographies.

---

[2] See Alameda County Public Health Department, *Life and Death from Unnatural Causes: Health and Social Inequity in Alameda County*, August 2008.

Asthma

Asthma inpatient hospitalizations are serious incidents that arise when a patient suffers from a chronic attack and experiences severe difficulty in breathing. Asthma in children and adults can be a result of factors such as allergies, environmental pollutants, genetic disposition, as well as household factors such as mold and dust mites. Across Oakland, the rates of emergency room (ER) hospitalization for asthma vary dramatically, with significantly higher rates in the west and east Oakland flatland zip codes (see Map 12). Age-adjusted rates in zip codes 94621 and 94603, for example, are up to ten times higher than those in the Oakland hills zip code of 94618. Compared to the overall Alameda County rate of 139 per 100,000, all but four Oakland zips showed significantly higher rates.

Diabetes

Similar to asthma rates, the hospitalization rates for diabetes in Oakland are far higher in the flatlands, with a particular prominence in East Oakland zip codes (see Map 13). The highest rate is 2,167 inpatient hospitalizations per 100,000 people in zip code 94621. Compared to the hills zip code of 94618 (380 per 100,000 people), the hospitalization rate for diabetes in East Oakland is nearly six times that of the Oakland hills. Most of Oakland zip codes also surpass the countywide rate of 974 hospitalizations per 100,000 people.

While diabetes is not directly connected to housing quality, it can have strong associations with poverty, inadequate nutrition, and diet. Further, the arrangement of the built environment and perceptions of public safety can play intervening roles by either encouraging or dissuading physical activity.

Obesity

The rates of hospitalization due to obesity show a similar distribution across the city to that of both diabetes and asthma, with higher rates in deep East and most of West Oakland (see Map 14). Obesity presents a variety of rates that are up to five times higher in flatlands zip codes compared to the Oakland hills. The countywide rate is 335 hospitalizations for obesity per 100,000 people – a rate that is lower than nine out of Oakland's 14 zip codes.

Like diabetes, while not necessarily connected to interior housing conditions, we know that obesity risk and prevalence is closely related to the built environment. Issues such as perceived neighborhood safety, traffic hazards, walkability, and a lack of access to fresh and healthy foods can contribute to the prevalence of obesity.

Map 12: Age-Adjusted Inpatient Hospitalization Rate for Asthma by Zip Code, 2009-2011

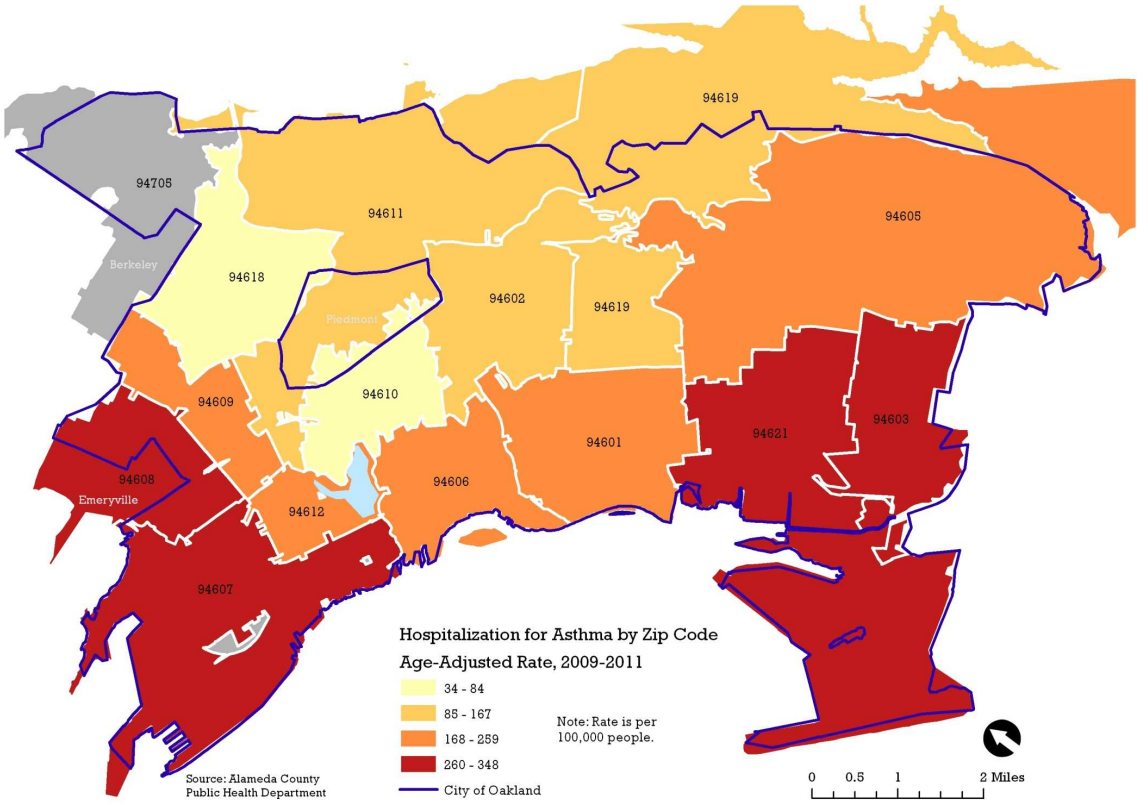
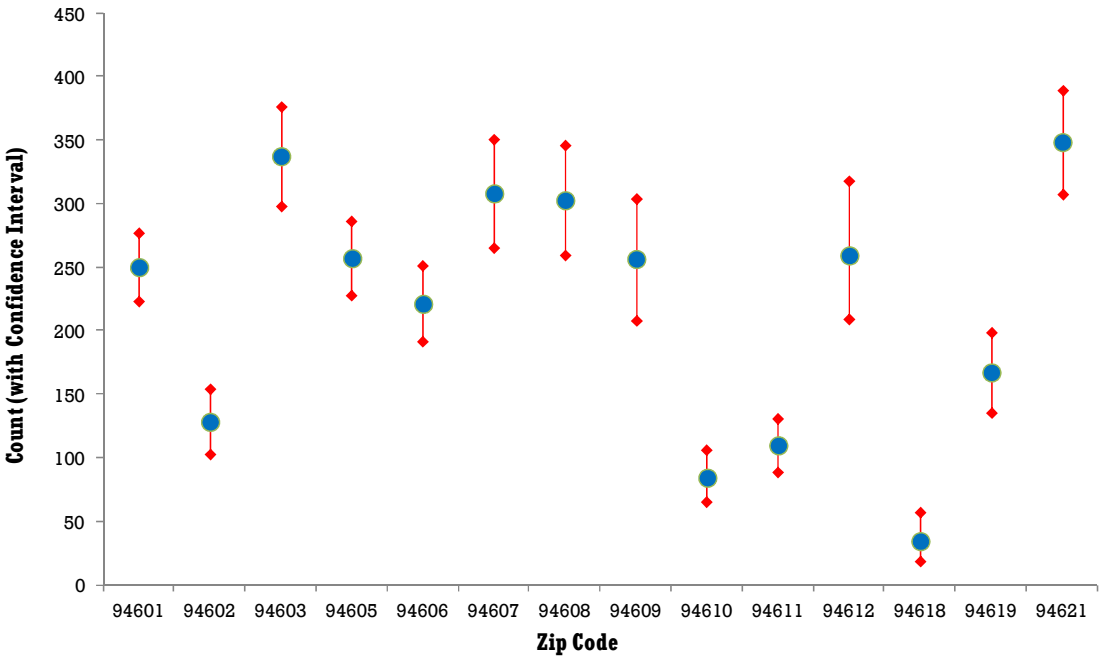


Figure 1: Confidence Intervals for Age-Adjusted Asthma Hospitalization Rates by Zip Code, 2009-2011



Map 13: Age-Adjusted Inpatient Hospitalization Rate for Diabetes by Zip Code, 2009-2011

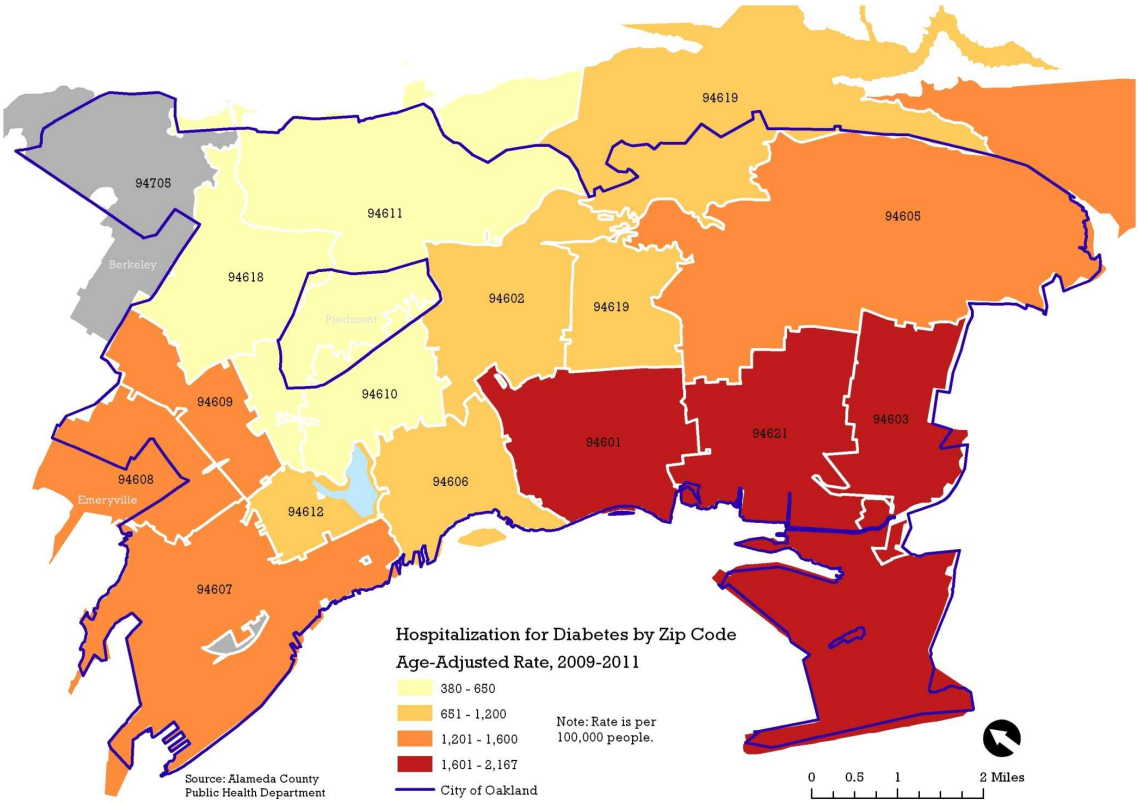
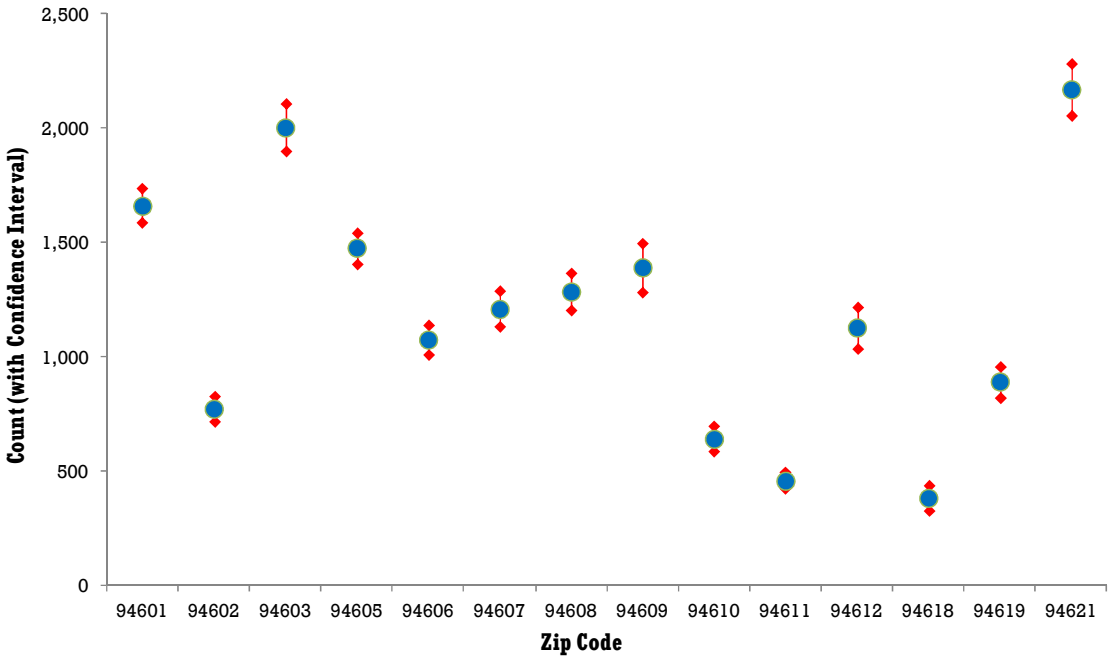


Figure 2: Confidence Intervals for Age-Adjusted Diabetes Hospitalization Rates by Zip Code, 2009-11



Map 14: Age-Adjusted Inpatient Hospitalization Rate for Obesity by Zip Code, 2009-2011

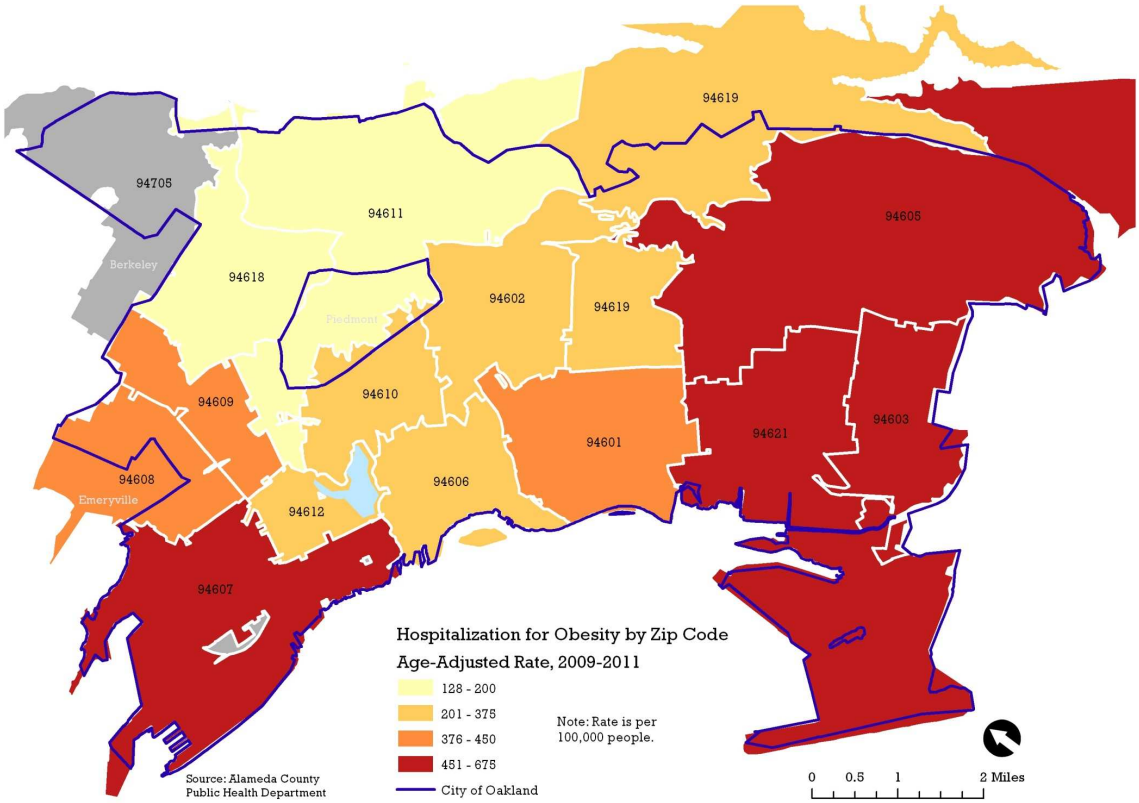
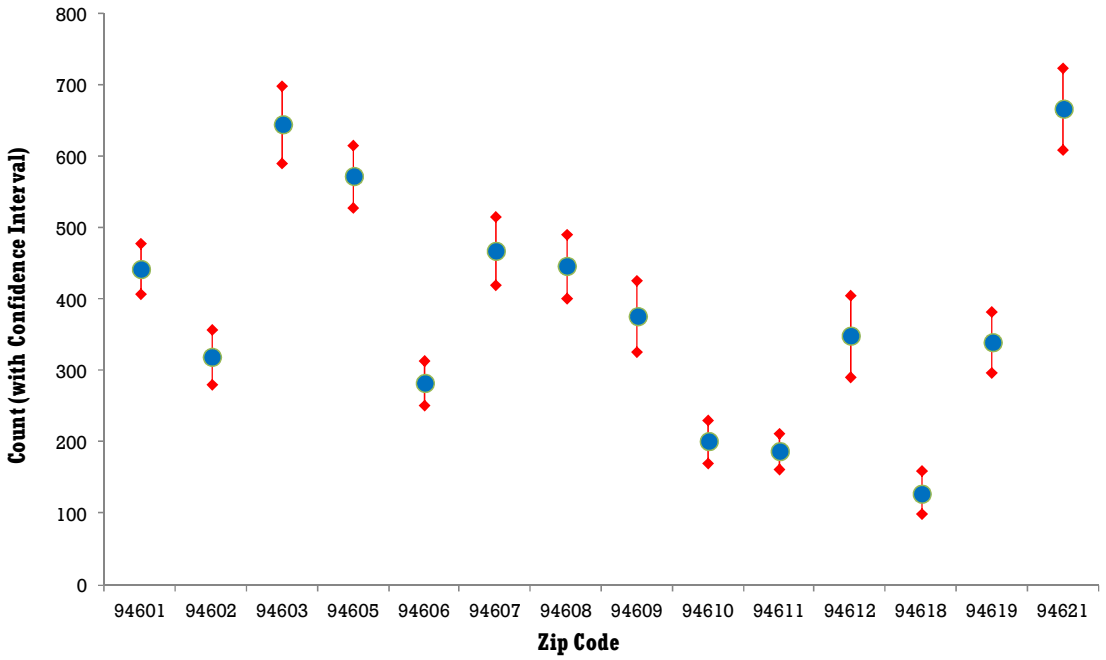


Figure 3: Confidence Intervals for Age-Adjusted Obesity Hospitalization Rates by Zip Code, 2009-11



Housing Units

With some context related to the people and communities that comprise the City, this section begins to explore metrics that provide some baseline information specific to the housing stock within Oakland. With this shift from information about the racial, ethnic, and economic diversity of residents towards more housing related data, new questions begin to emerge about how the built environment and geography may directly impact health. This section explores several key baseline metrics that are useful for understanding the diversity and quality of Oakland's housing stock.

Age of Oakland's Housing Stock

Likely the most important contextual measure for evaluating the health of Oakland's housing stock is its age. In general, housing in Oakland is old. The implications for health are numerous, from potential deferred maintenance and outdated building systems to structural deficiencies, seismic concerns, lead based paint, asbestos, and other hazards. Older homes are also generally less energy-efficient than newer construction – a fact that often means increased costs for residents. Similarly, older homes typically cost more to maintain.

Map 15 shows the percentage of the housing stock in each Oakland Census tract that was built prior to 1979. According to the 2000 U.S. Census, 141,418 of the housing units in Oakland were built prior to 1979; overall, this equates to approximately 90 percent of all housing units.[3] Likewise, in over two-thirds of all Census tracts in the City, at least 90 percent of the housing stock was constructed prior to 1979.

The year 1979 is used as a benchmark for two primary reasons: one, the 2000 U.S. Census data is grouped into decades, with 1979 being the natural end point in the data for the 1970s; and two, lead paint was banned for use in residential properties by the U.S. Consumer Product Safety Commission in 1977. Homes constructed prior to 1978 may contain lead based paint; these homes present a unique set of health related concerns for both residents and workers that might disturb lead based paint during the course of rehabilitation or construction. While the break in the data at the year 1979 does not directly correspond to the ban of lead paint, the break is close enough to approximate the scale of the potential lead problem in Oakland's housing stock.

Figure 4 utilizes the same data displayed in Map 15, however they are broken into four specific groupings to provide a more detailed picture of the various eras in which Oakland's housing stock was constructed. Overall, more than one-third of Oakland's housing was built prior to 1940. As of 2000, only 9.6 percent of Oakland's housing had been constructed after 1979.

[3] Data from the 2000 U.S. Census is used here because it was the last time the decennial Census measured age of housing stock. The main limitation in using this data is that housing units built after 2000 are not represented.

Map 15: Percent of Housing Stock Built Prior to 1979 (by Census Tract)

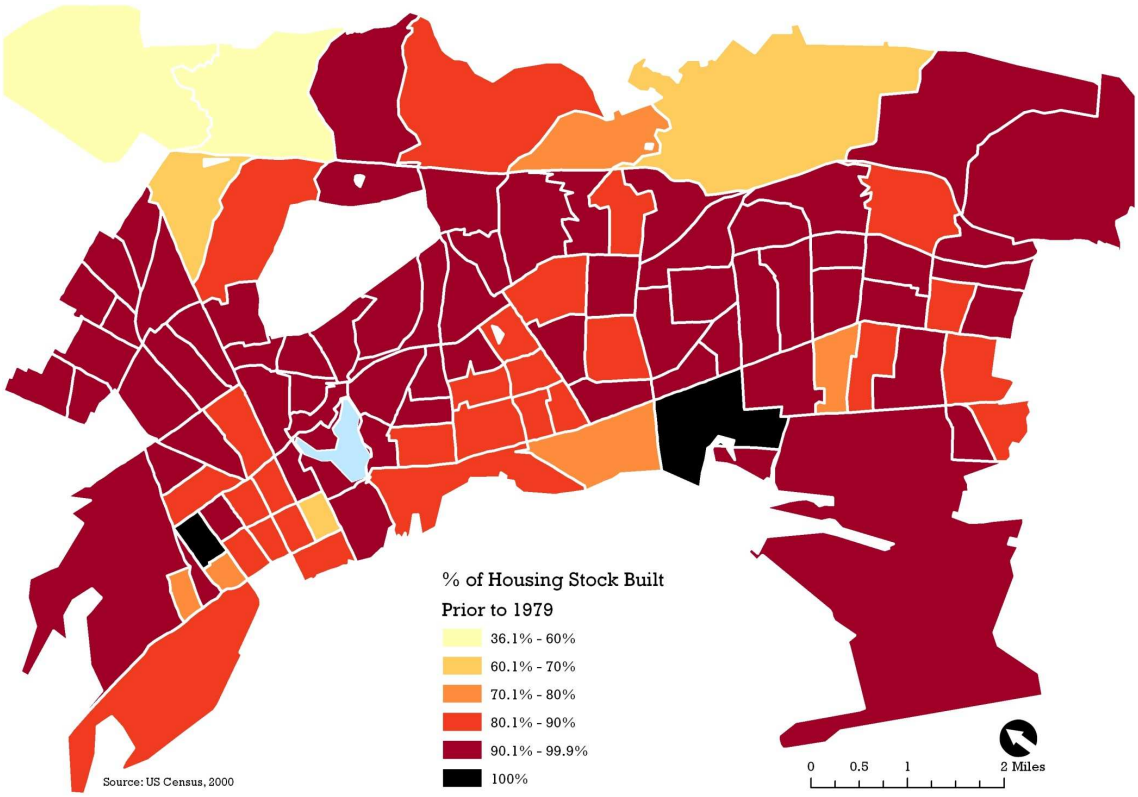
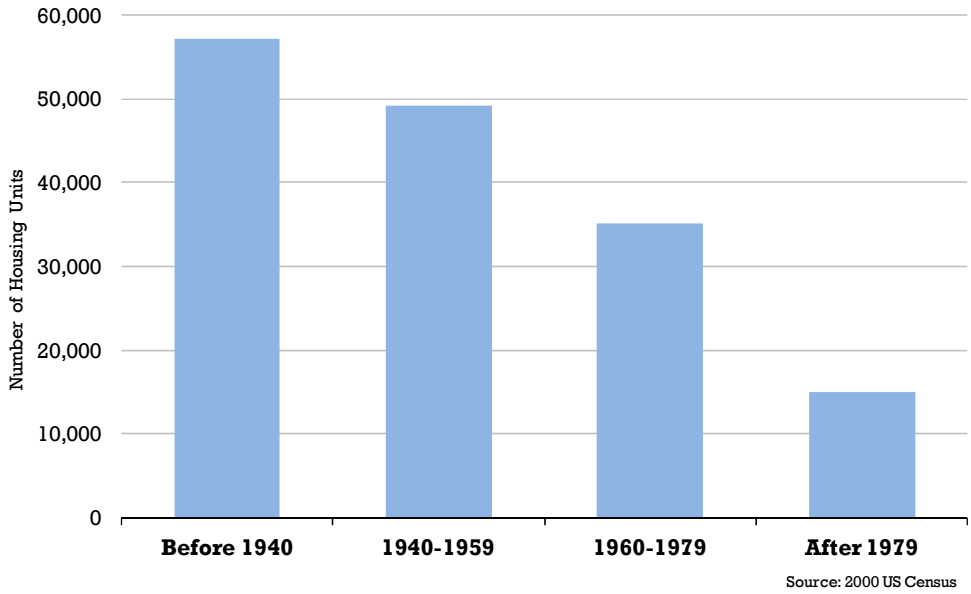


Figure 4: Oakland Housing Units by Year Structure Built



Housing Density

Housing density refers to a ratio of housing units or residential types contained within a given geographic area, commonly reported as a number of properties per square mile or dwelling units per acre. As shown in Map 10, population density in Oakland varies considerably by geography. It logically follows that the density of housing types—particularly, single-family versus multi-family— is closely correlated with population density. Quite simply, more people tend to be concentrated in multi-family properties compared to single-family homes. With respect to healthy housing related issues, housing density is a basic contextual measure, providing an overview of where housing units or types of residential properties are concentrated in a city.

We have utilized data from the Alameda County Assessor to analyze the residential housing types within Oakland. The Assessor's data contains a land use code field for each parcel in the county (i.e., "Single-Family Residential" or "Double or duplex type – two units"). These varieties of residential types have been aggregated to the Census tract level for further analysis.

The partition in this section between single-family homes and multi-family properties does not necessarily imply anything about tenure or occupancy within those properties. For instance, the single-family homes represented in this section could be renter-occupied. Housing density simply refers to the concentration of single-family homes and multi-family properties within a given geography. Issues related to housing tenure will be addressed in the following section.

Single Family Housing

According to data from the Alameda County Assessor, there were nearly 66,000 parcels with single-family homes in Oakland as of 2013.

Map 16 displays the density of single-family homes per square mile by Census tract in Oakland. Overall, the highest concentrations of single-family homes are among Census tracts in the flatland neighborhoods east of the San Antonio to the San Leandro border, as well as North Oakland, Piedmont, and lower hills above the Dimond and Laurel districts.

Some of the lowest concentrations of single-family homes in the city are in parts of West Oakland and along the waterfront from Jack London Square through the Estuary and Jingletown neighborhoods. All of these areas are mixed use in nature, with high concentrations of industrial and warehouse uses; this variety of land use types has likely resulted in a lower density of single-family homes. Likewise, there are relatively lower concentrations of single-family homes in areas among the Oakland hills that are typically considered exclusively single-family in nature. The fact remains that those neighborhoods are exclusively single-family—the homes are simply more spread out and are typically on larger lots, resulting in a lower density.

It is also notable that many of the neighborhoods with the highest concentration of single-family homes are also the same areas that were hardest hit by the foreclosure crisis – specifically, the Census tracts in East Oakland around Havenscourt, Eastmont, Castlemont, Brookfield Village, and Sobrante Park. In the wake of the crisis, many of those single-family homes that were lost to families through foreclosure have been subsequently acquired by investors and speculators.

Previous research by Urban Strategies Council has shown that post-foreclosure speculators may not be making substantial or necessary improvements to their properties; instead, many speculators are simply completing cosmetic improvements in order to rent their properties.[4] Given the age of the housing stock throughout East Oakland, it is reasonable to assume that there are condition-related problems within previously foreclosed homes that are not being sufficiently addressed. Accordingly, the recent growth of the post-foreclosure REO-to-rental market may be incubating health issues among a new group of renters within single-family homes.

Multi-Family Properties

The Alameda County Assessor's data indicates that there are over 14,800 multi-family properties throughout Oakland; these properties range from two-unit duplexes to large apartment buildings. However, the overwhelming majority of multi-unit residential properties have two to four units, accounting for 12,056 of the total multi-unit count.

Map 17 shows the density of multi-family properties per square mile by Census tract in Oakland. Overall, multi-family properties are almost exclusively concentrated in the flatland neighborhoods of Oakland, with the highest densities around Adams Point and Lake Merritt extending east through Eastlake, the San Antonio, and the Fruitvale. There are additional high concentrations of multi-family properties in portions of West Oakland and the flatland areas of North Oakland.

Those areas in deep East Oakland shown in Map 16 where there is a high density of single-family homes have relatively low concentrations of multi-family properties; this fact belies the common perception that East Oakland is home to the highest concentration of multi-family properties in the city.

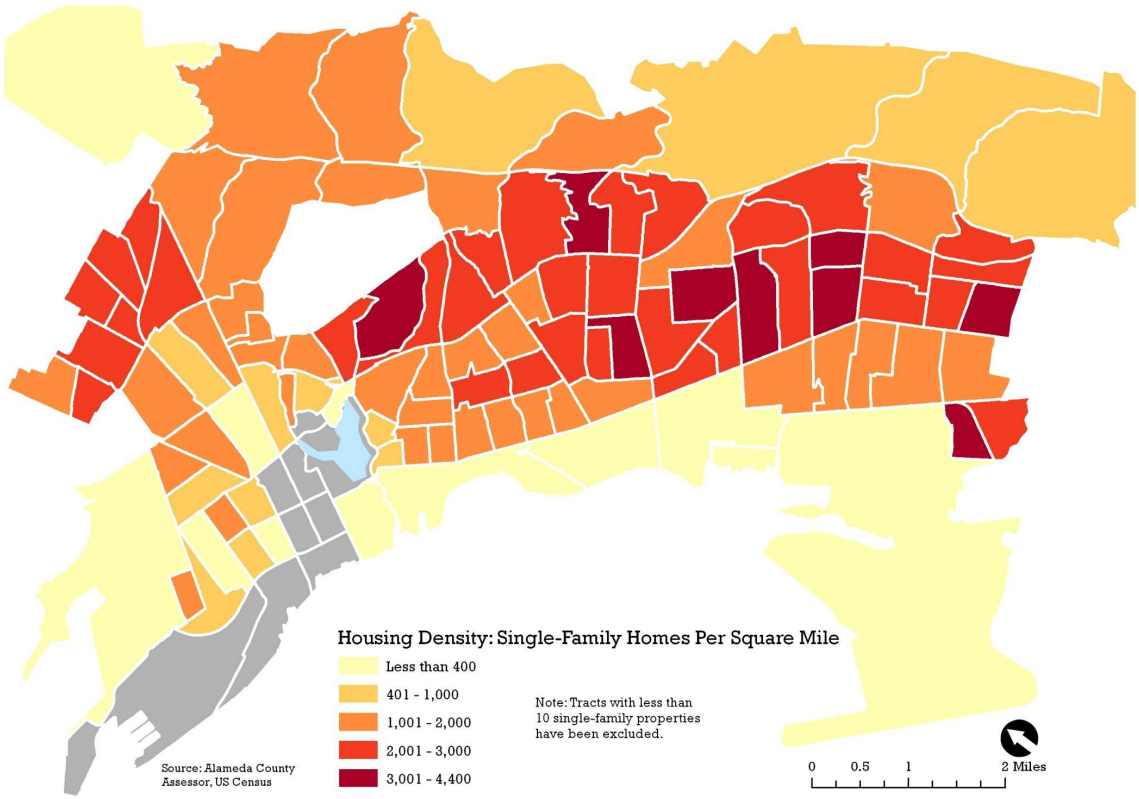
As might be expected, the geography of multi-family housing density very closely mirrors overall population density. However, as mentioned above, the interplay between population density and residential density also necessarily involves the intervening issue of household size. An area with a high population density could simply be the result of many housing units within a given geography. Depending on the nature of family composition and household sizes, an area with a high population density could also conceal an issue such as overcrowding.

Residential Types by Neighborhood

While density provides a relative measure of concentration of housing types within a given geography, it can also be useful to consider raw counts of housing types within those same areas. Density alone may not reveal the level of detail desired for targeted outreach efforts, or other planning uses. For instance, while Table 1 shows that the Montclair Census tract has the most single-family homes in Oakland, the single-family housing density in Montclair is relatively low. Similarly, the Longfellow neighborhood has the most multi-unit properties, yet does not rank in the highest tier with respect to multi-family property housing density. Table 1 below shows a ranking of the top 25 neighborhoods in Oakland by various housing types.

[4] See Urban Strategies Council, *Who Owns Your Neighborhood: The Role of Investors in Post-Foreclosure Oakland*, June 2012. (http://www.infoalamedacounty.org/index.php/research/housing/genhousing/oaklandinvestors.html).

Map 16: Density of Single-Family Homes Per Square Mile (by Census Tract)



Map 17: Density of Multi-Family Housing Properties Per Square Mile (by Census Tract)

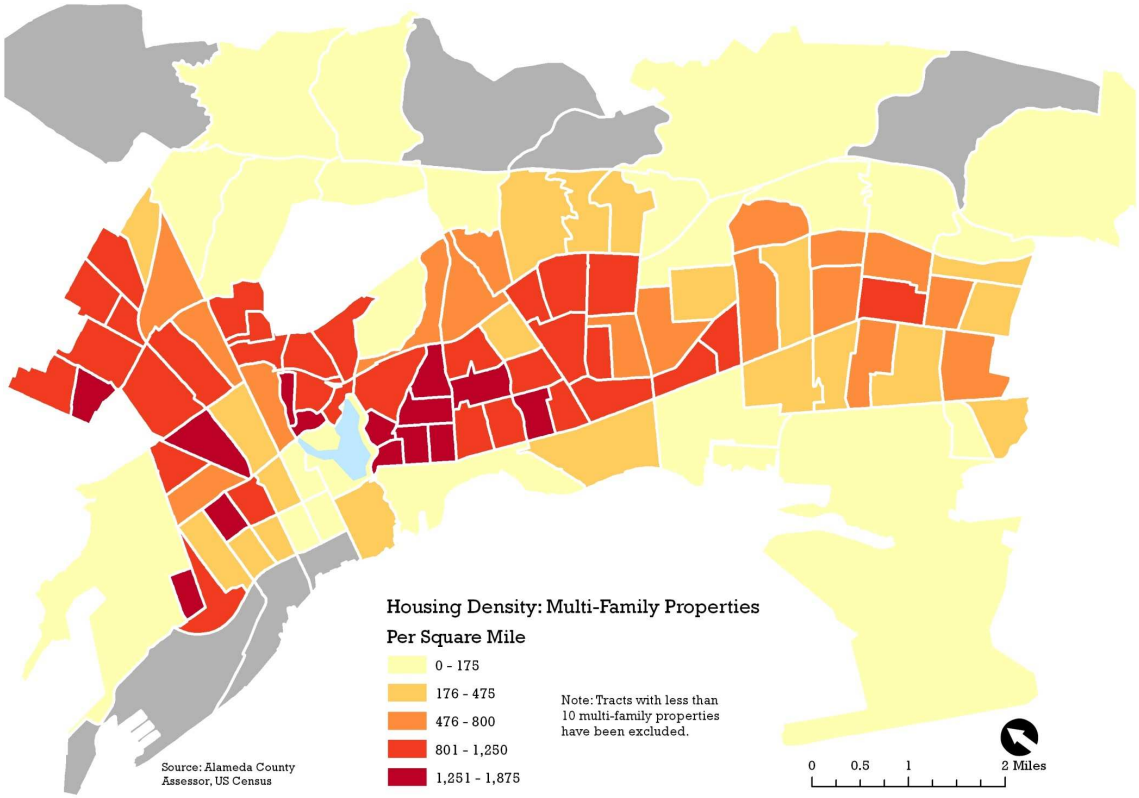


Table 1: Top 25 Oakland Neighborhoods with the Most Properties by Residential Type

	Neighborhood/Census Tract	Single Family Homes
1	Montclair: 4045.02	2,246
2	Glen Highlands: 4044	1,823
3	Piedmont Pines: 4046	1,761
4	Lincoln Highlands: 4067	1,669
5	Crocker Highland: 4051	1,618
6	Caballo Hills: 4081	1,606
7	Maxwell Park: 4077	1,564
8	Eastmont Hills: 4083	1,442
9	Bancroft/Havenscourt: 4087	1,416
10	Bancroft/Havenscourt: 4086	1,208
11	Upper Rockridge: 4043	1,153
12	Sequoyah: 4099	1,142
13	Fairfax/Lower Maxwell Park: 4076	1,130
14	Shafter/Rockridge: 4003	1,118
15	Upper Piedmont Avenue: 4042	1,118
16	Glenview: 4049	1,118
17	Chabot Park: 4100	1,112
18	Redwood Heights: 4068	1,094
19	Arroyo Viejo: 4085	1,038
20	Lower Laurel/Allendale: 4070	981
21	Panoramic Hill: 4001	979
22	Redwood Heights: 4079	948
23	Millsmont: 4082	938
24	Durant Manor: 4104	935
25	Golf Links: 4098	923

	Neighborhood/Census Tract	2-4 Unit Properties
1	Longfellow: 4010	348
2	Hoover/Foster: 4014	309
3	Santa Fe/N. Oakland: 4007	299
4	Temescal: 4011	262
5	Shafter/Rockridge: 4003	234
6	Fairfax/Lower Maxwell Park: 4076	232
7	North Stonehurst: 4093	227
8	Lower Laurel/Allendale: 4070	226
9	Peralta/ Hacienda: 4065	224
10	San Antonio/Highland Terrace: 4058	216
11	Prescott/Mandela/Peralta: 4022	212
12	Gaskill: 4009	209
13	Laurel/Upper Peralta Creek: 4066.01	204
14	Upper Telegraph/Fairview Park: 4004	203
15	Cleveland Heights: 4052	202
16	Webster: 4096	198
17	Paradise Park/Golden Gate: 4008	193
18	Bancroft/Havenscourt: 4087	193
19	Bushrod/N. Oakland: 4005	190
20	Glenview: 4049	183
21	Ivy Hill: 4055	181
22	Bella Vista: 4056	178
23	Lakeshore: 4038	176
24	Millsmont: 4082	175
25	Fruitvale: 4072	172

	Neighborhood/Census Tract	5+ Unit Properties
1	Cleveland Heights: 4052	112
2	Adams Point: 4036	106
3	Cleveland Heights: 4053.01	87
4	Eastlake/Clinton: 4054.01	81
5	Adams Point: 4037.01	71
6	Lakeshore: 4038	70
7	Ivy Hill: 4055	70
8	Temescal: 4011	65
9	Oakland Ave/Harrison St: 4035.01	65
10	Bella Vista: 4056	62
11	Fruitvale: 4072	62
12	Piedmont Avenue: 4040	56
13	Eastlake: 4053.02	56
14	Peralta/ Hacienda: 4065	56
15	Grand Lake: 4039	55
16	Fruitvale/Hawthorne: 4062.02	54
17	Lake Merritt: 4034	49
18	Hoover/Foster: 4014	48
19	Adams Point: 4037.02	48
20	Pill Hill: 4013	43
21	Laurel/Upper Peralta Creek: 4066.01	42
22	Longfellow: 4010	40
23	Oakland Ave/Harrison St: 4035.02	40
24	Reservoir Hill/ Meadow Brook: 4062.01	40
25	Eastlake/Clinton: 4054.02	39

	Neighborhood/Census Tract	All Multi-Family Properties
1	Longfellow: 4010	388
2	Hoover/Foster: 4014	357
3	Temescal: 4011	327
4	Santa Fe/N. Oakland: 4007	324
5	Cleveland Heights: 4052	314
6	Peralta/ Hacienda: 4065	280
7	Shafter/Rockridge: 4003	272
8	Fairfax/Lower Maxwell Park: 4076	267
9	Lower Laurel/Allendale: 4070	258
10	Ivy Hill: 4055	251
11	Lakeshore: 4038	246
12	Laurel/Upper Peralta Creek: 4066.01	246
13	Bella Vista: 4056	240
14	North Stonehurst: 4093	239
15	San Antonio/Highland Terrace: 4058	238
16	Upper Telegraph/Fairview Park: 4004	234
17	Fruitvale: 4072	234
18	Paradise Park/Golden Gate: 4008	228
19	Bancroft/Havenscourt: 4087	226
20	Bushrod/N. Oakland: 4005	221
21	Gaskill: 4009	219
22	Prescott/Mandela/Peralta: 4022	218
23	Eastlake/Clinton: 4054.01	218
24	Webster: 4096	208
25	Glenview: 4049	199

Source: Alameda County Assessor; U.S. Census

Housing Tenure

The term *housing tenure* refers to the status of occupancy within a housing unit, most commonly split between owner-occupancy and renter-occupancy. Overall, Oakland is a majority renter city. The total composition of owners and renters in the city has changed very little since 2000: in both the 2000 and 2010 Census, renters made up 59 percent of the households in the city, while owners represented 41 percent of the city's households. It is also worth noting that the recent growth in post-foreclosure conversions of previously owner-occupied single-family homes to rental units is likely not fully captured in the 2010 data; as such, there are potentially as many as several thousand units that have shifted from owner to renter occupancy in recent years. Further, this may only be a temporary phenomenon until the market fully reengages and investors begin to sell off their distressed property portfolios.

While Oakland is indeed a majority renter city, it is overwhelmingly renter-occupied in some areas, and overwhelmingly owner-occupied in very different areas. The static citywide measure of housing tenure minimizes this geographic disparity. Given the age of the housing stock throughout Oakland and the diminished capacity and agency of renters to effectively improve the structures they inhabit, healthy housing concerns among those who rent are likely concentrated in very specific parts of the city.

Owner-Occupancy

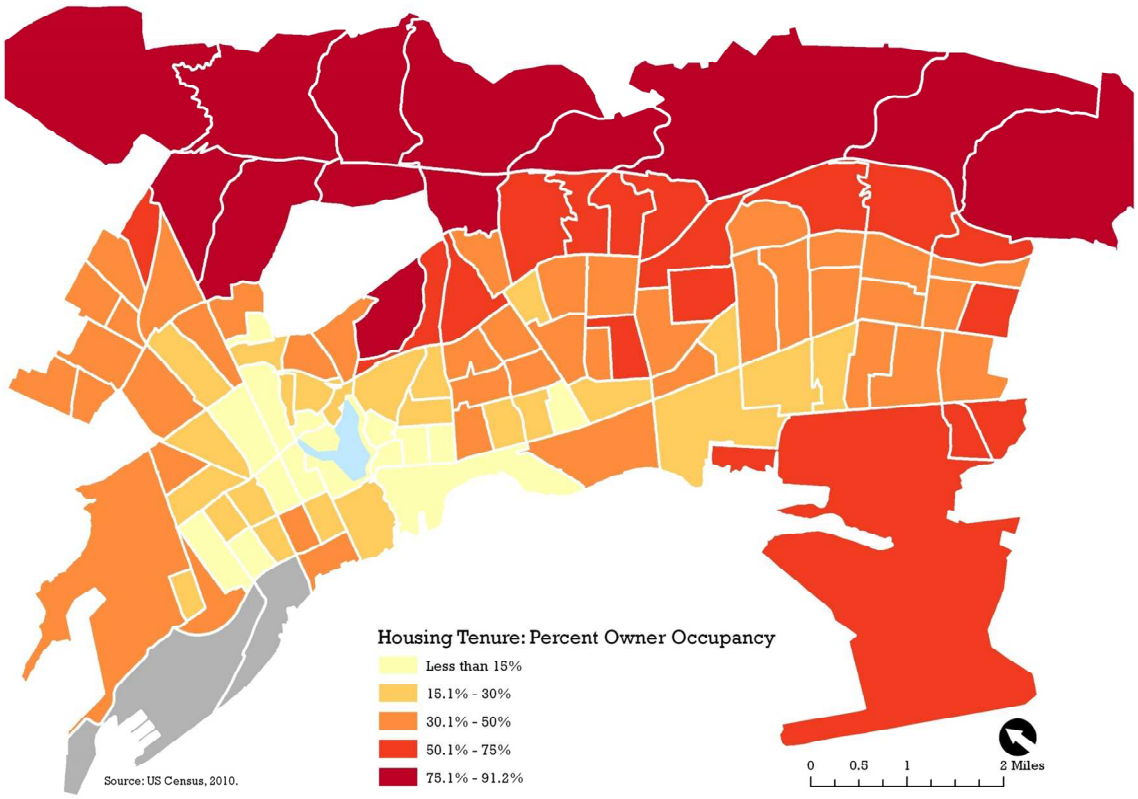
Map 18 below displays the relative share of owner-occupied households by Census tract throughout Oakland. There is a very distinct pattern: tracts with the highest percent of homeownership (over 75%) are all in the Oakland hills. A narrow band of tracts in the lower hills from Lincoln Highlands east to Golf Links and Toler Heights also displays high rates of owner-occupancy. Sobrante Park, Brookfield Village, and Maxwell Park are among the very few tracts in the flatlands that have a majority of households that are owner-occupied. In the East Oakland tracts with some of the highest concentrations of single-family homes in the city (see Map 16), less than half of the households are owner-occupants.

Renter-Occupancy

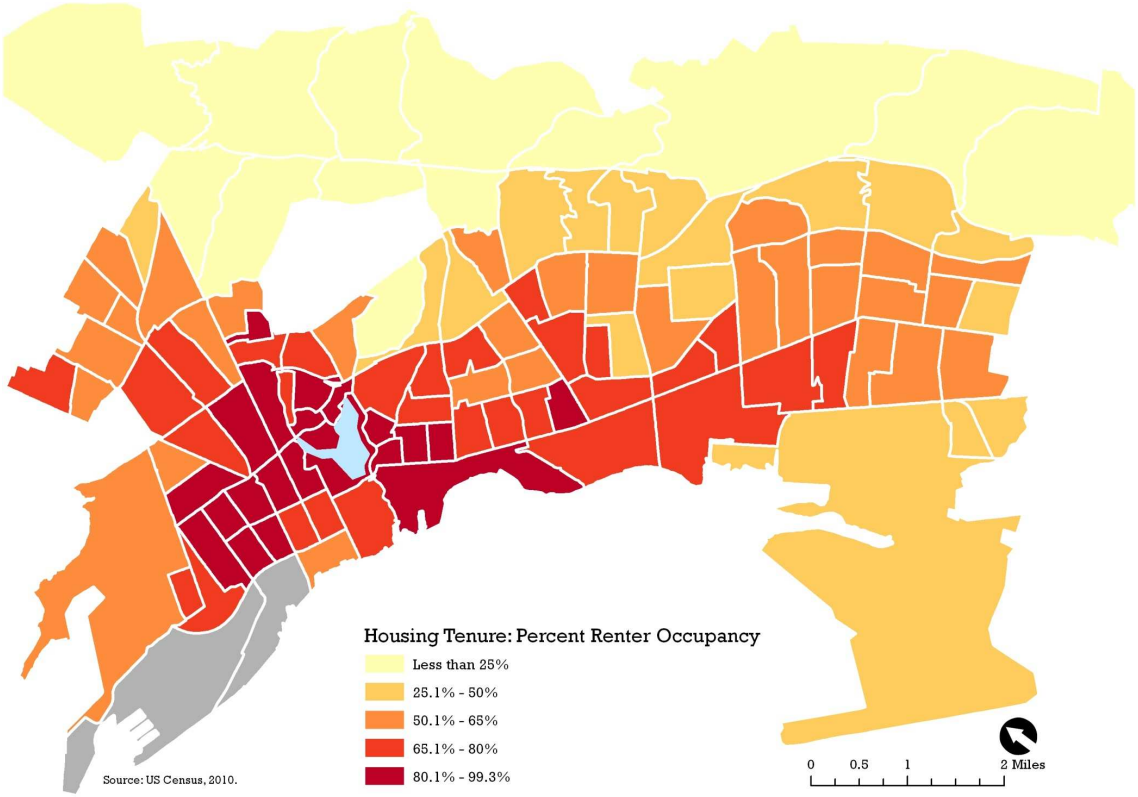
Map 19 displays Census tracts according to their relative percentage of renter occupied households, and naturally is, in many respects, the inverse of owner-occupancy in Map 18. There is a very distinct and uniform distribution of renter occupancy in the Oakland flatlands that radiates out from downtown and the neighborhoods around Lake Merritt. The tracts of West Oakland, Pill Hill, Adams Point, and Eastlake are all comprised of at least 80 percent renter occupied households. Surrounding these overwhelmingly renter tracts is a tier of neighborhoods that are at least two-thirds renter occupied, including Prescott and Hoover/Foster in West Oakland, Cleveland Heights and Bella Vista near Lake Merritt, and the tracts extending east through the San Antonio, Fruitvale, and Havenscourt/Coliseum areas. Less than 25 percent of the households in Trestle Glen, Upper Rockridge, and all of the tracts in the Oakland hills are renter-occupied.

Map 20 offers another way of displaying the prominent geographic patterns of housing tenure in Oakland, highlighting specifically those tracts that have either *two-thirds* owner or renter occupancy. The spatial polarity in housing tenure between the hills and flatlands is stark, showing a nearly uniform buffer separating the two-thirds majority renter and owner parts of Oakland.

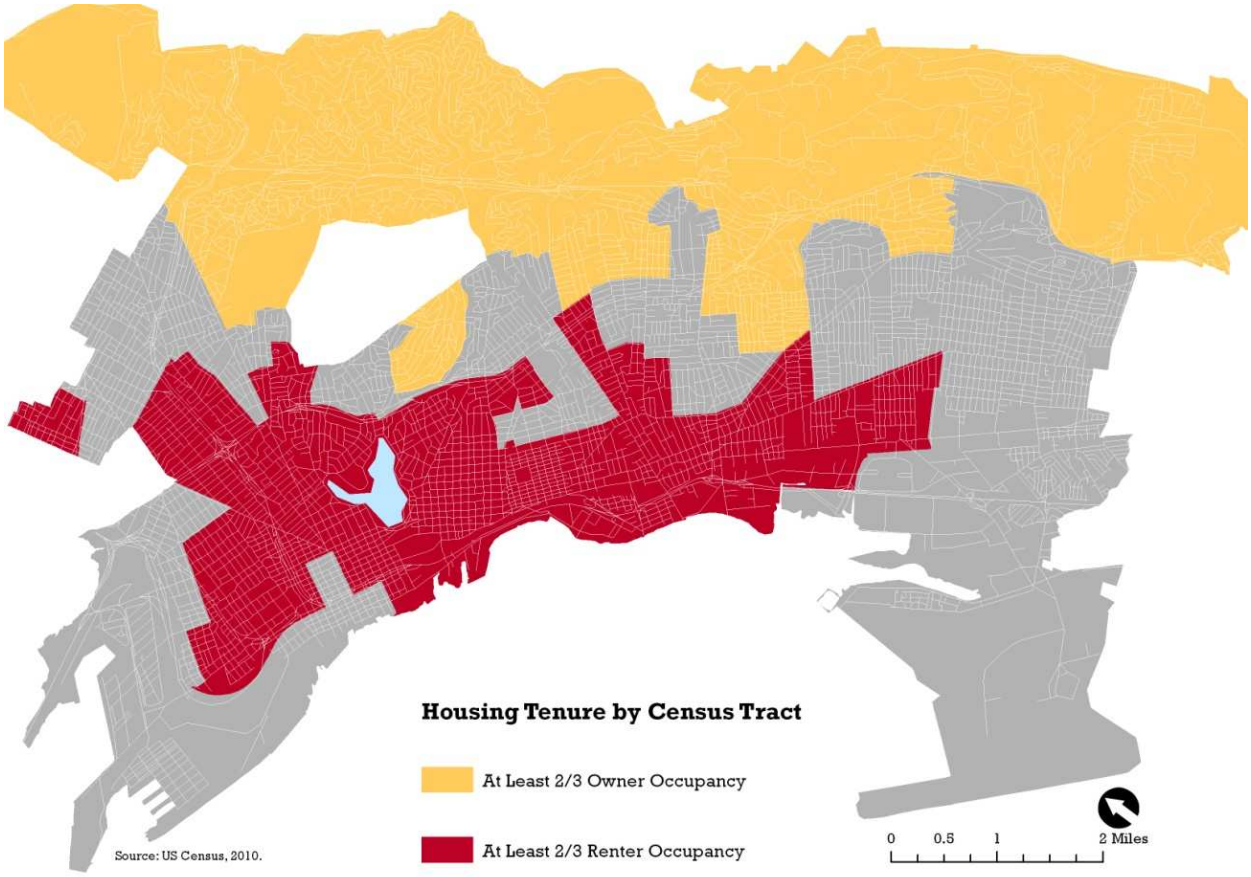
Map 18: Percent Owner-Occupancy by Census Tract, 2010



Map 19: Percent Renter-Occupancy by Census Tract, 2010



Map 20: Tracts with at Least Two-Thirds Owner or Renter Occupancy



Potentially Vulnerable Renter Populations

As previously mentioned, renter households have less agency and incentive than owner-occupied households to improve the condition of their homes. If a roof is leaking or a heater does not work, it is the responsibility of the owner rather than the tenant to fix the problem. While proper maintenance may be a legal obligation of an owner, renters are still at the mercy of someone else to address issues that may have direct impacts on their health. Further, some renters may be more susceptible to health problems that are exacerbated or created by conditions within the home. In particular, children and the elderly are often considered more vulnerable to poor conditions within the home, whether it is a lead paint hazard that is highly toxic for developing children, or an improperly constructed staircase that may present a fall hazard for a senior tenant.

Using data from the 2010 U.S. Census, we have taken a closer look at two subpopulations of renter households, specifically those renter-occupied units where the householder is over the age of 65, and renter-occupied units with children.

Renter Households where Householder is Over Age 65

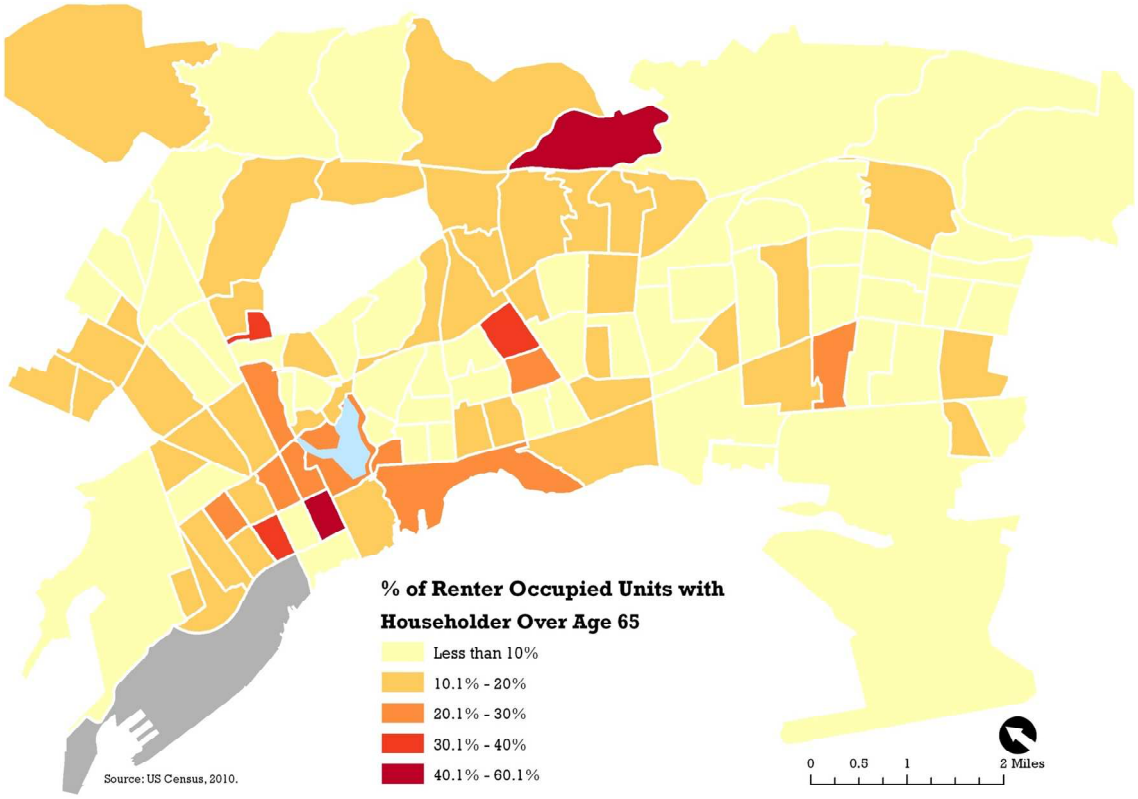
Map 21 shows Census tracts throughout Oakland by the percentage of renter occupied units where the householder is over the age of 65. In contrast to many of the other maps in this report, there is no clear geographic pattern to the location of seniors who are renters. The presence of this subset of renters within certain Oakland geographies is likely most influenced by the location of specific senior housing developments. The highest percentages of renter units with an elderly householder are in Chinatown and the Westminster neighborhood in the Oakland hills. To a lesser extent, senior renters comprise as much as 30 percent of renter households in the tracts around downtown, Lake Merritt, and Pill Hill.

Renter Households with Children

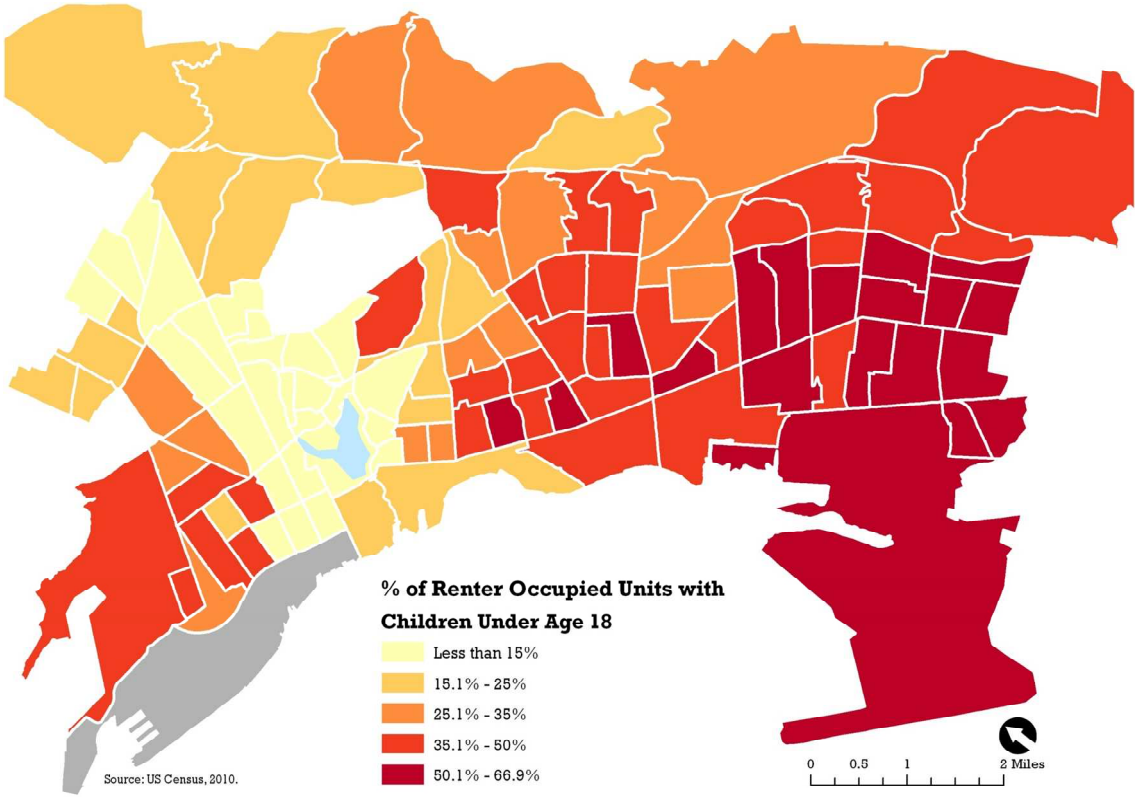
Compared to the elderly renter population, a very evident pattern emerges in Map 22 showing the percentage of renter occupied units with children by Census tract. There is a great absence of renter households with children around downtown, Lake Merritt, and through Temescal and North Oakland. This is likely an artifact of a growing population of younger households in these areas, as well as a moderate senior renter population.

In contrast, the flatland tracts in West Oakland and all of East Oakland have very notable concentrations of renters with children. Throughout the East Oakland flatlands from the San Antonio to the San Leandro border, one-third of all renter households have children. In 20 of these tracts, over half of the renter-occupied units are households with children. Considering this in relation to the socio-economic and health indicators addressed previously, these are the largely the same neighborhoods with high enrollment in CalWORKs, CalFresh, and Medi-Cal, in addition to being coincident with the zip codes with the poorest health outcomes. Further, these are also Oakland's predominate communities of color.

Map 21: Percent of Renter Occupied Units Where Householder is Over Age 65



Map 22: Percent of Renter Households with Children Under Age 18



Housing Affordability

A common theme among the research examining the connection between housing and health is *housing affordability*. The cost of housing is usually the most significant ongoing expense for people. Housing costs have the ability to greatly affect the availability of disposable income for other necessities. If a family must stretch their income to afford rent or their mortgage, they may likely make trade-offs that ultimately impact their health. Research has repeatedly shown that a lack of affordable housing can be linked to a diminished capacity to pay for childcare, health insurance, fresh and healthy food, and inadequate nutrition in children. These negative consequences can have a snowball effect on one's health, contributing to increased hypertension and stress, and overall instability in the home.

Housing affordability can be measured and reported in a variety of ways. Typically, affordability indicators involve a comparison of housing costs to incomes or wages in a given area. Unfortunately, the neighborhood level measures currently reported through the American Community Survey are unreliable due to high margins of error. However, citywide and metro-level data can still be quite telling when coupled with other local data.

In Oakland and throughout the Bay Area, housing affordability is an issue that impacts both homeowners and renters. By various measures, Oakland is one of the least affordable cities in the country. Fair market rents as determined by the U.S. Department of Housing and Urban Development place the Oakland metro area as the 17th least affordable in a field of 206 metro areas.[5] Likewise, Oakland ranked as the 17th least affordable metro area in terms of homeownership, with a median home sales price of $339,000 during the first quarter of 2013.[6]

Another common indicator used to capture the relative affordability among different geographies is a measure referred to as housing cost burden. A cost burdened household is generally one that spends more than a third of their income on housing costs. Severely cost burdened households spend more than half of their income on housing. According to citywide data from the American Community Survey (2007-11 5-Year Estimate), 46 percent of both renters and owners (with a mortgage) in Oakland spend 35 percent or more of their household income for housing. This means that nearly half of all Oakland households are cost burdened with respect to their housing costs.

Figure 5 shows the historical trend of both median home sales prices and incomes in the Oakland metro area. In terms of housing prices, the boom and bust of the recent housing crisis is particularly prominent, where the peak median home price in 2006 reached over $550,000. By the end of 2008, the median home price had fallen to $281,000. After several years of uncertainty, prices have risen sharply to a pre-bust level of $425,000 as of the second quarter in 2013.

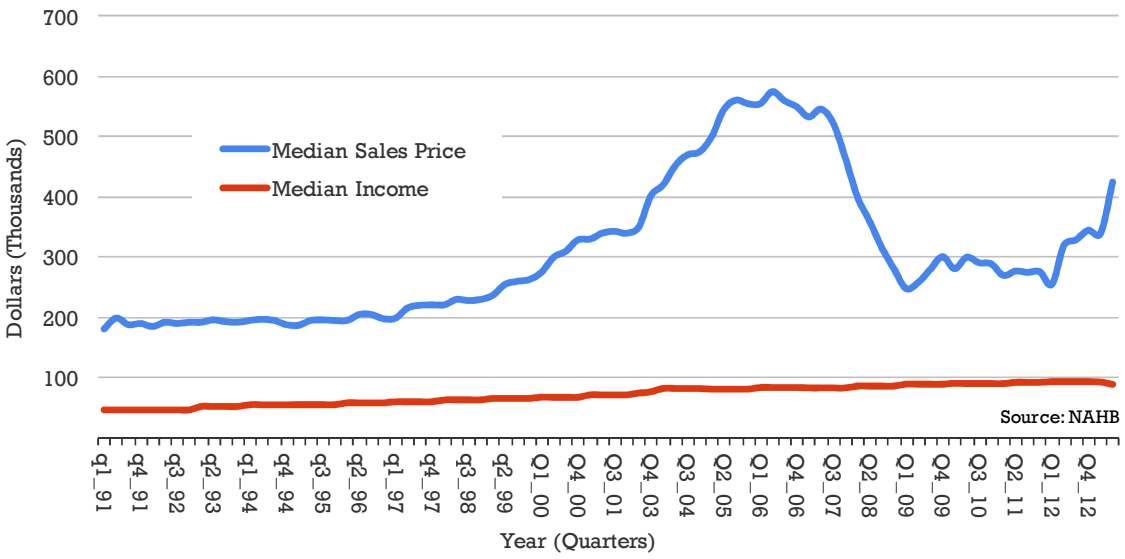
Even more troubling in Figure 5 is the trajectory of median incomes. Once again, the housing market has entered a phase where sales prices are rising at a rate that grossly outpaces income growth. If this divergent

[5] The 2013 fair market rent for a 2-bedroom unit in the Oakland-Fremont-Hayward metro area is $1,361. See the National Housing Conference and Center for Housing Policy's 2013 *Paycheck to Paycheck* report, which ranks metro areas by fair market rents: http://www.nhc.org/media/files/Rankings_Rental_2013.pdf.

[6] The *Paycheck to Paycheck* report also provides rankings based on home sales prices reported by the National Association of Home Builders: http://www.nhc.org/media/files/Rankings_Ownership_2013.pdf.

relation between incomes and home prices continues, housing affordability—or lack thereof—will become an increasingly problematic issue throughout Oakland and the Bay Area.

Figure 5: Median Home Sales Prices versus Median Incomes for Oakland-Fremont-Hayward MSA, 1991-2013Q2



Again, the affordability problem is not limited to homeowners or those wishing to purchase a home in such a high priced market. Utilizing data from the National Low Income Housing Coalition's 2013 *Out of Reach* report, Table 2 reveals the troubling situation for low-income renters in the Oakland metro area. As mentioned above, the Fair Market Rent (FMR) for a two-bedroom apartment is $1,361. To be considered affordable, a family would have to earn at least $54,440 annually to rent a two-bedroom apartment at $1,361.

The scenario gets much worse when considering the implications for someone who earns the minimum wage. Earning the minimum wage of eight dollars per hour, one would have to work 131 hours in a week—the equivalent of 3.27 full time jobs—to be able to afford the two-bedroom apartment at the fair market rent.

The *Out of Reach* data effectively illustrates the types of trade-offs and compromises that individuals and families must make in order to live in the East Bay. For many people—and particularly those on the low end of the wage scale—housing costs in Oakland may very well be a contributor to negative health outcomes.

Table 2: Housing Affordability for Renters in the Oakland-Fremont Metro Area

Fair Market Rent[2] by Unit Size		Income Needed to Afford Fair Market Rent	
Zero bedroom	$892	0 bdrm @ FMR	$35,680
One bedroom	$1,082	1 bdrm @ FMR	$43,280
Two bedroom	$1,361	2 bdrm @ FMR	$54,440
Three bedroom	$1,901	3 bdrm @ FMR	$76,040
Four bedroom	$2,332	4 bdrm @ FMR	$93,280

The Fair Market Rent for a two-bedroom rental unit in the Oakland-Fremont HMFA is $1,361

A renter household needs an annual income of $54,440 in order for a two-bedroom rental unit at the Fair Market Rent to be affordable[3].

Housing Wage (by Unit Size @ FMR)		Housing Wage as % of Minimum Wage (by Unit Size @ FMR)	
Zero bedroom	$17.15	Zero bedroom	214%
One bedroom	$20.81	One bedroom	260%
Two bedroom	$26.17	Two bedroom	327%
Three bedroom	$36.56	Three bedroom	457%
Four bedroom	$44.85	Four bedroom	561%

A renter household needs one full-time job paying $26.17/hour in order for a two-bedroom rental unit at the FMR to be affordable.

In the Oakland-Fremont HMFA, the Housing Wage for a two-bedroom rental unit represents 327% of the minimum wage.

Minimum wage	$8.00
Rent affordable with full-time job paying min wage	$416.00

If one wage-earner holds a job paying the minimum wage, a household can afford to spend as much as $416 in monthly rent.

Work Hours Per Week @ Minimum Wage Needed to Afford:		# of Full Time Jobs @ Minimum Wage Needed to Afford:	
Zero bedroom	86	Zero bedroom	2.14
One bedroom	104	One bedroom	2.60
Two bedroom	131	Two bedroom	3.27
Three bedroom	183	Three bedroom	4.57
Four bedroom	224	Four bedroom	5.61

A renter earning the minimum wage must work 104 hours to afford a two-bedroom rental unit at the Fair Market Rent.

A renter household needs 2.6 full-time jobs paying minimum wage to afford a two-bedroom unit at the Fair Market Rent.

Data: National Low Income Housing Coalition, Out of Reach 2013

1. "HMFA" refers to a HUD Metropolitan Fair Market Rent Area. The Oakland-Fremont HMFA includes Alameda and Contra Costa counties.
2. Fair market rents are gross rent estimates published annually by HUD that include the cost of rent and all utilities except telephone service.
3. "Affordable" rents represent the generally accepted standard of spending not more than 30% of gross income on gross housing costs.

Housing Quality

The most direct impacts housing can have on health outcomes stem from the quality and habitability of one's living environment. The Centers for Disease Control and National Center for Healthy Housing have developed a framework for understanding the types of issues that affect health within homes and avenues for intervention to address such problems. Their framework outlines five categories of intervention: biological agents (toxins) interior to the home, such as mold; chemical agents (toxics) interior to the home, such as lead paint; structural deficiencies; external exposures, such as drinking water or sewage; and community-level housing interventions.[7] These categories also circumscribe the types of issues that would be useful to measure at a local level to better understand the breadth and scope of housing problems. Yet how can we possibly begin to measure the quality of over 150,000 housing units in Oakland?

The lack of individual, record-level data on housing units in Oakland is a major barrier to developing a nuanced understanding of the potential health issues facing residents because of their housing situations. In the absence of a detailed evaluation of every home—or even a large representative cross-sample—in the City, we must compile a range of disparate data to help parse out the conditions and issues most prevalent among Oakland housing.

One key indicator that we have already examined is the age of the housing stock in Oakland (see Map 15). Age is a baseline measure that provides an insight into the types of issues that affect both housing quality and the health of residents inhabiting the housing stock. This section covers other important housing quality indicators, including vacancy, code enforcement issues and building permits. Together, they begin to map out a general picture of habitability and condition, as well as the subpopulations and neighborhoods most impacted by housing-related health issues.

Residential Vacancy

Housing vacancy is a unique problem that has reverberating impacts at many levels. Homes sitting vacant for any extended period of time are often attractors of a range of condition problems, whether they stem from vandalism or outright neglect and a lack of maintenance. Evidence has emerged out of experiences from the foreclosure crisis that homes sitting vacant have an increased prevalence of mold growth due to poor ventilation and a lack of required maintenance. If proper rehabilitation or remediation is not completed prior to occupancy, the habitability of such properties remains problematic.

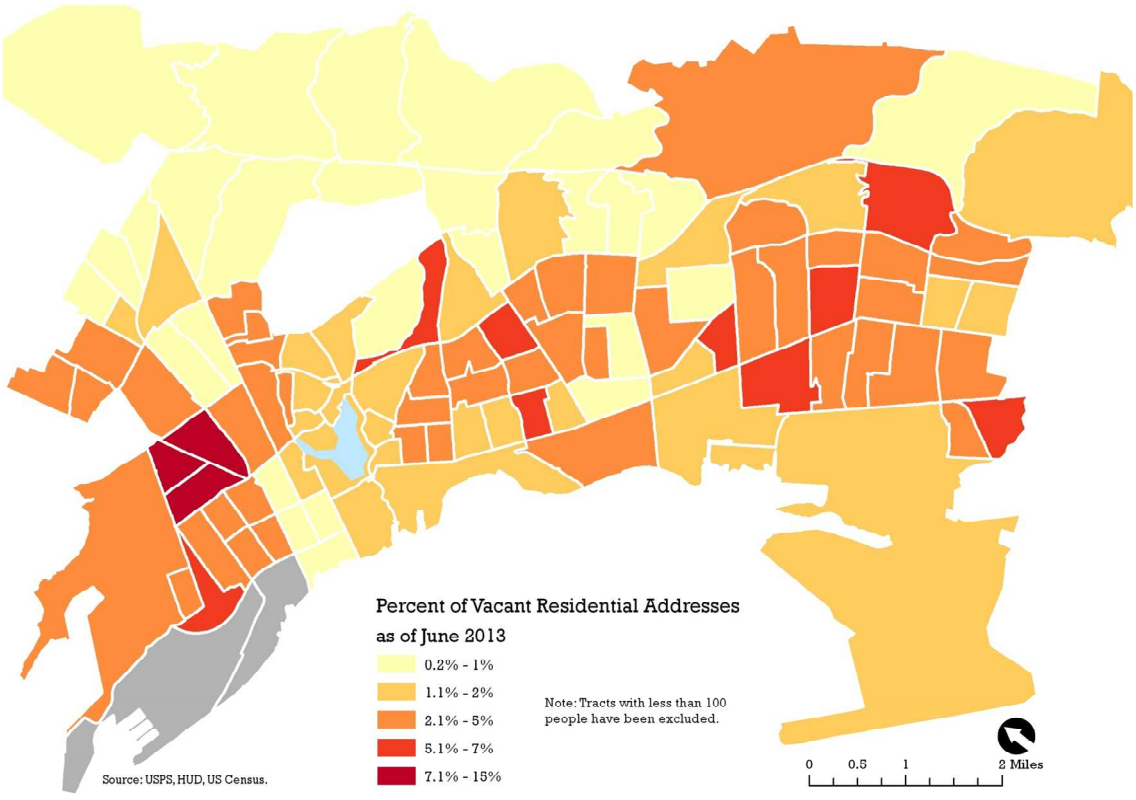
Aside from the potential housing condition issues—and by extension, resident health issues—that can accrue in long-term vacant units, there are external negative consequences for neighboring residents and local governments.[8] Vacancy has been shown to put significant strains on municipal services through increased crime and vandalism, which in turn presents larger issues for public safety and neighborhood stability. Municipalities may also experience a decline in property tax revenues, which may further impact neighborhood services.

[7] David E. Jacobs and Andrea Baeder, *Housing Interventions and Health: A Review of the Evidence*, National Center for Healthy Housing, 2009.
[8] National Vacant Properties Campaign, *Vacant Properties: The True Costs to Communities*, NVPC: Washington, D.C., August 2005.

Likewise, homeowners living adjacent to abandoned properties may see a decline in property values due to the liabilities associated with vacancy. The spillover effects for neighbors can also extend into issues that impact health due to problems such as rodent infestations, illegal dumping of toxic materials, and a decline in overall public safety.

Using data from the U.S. Postal Service and the U.S. Department of Housing and Urban Development, Map 23 shows percent of vacant residential addresses per Census tract in Oakland as of June 2013. Overall, there were 4,470 vacant residential addresses in Oakland as of June 2013. The areas with the highest concentration of vacant homes are in West Oakland, specifically the McClymonds, Hoover/Foster, and Clawson/Dogtown neighborhoods. In these areas, between 7 and 15 percent of homes were vacant as of June 2013. Other scattered tracts in the flatlands have between 5 to 7 percent residential vacancy, including Sobrante Park, the Lower San Antonio, Havenscourt/Coliseum, Seminary and Arroyo Viejo. Most striking, 81% of the vacant residential addresses in Oakland have been vacant for at least 36 months. This means that 3,620 homes in the City have vacant for at least three years.

Map 23: Percent of Vacant Residential Address by Census Tract, June 2013



2011 American Housing Survey

As mentioned above, not all data that are most relevant to issues at the nexus of health and housing are available at the scale that is most useful to a local analysis. For instance, the American Housing Survey (AHS) is a comprehensive longitudinal assessment of the housing inventory in the United States.[9] The AHS is sponsored by the U.S. Department of Housing and Urban Development and carried out by the U.S. Census Bureau. The AHS survey asks some very specific questions that are directly relevant to healthy housing issues; however, the one drawback for local work is that the data are only reported at the metropolitan area level. Thus, the data do not reveal any geographic variations within a city that might be used to direct local interventions. With that said, the AHS is useful for comparative metrics, such as seeing how one metro area ranks compared to another, or how certain sub-populations compare to each other within a given metro area.

The 2011 AHS includes data on the Oakland-Fremont-Hayward metropolitan area (referred to here as the Oakland metro area), which is inclusive of both Alameda and Contra Costa Counties. The AHS is conducted every other year, with a goal of interviewing respondents at the same housing units, adjusting for new construction, demolitions, and conversions. The units in the AHS have been selected specifically to represent a cross section of all housing units. Nationwide, the 2011 AHS included approximately 190,000 housing units over 29 different metropolitan areas. The survey selection for the Oakland metro area included 3,717 units. Given this sample size, every housing units in the Oakland metro survey represents itself and roughly 268 other units.

For the purposes of this report, the most compelling use of the AHS is its ability to compare the Oakland metro area to the 28 other metropolitan areas on specific housing issues that impact health. Table 3 below compiles ten key healthy housing metrics for the Oakland metro area from the AHS and ranks them in comparison to the other 28 metro areas in the survey. Of particular interest, the AHS breaks down the data in two useful ways: first, by tenure type, allowing a comparison of owner and renter-occupied units; and second, by select household types, providing insights into the experiences of African-American, Hispanic, elderly households, as well as households below the poverty line. Thus we are able to see how different household types compare to one another within a given metro area, as well as how they rank in comparison to 28 other metro areas.

American Housing Survey by Tenure Type

When comparing owner occupied units with renter occupied units, several indicators stand out. Overall, the Oakland metro area ranked quite poorly compared to the other AHS survey areas on two metrics: housing units that are "uncomfortably cold for 24 hours or more," and housing units with mold. Of all occupied units in the entire AHS, the Oakland metro area ranked 2nd worst among the 29 metro areas on the issue of heating problems, with nearly 11 percent of households being uncomfortably cold for 24 hours or more.

With respect to mold in the housing unit in the past 12 months, the Oakland metro area ranked 7th worst among all occupied units in the entire AHS. While 4 percent of all surveyed units in the Oakland metro area reportedly had a mold issue, the survey reveals a disparity between owner-occupied and renter-occupied units: renter households were 2.8 times more likely than owner households to have a mold problem.

[9] For more information about the American Housing Survey, see http://www.census.gov/housing/ahs/.

Table 3: Oakland-Fremont-Hayward AHS Area Rankings in the 2011 American Housing Survey

Worst Third **Middle Third** **Best Third**

By Tenure Type

	All Occupied Units		Owner Occupied Units		Renter Occupied Units	
	Rank	%	Rank	%	Rank	%
Severe or Moderate Physical Problems with Housing Unit	16	5.00%	11	2.73%	19	8.32%
Signs of Rodents (Rats, Mice, Other) in Last 12 Months	20	8.97%	15	10.25%	21	7.10%
Signs of Cockroaches in Last 12 Months	21	3.38%	19	2.04%	26	5.34%
Broken Plaster or Peeling Paint (Interior)	17	1.66%	17	1.23%	20	2.30%
Heating Problems: Uncomfortably Cold for 24 Hours or More	2	10.74%	2	10.50%	5	11.09%
Households with Children 6 to 17 Diagnosed with Asthma	16	9.98%	26	1.92%	7	20.96%
Housing Units & Households w/ No Working CO Detector	15	59.33%	12	56.96%	20	62.81%
Housing Units & Households w/ Musty Smells in Last 12 Months	18	13.28%	18	11.31%	11	16.16%
Housing Units & Households w/ Mold in the Last 12 Months	7	4.02%	18	2.28%	5	6.53%

Worst Third **Middle Third** **Best Third**

By Household Type

	Black		Hispanic		Elderly (65+)		Below Poverty	
	Rank	%	Rank	%	Rank	%	Rank	%
Severe or Moderate Physical Problems with Housing Unit	22	5.70%	22	4.62%	11	4.28%	12	10.71%
Signs of Rodents (Rats, Mice, Other) in Last 12 Months	19	8.44%	10	11.93%	19	7.11%	25	8.06%
Signs of Cockroaches in Last 12 Months	24	6.27%	25	5.77%	22	1.62%	26	7.33%
Broken Plaster or Peeling Paint (Interior)	7	4.22%	20	1.15%	7	1.67%	7	5.04%
Heating Problems: Uncomfortably Cold for 24 Hours or More	4	15.39%	15	10.39%	5	9.27%	5	14.47%
Households with Children 6 to 17 Diagnosed with Asthma	3	38.46%	7	21.34%	4	29.23%	8	33.98%
Visited ER in Past 12 Months Because of Asthma	2	17.22%	27	0.57%	10	1.54%	2	12.43%
Housing Units & Households w/ No Working CO Detector	14	64.31%	17	67.86%	10	64.13%	19	64.65%
Housing Units & Households w/ Musty Smells in Last 12 Months	20	14.60%	15	14.50%	13	12.87%	25	13.64%
Housing Units & Households w/ Mold in the Last 12 Months	2	9.58%	8	6.86%	19	1.49%	11	6.96%

Source: 2011 American Housing Survey

2011 American Housing Survey Areas

Anaheim-Santa Ana, CA AHS Area
Atlanta-Sandy Springs-Marietta, GA AHS Area
Birmingham-Hoover, AL AHS Area
Buffalo-Niagara Falls, NY AHS Area
Charlotte-Gastonia-Concord, NC-SC AHS Area
Cincinnati-Middletown, OH-KY-IN AHS Area
Cleveland-Elyria-Mentor, OH AHS Area
Columbus, OH AHS Area
Dallas-Plano-Irving, TX AHS Area
Denver, CO AHS Area
Fort Worth-Arlington, TX AHS Area
Indianapolis-Carmel, IN AHS Area
Kansas City, MO-KS AHS Area
Los Angeles-Long Beach, CA AHS Area
Memphis, TN-MS-AR AHS Area
Milwaukee-Waukesha-West Allis, WI AHS Area
New Orleans-Metairie-Kenner, LA AHS Area
Oakland-Fremont-Hayward, CA AHS Area
Phoenix-Mesa-Glendale, AZ AHS Area
Pittsburgh, PA AHS Area
Portland-Vancouver-Beaverton, OR-WA AHS Area
Providence, RI AHS Area
Riverside-San Bernardino-Ontario, CA AHS Area
Sacramento--Arden-Arcade--Roseville, CA AHS Area
San Diego-Carlsbad-San Marcos AHS Area
San Francisco-San Mateo-Redwood City, CA AHS Area
San Jose-Sunnyvale-Santa Clara, CA AHS Area
St. Louis, MO-IL AHS Area
Virginia Beach-Norfolk-Newport News, VA-NC AHS Area

On all but one metric, renter households fared worse than owner households. Overall, renter units surveyed in the Oakland metro area were three times more likely than owner-occupied units to have severe or moderate physical problems with their housing. The most significant disparity between renters and owners surveyed is in the category of households with children between the ages of 6 and 17 diagnosed with asthma: 21 percent of Oakland metro area renter households in the sample had children with asthma, compared to only 2 percent of owner-occupied households.

American Housing Survey by Household Type

The subcategories of household types surveyed in the AHS provide for a more nuanced picture of how certain populations are differentially experiencing housing related problems. Overall, the Oakland metro area ranked worse among the 29 metro areas for the four specific household types than the rankings by tenure type. Compared to the four subpopulations surveyed in the other metro areas, Oakland ranked among the worst third for broken plaster or peeling paint, heating problems, children with asthma, emergency room visits for asthma, and mold.

The category where respondents in the Oakland metro area consistently fared the poorest was households with children diagnosed with asthma. 38 percent of African-American households in the Oakland metro area reported having children with asthma, ranking third worst among the same subpopulation in the other 28 metro areas. Likewise, 34 percent of households below the poverty line had children with asthma, ranking eighth worst among the 29 metro areas. 29 percent of elderly households and 21 percent of Hispanic households also reported having children with asthma. Among Oakland metro area respondents, an African-American household was 19 times more likely to have a child with asthma compared to a typical owner-occupied household.

Among all respondents in the Oakland metro area, those households below the poverty line had the worst experiences with housing units having severe or moderate physical problems. A household in poverty was nearly four times more likely to have physical problems with their housing unit compared to a typical owner-occupied household. Similarly, an African-American household in the Oakland survey was four times more likely than a typical owner-occupied household, and over two times more likely than the entire universe of households, to have an issue with mold.

Code Enforcement and Building Permits

While the American Housing Survey provides an insightful high-level picture of specific housing problems impacting Oakland area households, the lack of data at a neighborhood level limits our ability to assess any geographic differences below the two county metropolitan region. This section supplements the metro area overview with a unique set of local government data: code enforcement complaints and building permits. Utilizing a dataset provided by the City of Oakland covering a nearly ten year period of code enforcement complaints and building permits, we are able to evaluate two important questions. First, where is the City's code enforcement staff finding problems with the housing stock or built environment, and what types of problems are they encountering? And second, where are building permits being issued in the City, and how might this reflect upon investments and improvements being made to the housing stock?

The role of code enforcement in the City of Oakland is to ensure compliance with the City's building, housing, and zoning codes. The standards set forth in these codes are developed to protect the health and safety of residents and the public. While visible nuisances may in themselves elicit direct action from the City's building services staff, much of code enforcement in Oakland is complaint-driven. Based on this structure, there are likely some limitations to the dataset of code enforcement complaints.

Between 2003 and July 2013, there were over 60,000 code enforcement complaints in the City of Oakland. Given the largely complaint-driven nature of code compliance, it is reasonable to assume that this is an under-representation of the real breadth of code compliance problems that likely exist throughout the City. This raises important questions regarding how or when a resident might complain about an issue, or what problems actually constitute a legitimate code complaint worth pursuing. Further, knowing that Oakland is diverse with many immigrant populations, there are likely both language and cultural barriers that might impact pro-active participation. Quite simply, some residents may not be fully aware of their rights under the various City codes, or may choose not to complain for other intervening reasons.

The logical opposite of residents not knowing their rights or when it is appropriate to complain is also the possibility of some residents abusing a complaint-driven system. There could potentially be an over sample in some areas due to particularly active neighbors. In each instance, building services staff must investigate the complaint, and evaluate the necessary course of action to address the problem. Table 4 compiles residential code enforcement complaints in Oakland relevant to healthy housing concerns; these account for approximately 85 percent of all code enforcement records between 2003 and July 2013. Nearly two-thirds of all residential complaints were filed against single-family homes, with 2-4 unit buildings accounting for 29 percent of complaints, and 5-plus unit buildings representing 10 percent.

Overall, 93 percent of the residential complaints are distributed among three complaint categories: occupied blight, exterior blight, and work without a permit. The category of *occupied blight* accounts for two-thirds of the residential complaints relevant to healthy housing concerns, with exterior blight and work without a permit representing 16.6 percent and 13.5 percent, respectively.

Each record in the code complaint data—aside from being segmented into discrete complaint types—also contains a narrative description of the specific issue at hand. However, the narrative field is highly subjective and based on the data entry of each inspector. Unfortunately, this additional information is not

captured in a standardized manner that would allow for a more nuanced analysis of the specific issues associated with each complaint type.

Table 4: Healthy Housing Related Code Enforcement Complaints by Residential Type, 2003-July 2013

Complaint Type	Single Family		2-4 Units		Multi-Family (5+ Units)		Total	
	Count	%	Count	%	Count	%	Count	%
Occupied Blight	19,000	60.1%	9,741	66.2%	3,838	74.4%	**32,579**	63.3%
Exterior Blight	5,562	17.6%	2,290	15.6%	686	13.3%	**8,538**	16.6%
Work Without Permit	4,746	15.0%	1,758	12.0%	447	8.7%	**6,951**	13.5%
Foreclosed Vacant Building	1,523	4.8%	487	3.3%	13	0.3%	**2,023**	3.9%
Substandard	767	2.4%	356	2.4%	83	1.6%	**1,206**	2.3%
Health Inspections (Lead/ Mold/ Pest)	42	0.1%	75	0.5%	91	1.8%	**208**	0.4%
Total	**31,640**	100%	**14,707**	100%	**5,158**	100%	**51,505**	100%

Source: City of Oakland; Alameda County Assessor

Occupied Blight

The most relevant category to healthy housing issues is what the City of Oakland Building Services staff refers to as *occupied blight*. Complaints in the occupied blight category relate to interior habitability issues that are generally derived from tenant complaints, as well as structural defects or failures. To the extent that habitability impacts health and might be reflected in the City's code enforcement data, occupied blight is the key category to monitor.

Map 24 shows code enforcement complaints for occupied blight in Oakland by Census tract between 2003 and July 2013. There were over 32,500 occupied blight complaints over this time span, with 58% at single-family properties and 42% at multi-unit properties. Additionally, there is some variation within residential types, as 75 percent of complaints at 5-plus unit multifamily properties were for occupied blight, compared to 60 percent of complaints at single-family homes.

The areas with the largest numbers of occupied blight complaints are nearly all in the City's flatland neighborhoods, with one outlier in Montclair. Longfellow and Hoover/Foster in West Oakland, the San Antonio, Fruitvale, Lower Maxwell Park, and Havenscourt are among the neighborhoods with the most occupied blight complaints. In these tracts, as many as 6 out of 10 households may have received an occupied blight complaint b/w 2003 and July 2013 (Note: this is a gross ratio, not accounting for the possibility of multiple complaints at the same property).

In an attempt to extract more detail from the occupied blight complaint data, a word frequency analysis was conducted on the narrative field associated with each occupied blight record. Table 5 below displays the top 50 terms used to provide context and detail to the code enforcement inspections. Terms such as trash, garbage, debris, as well as overgrowth and vegetation, are the most common descriptors. Mold is mentioned 623 times. Appendix Two shows a complete frequency analysis of terms that appear at least 20 times in the database.

Map 24: Code Enforcement Complaints for Occupied Blight, 2003-July 2013

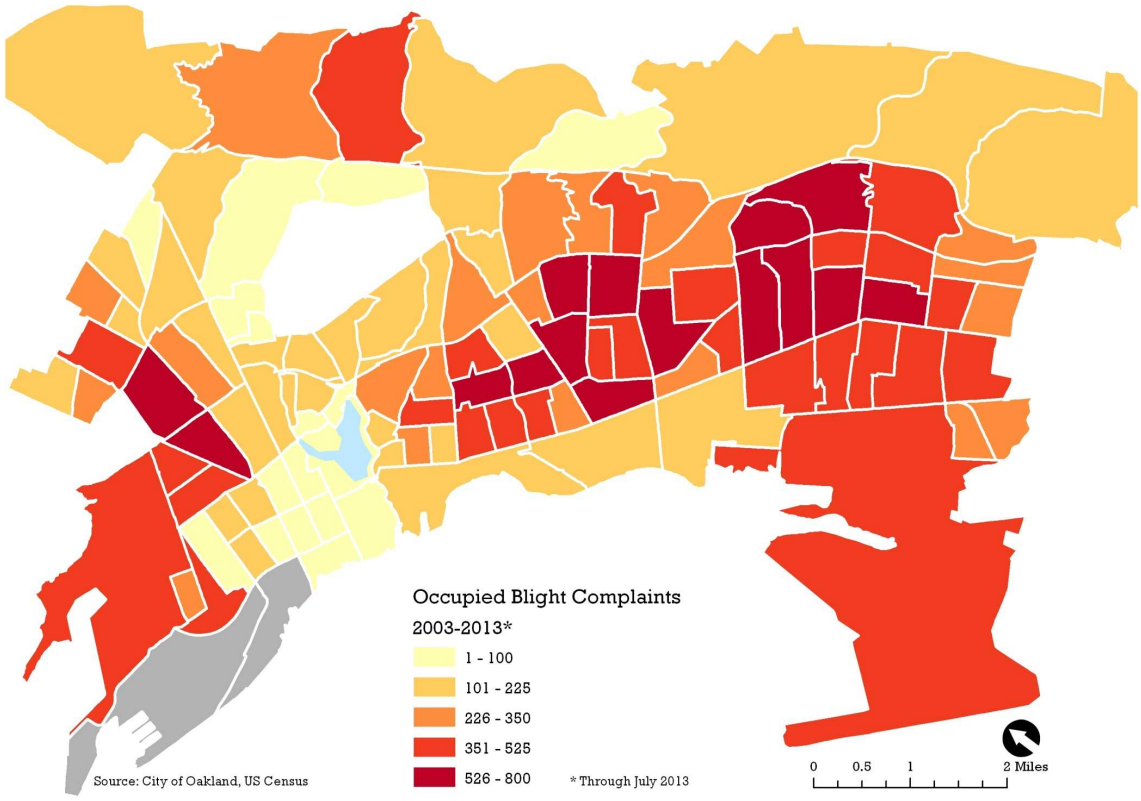


Table 5: Top 50 Terms Used to Describe Occupied Blight Complaints in Oakland

RANK	TERM(S)	FREQUENCY	RANK	TERM(S)	FREQUENCY
1	TRASH	11,028	26	MOLD	623
2	DEBRIS	9,364	27	BATHROOM; BATHRM	623
3	OVERGROWN; OVERGROWTH	8,691	28	PLUMBING	602
4	VEGETATION	5,777	29	LAWN	579
5	VEHICLE; VEHICLES	2,498	30	ROOF; ROOFING	574
6	GARBAGE	1,979	31	KITCHEN	561
7	WINDOWS; WINDOW	1,567	32	ILLEGAL	551
8	WEEDS	1,422	33	CEILING	550
9	LEAKING; LEAKS; LEAK; LEAKAGE	1,416	34	STAIRS; STAIR; STAIRWAY	525
10	DRIVEWAY	1,240	35	PAINT	522
11	GARAGE	1,224	36	FIRE	502
12	HEATER; HEAT; HEATING; HEATERS	1,204	37	JUNK	423
13	FENCE	1,117	38	MATTRESS; MATTRESSES	410
14	CARS; CAR	1,072	39	APPLIANCES; APPLIANCE	402
15	DAMAGED; DAMAGE	1,022	40	EXTERIOR	364
16	VACANT	905	41	PORCH	354
17	SIDEWALK	901	42	UNSECURED; UNSECURE	344
18	WALL; WALLS	891	43	GRAFFITI	344
19	ELECTRICAL; ELECTRICITY; POWER; ELECTRIC	860	44	FLOOR; FLOORING	335
20	FURNITURE; FURNITURES	835	45	BASEMENT	332
21	UNAPPROVED	749	46	PEELING	325
22	ACCUMULATION	740	47	TOILET; TOILETS	319
23	ABANDONED	682	48	DILAPIDATED	293
24	DOOR; DOORS	680	49	SINK	289
25	BLIGHTED; BLIGHT	652	50	MILDEW	250

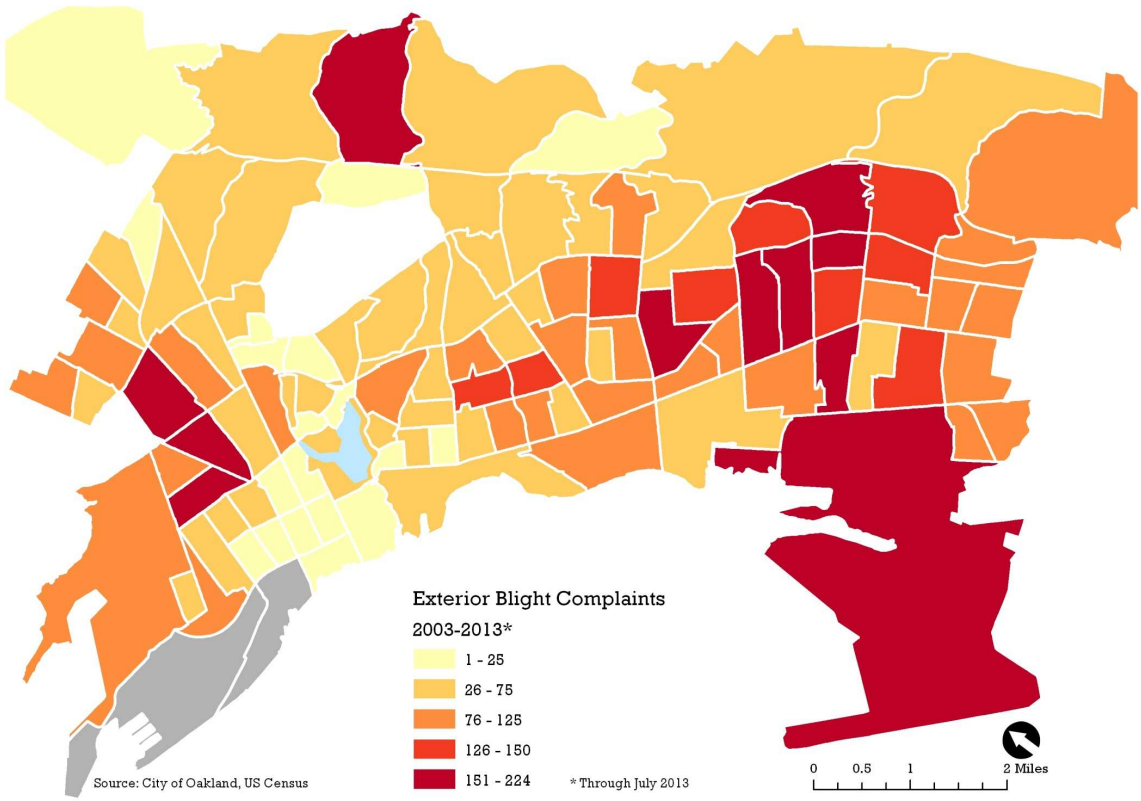
Exterior Blight

The second most common code enforcement complaint is for what City Building Services staff refers to as *exterior blight*. As the title suggests, this category deals with issues exterior to homes or structures, including: garbage, trash, debris, overgrowth, trash cans in view, inoperable or unlicensed vehicles, unapproved storage, offensive odors (paint, chemicals), fire hazards, and rat or other vector attractors.

There were 8,538 complaints for exterior blight between 2003 and July 2013, representing nearly 17 percent of all the healthy housing related complaints; 65 percent of these complaints were at single family homes, 27 percent were at 2 to 4 unit properties, and 8 percent at 5-plus unit multi-family properties. Many of the same tracts that had the most occupied blight complaints also rank high among those with the most exterior blight complaints, including Longfellow and Hoover/Foster in West Oakland, Lower Maxwell Park, Havenscourt, and the same Montclair tract in the hills.

While exterior blighting factors may seem removed from issues that impact health on the inside of homes, some can have spillover effects that are directly deleterious to health. For instance, garbage and debris can harbor various pests and vectors, which can lead to problems that ultimately manifest themselves inside homes. Similarly, an overgrowth of vegetation adjacent to a building can facilitate moisture intrusion—a problem that could result in mildew or mold growth.

Map 25: Code Enforcement Complaints for Exterior Blight (by Census Tract), 2003-July 2013



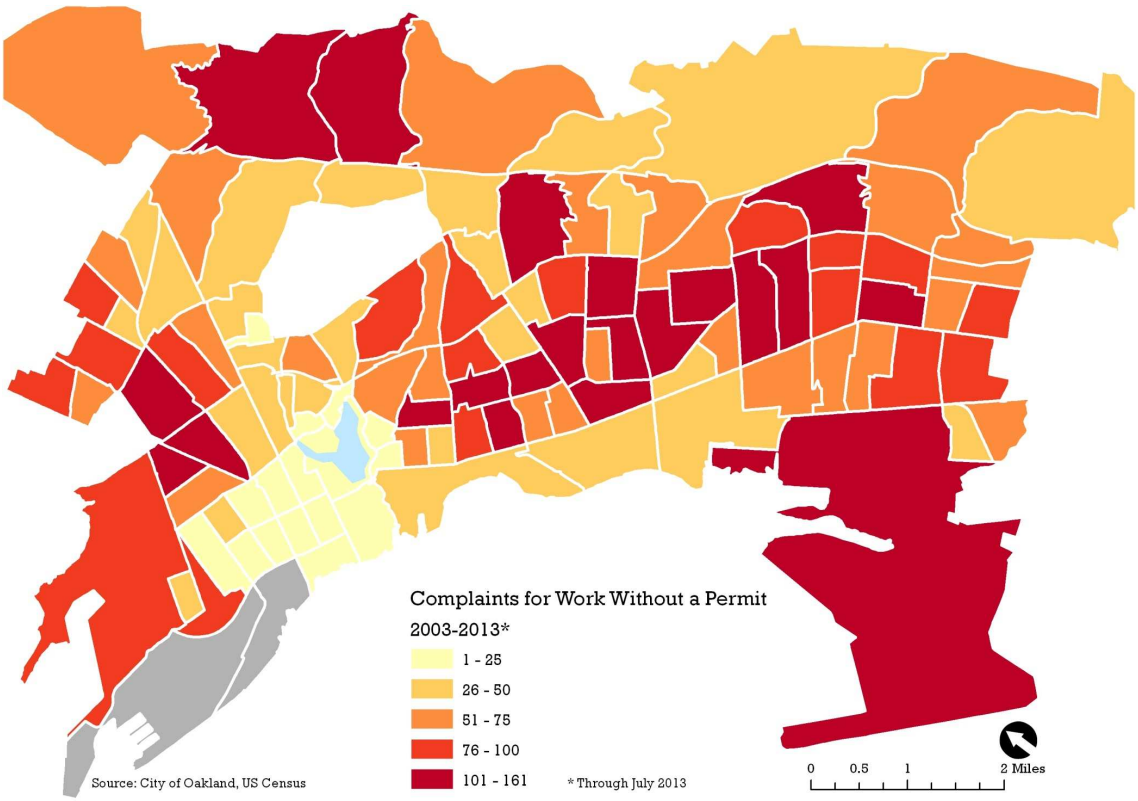
Work without a Permit

Between 2003 and July 2013, there were nearly 7,000 complaints for *work without a permit*. 69 percent of complaints for work without a permit were filed at single-family homes, 25 percent at 2-4 unit properties, and 6 percent at 5-plus multi-family properties.

Conducting work on a housing unit without a proper permit can have serious consequences for the health of residents living in such a property. As mentioned above, the building, housing, and zoning codes are in place to ensure the health and safety of residents. Just because work is done without a permit does not necessarily mean that the work is wrong or hazardous. However, by not following the proper channels to obtain the necessary permits, there is no effective oversight or tracking of the work to ensure a standard of safety. Ultimately, there could be significant repercussions with respect to the habitability of a residence if the work was done improperly.

Map 26 shows code enforcement complaints for work without a permit among Oakland Census tracts. Again, complaints for work without a permit follow a similar pattern compared to the occupied and exterior blight complaints, yet are somewhat more evenly distributed among Oakland neighborhoods. The highest numbers of complaints are in the flatlands, with two outlier tracts in the hills around Montclair and Glen Highlands.

Map 26: Code Enforcement Complaints for Work without a Permit, 2003-July 2013



Building Permits

In some respects, the inverse measure of complaints for doing work without permit is the issuance of permits to do work. Likewise, if lacking a permit presents a liability for health and safety, the completion of work with a permit can logically be viewed as an investment in improving the housing stock, and by extension, the health of residents.

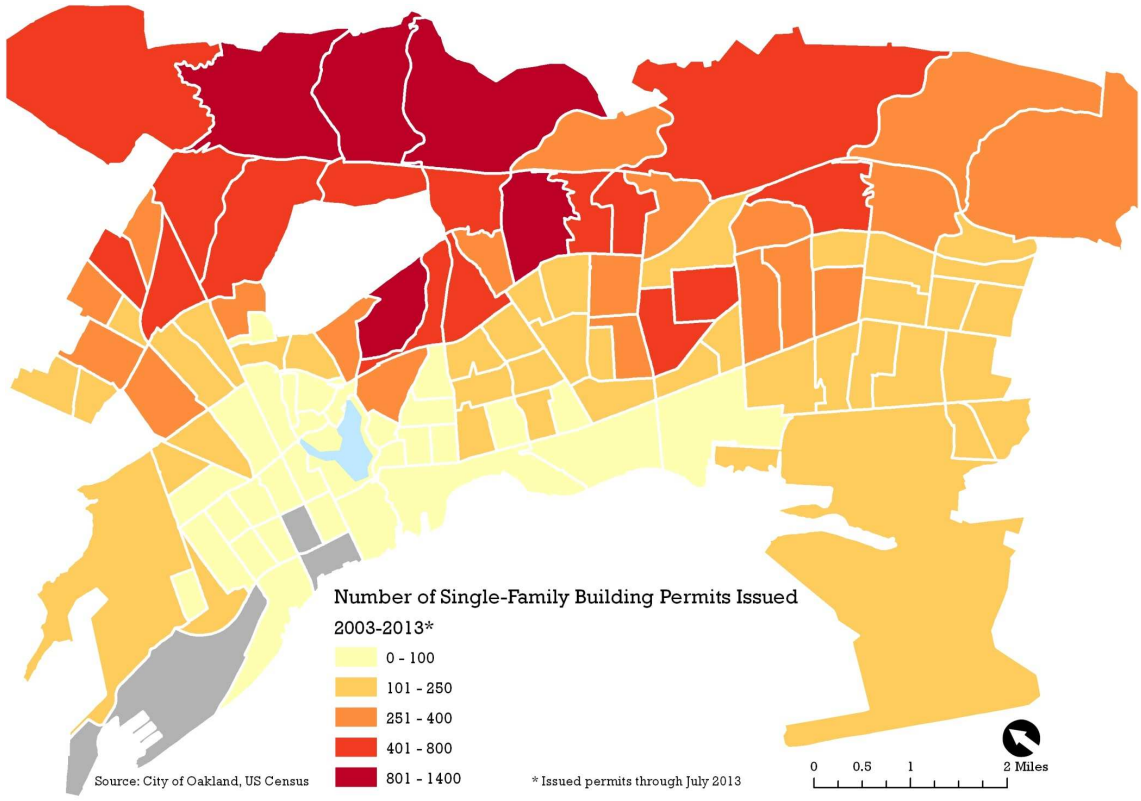
The focus of this section is on building permits issued for single-family homes between 2003 and July 2013. While data from the City of Oakland includes information on permits issued for multi-unit properties, it is not always apparent in the data whether an issued permit refers to a single-unit, multiple units, or reflects a building-wide project. Due to these ambiguities in the data, the majority of our analysis has been limited to single-family properties.

There were 35,283 issued building permits for properties in Oakland between 2003 and July 2013. Among these, over 25,000 permits were issued for single-family homes, and another 6,500 at multi-unit properties.

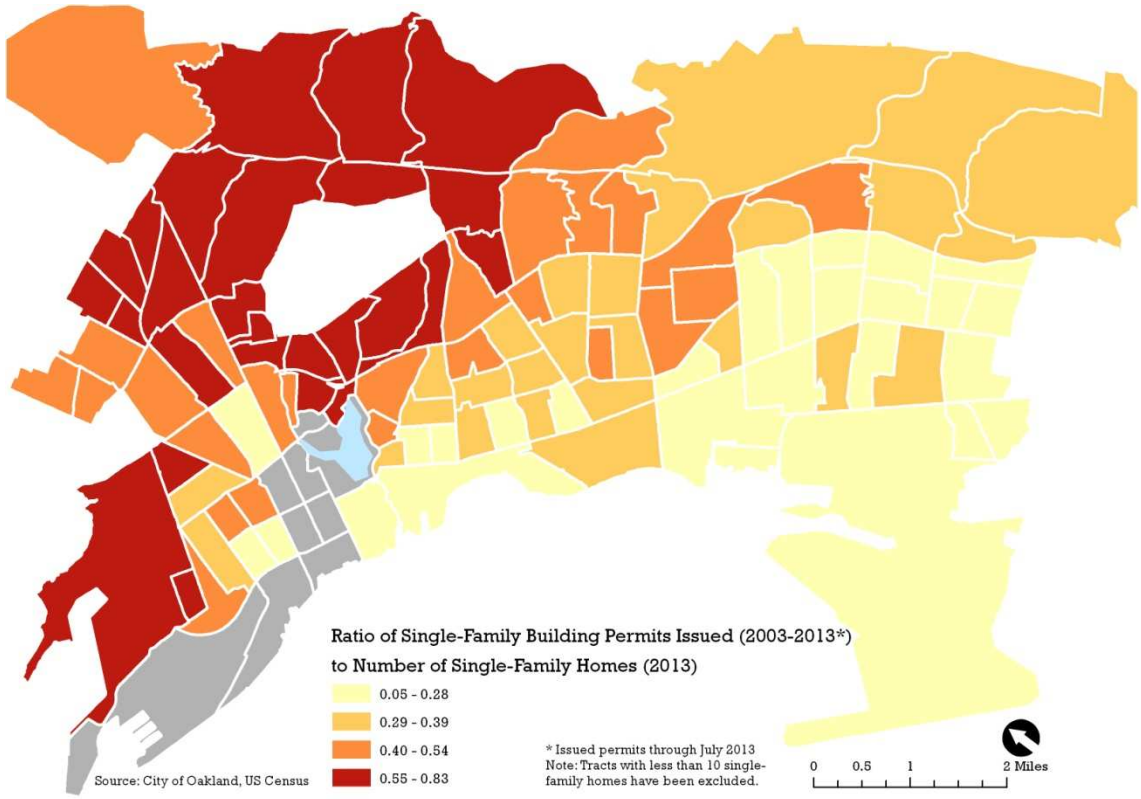
Map 27 shows the geographic distribution of the issued single-family permits throughout Oakland between 2003 and July 2013. Overall, the majority of permit activity is concentrated in the Oakland hills. In Map 16 above we saw where single-family properties are concentrated throughout the various neighborhoods of the City—particularly in the East Oakland flatlands and the neighborhoods in the lower hills. The location of single-family permit activity does not align with the actual areas with the most single-family homes; instead, the existing single-family housing stock is largely being improved in the more affluent hill neighborhoods.

Map 28 displays this discrepancy, showing a ratio of issued single-family permits to the number of single-family homes per Census tract. Here we start to see where investment is actually being made to improve the housing stock, and equally importantly, where improvements are not being made.

Map 27: Number of Single-Family Building Permits Issued by Census Tract, 2003-July 2013



Map 28: Ratio of Single-Family Permits Issued to Number of Single-Family Homes



Conclusion

We know from a wealth of research that there are intimate connections between the health of people and the housing units they inhabit. Further, there are countless ways that a home can impact health, whether it is a leaky pipe that results in mold growth, poor indoor air quality, unaffordable rents, peeling paint, dust mites, burn and fall hazards, or seismic or other structural deficiencies. Each of these issues—on their own—can be worlds unto themselves, with their own complications, causes, and remedies.

The goal of this report has been to take what we know from existing research on housing and health, and compile local data to shed light on the issues that Oakland residents are confronting. While detailed information on very specific housing problems may not always be available, we have been able to establish some baseline indicators that can serve as guideposts for healthy housing interventions and policy efforts.

The data presented in this report show that Oakland is a city of disparities, many of which are reproduced in the City's topography. Oakland—as a whole—is incredibly diverse; the same cannot be said for many neighborhoods in the City. There is an incredible amount of overlap between Oakland's communities of color, the renter populations in the City, the areas with high enrollment in social safety net programs, and neighborhoods with poor health outcomes. More often than not, these neighborhoods also have the highest counts of residential code enforcement complaints, indicating problems with the housing stock. These discrete data pieces, when viewed in concert, begin to paint a high level picture of resident experiences and vulnerabilities in Oakland, neighborhood by neighborhood.

This report also reveals the need for additional data, as well as more detailed data. We identified unique data from several government departments and agencies that have the potential of being useful, but were not available in a useable format for our analysis. Developing relationships with these agencies and departments, and sharing the rationale for why access to these data is important, could help extend this research into powerful new directions.

Likewise, the need for reliable, local data at the parcel or record level is of paramount importance. Such fine-grained data allow for the matching of many sources of data to one common identifier—a house or parcel—and present many possibilities for comparative analysis. As it currently stands, the data released by the U.S. Census and the American Community Survey have severe limitations in their usefulness below the neighborhood level. In the absence of a periodic citywide survey of the issues impacting housing quality and habitability, an information void will persist, inhibiting a full telling of the crucial story about how Oakland residents are impacted by their housing.

Works Consulted

Alameda County Public Health Department, *Life and Death from Unnatural Causes: Health and Social Inequity in Alameda County*, August 2008.

Bashir, Samiya A., "Home is Where the Harm Is: Inadequate Housing as a Public Health Crisis," *American Journal of Public Health*, 2002; 92(5).

Breysse, Patrick, et. al., "The Relationship between Housing and Health: Children at Risk," *Environmental Health Perspectives*, 2004; 112(15).

Bures, Regina M., "Childhood Residential Stability and Health at Midlife," *American Journal of Public Health*, 2003; 93(7).

Committee on Psychosocial Aspects of Child and Family Health, Committee on Early childhood, Adoption, and Dependent Care, and Section on Developmental Behavioral Pediatrics, et. al., "Early Childhood Adversity, Toxic Stress, and the Role of the Pediatrician: Translating Developmental Science into Lifelong Health," *Pediatrics*, 2012; 129(224).

DiGuiseppi, Carolyn, et. al., "Housing Interventions and Control of Injury-Related Structural Deficiencies: A Review of the Evidence," *Journal of Public Health Management and Practice*, 2010; 16(5).

Drum, Kevin, "America's Real Criminal Element: Lead," *Mother Jones*, January/February 2013.

Fertig, Angela R. and David A. Reingold, "Public Housing, Health, and Health Behaviors: Is There a Connection?" *Journal of Policy Analysis and Management*, 2007; 26(4).

Fullilove, Mindy T., *Root Shock: How Tearing Up Neighborhoods Hurts America, and What We Can Do About It*, New York: One World, 2004.

Fullilove, Mindy T., Lesley Green, and Robert E. Fullilove III, "Building Momentum: An Ethnographic Study of Inner-City Redevelopment," *American Journal of Public Health*, 1999; 89(6).

Gaitens, Joanna M., et. al., "Exposure of U.S. Children to Residential Dust Lead, 1999-2004: I. Housing and Demographic Factors," *Environmental Health Perspectives*, 2009; 117(3).

Jacobs, David E., et. al., "A Systematic Review of Housing Interventions and Health: Introduction, Methods, and Summary Findings," *Journal of Public Health Management and Practice*, 2010; 16(5).

Jacobs, David E. and Andrea Baeder, *Housing Interventions and Health: A Review of the Evidence*, National Center for Healthy Housing, 2009.

Jacobs, David E. et. al., "The Relationship of Housing Population and Health: A 30-Year Retrospective Analysis," *Environmental Health Perspectives*, 2009; 117(4).

Jacobs, David E., Tom Kelly, and John Sobolewski, "Linking Public Health, Housing, and Indoor Environmental Policy: Successes and Challenges at Local and Federal Agencies in the United States," *Environmental Health Perspectives*, 2007; 115(6).

Kirkpatrick, Sharon I. and Valerie Tarasuk, "Adequacy of Food Spending is Related to Housing Expenditures Among Lower-Income Canadian Households," *Public Health Nutrition*, 2007; 10(12).

Klass, Perri, "Poverty as a Childhood Disease," *The New York Times*, 13 May 2013.
Krieger, James and Donna L. Higgins, "Housing and Health: Time Again for Public Health Action," *American Journal of Public Health*, 2002; 92(5).

Lubell, Jeffrey, et. al., *Housing and Health: New Opportunities for Dialogue and Action*, National Center for Healthy Housing, July 2012.

Ludwig, Jens, et. al., "Neighborhoods, Obesity, and Diabetes – A Randomized Social Experiment," *The New England Journal of Medicine*, 2011; 365(16).

Meyers, Alan, et. al., "Subsidized Housing and Children's Nutrition Status: Data from a Multisite Surveillance Study," *Archives of Pediatrics and Adolescent Medicine*, 2005; 159.

Rauh, Virginia, Ginger L. Chew and Robin S. Garfinkel, "Deteriorated Housing Contributes to High Cockroach Allergen Levels in Inner-City Households," *Environmental Health Perspectives*, 2002; 110(2).

Robert Wood Johnson Foundation, *Where We Live Matters for Our Health: The Links Between Housing and Health*, Commission to Build a Healthier America, Issue Brief 2: Housing and Health, 2008.

Saegert, Susan, Desiree Fields and Kimberly Libman, "Mortgage Foreclosure and Health Disparities: Serial Displacement as Asset Extraction in African American Populations," *Journal of Urban Health: Bulletin of the New York Academy of Medicine*, 2011; 88(3).

Saegert, Susan, et. al., "Healthy Housing: A Structured Review of Published Evaluations of US Interventions to Improve Health by Modifying Housing in the United States, 1990-2001," *American Journal of Public Health*, 2003; 93(9).

Shenassa, Edmond D., Amy Stubbendick, and Mary Jean Brown, "Social Disparities in Housing and Related Pediatric Injury: A Multilevel Study," *American Journal of Public Health*, 2004; 94(4).

The Baltimore Neighborhood Indicators Alliance, *Analysis of the Green and Healthy Homes Initiative's Foreclosure Prevention Efforts in Baltimore*, BNIA-University of Baltimore, April 2013.

Appendices

Severe or Moderate Physical Problems with Housing Unit

	By Tenure						By Household Type							
	Occupied Units		Owner Occupied Units		Renter Occupied Units		Black		Hispanic		Elderly (65+)		Below Poverty	
Metropolitan Area	%	Rank	%	Rank	%	Rank	%	Rank	%	Rank	%	Rank	%	Rank
Anaheim-Santa Ana, CA AHS Area	7.98%	2	2.46%	15	15.54%	2	7.09%	18	10.35%	5	5.55%	5	8.50%	21
Atlanta-Sandy Springs-Marietta, GA AHS Area	3.65%	22	2.18%	21	6.57%	25	5.23%	23	2.75%	25	3.34%	15	8.70%	20
Birmingham-Hoover, AL AHS Area	6.46%	8	5.37%	1	9.43%	13	10.22%	11	8.20%	9	9.41%	1	18.10%	1
Buffalo-Niagara Falls, NY AHS Area	5.28%	12	3.12%	9	9.46%	12	10.63%	8	1.99%	27	3.00%	16	13.98%	4
Charlotte-Gastonia-Concord, NC-SC AHS Area	3.50%	23	1.57%	25	7.04%	23	5.06%	24	5.55%	20	1.68%	25	5.32%	28
Cincinnati-Middletown, OH-KY-IN AHS Area	5.79%	9	3.58%	4	10.64%	8	11.10%	7	3.57%	23	2.96%	17	12.77%	7
Cleveland-Elyria-Mentor, OH AHS Area	5.20%	13	2.43%	16	11.28%	7	8.83%	12	7.33%	13	2.48%	20	9.84%	17
Columbus, OH AHS Area	4.68%	19	2.59%	14	7.95%	21	11.68%	6	6.32%	18	4.15%	12	9.86%	16
Dallas-Plano-Irving, TX AHS Area	5.73%	10	3.29%	7	9.62%	10	6.36%	20	9.28%	7	6.27%	4	12.02%	9
Denver, CO AHS Area	4.35%	21	1.67%	24	9.00%	15	8.41%	14	7.31%	15	2.21%	21	8.04%	22
Fort Worth-Arlington, TX AHS Area	4.92%	17	2.72%	12	8.78%	18	3.59%	26	7.33%	14	3.63%	13	11.97%	10
Indianapolis-Carmel, IN AHS Area	2.63%	29	1.14%	27	5.70%	27	8.18%	15	1.85%	28	1.22%	29	7.84%	23
Kansas City, MO-KS AHS Area	3.11%	27	1.35%	26	6.66%	24	4.07%	25	7.42%	12	2.04%	23	6.35%	27
Los Angeles-Long Beach, CA AHS Area	6.69%	6	3.56%	5	9.48%	11	6.81%	19	7.73%	10	4.85%	8	7.76%	24
Memphis, TN-MS-AR AHS Area	7.18%	4	4.56%	2	12.07%	5	12.06%	5	9.61%	6	7.17%	3	14.59%	3
Milwaukee-Waukesha-West Allis, WI AHS Area	7.84%	3	3.48%	6	15.76%	1	12.36%	3	26.24%	1	4.92%	7	9.99%	15
New Orleans-Metairie-Kenner, LA AHS Area	5.59%	11	3.78%	3	8.99%	16	10.35%	10	3.42%	24	7.22%	2	10.16%	14
Oakland-Fremont-Hayward, CA AHS Area	**5.00%**	**16**	**2.73%**	**11**	**8.32%**	**19**	**5.70%**	**22**	**4.62%**	**22**	**4.28%**	**11**	**10.71%**	**12**
Phoenix-Mesa-Glendale, AZ AHS Area	3.11%	26	2.36%	18	4.48%	29	0.00%	29	5.45%	21	1.70%	24	4.39%	29
Pittsburgh, PA AHS Area	4.47%	20	2.65%	13	8.86%	17	8.18%	16	11.17%	3	1.48%	28	9.62%	18
Portland-Vancouver-Beaverton, OR-WA AHS Area	3.33%	24	0.76%	29	7.97%	20	1.30%	28	2.29%	26	1.49%	27	10.44%	13
Providence, RI AHS Area	6.65%	7	3.11%	10	12.19%	4	10.51%	9	14.07%	2	4.59%	9	9.43%	19
Riverside-San Bernadino-Ontario, CA AHS Area	4.74%	18	3.25%	8	7.37%	22	7.96%	17	5.79%	19	2.60%	19	12.78%	6
Sacramento--Arden-Arcade--Roseville, CA AHS Area	5.04%	14	1.83%	23	9.21%	14	14.17%	1	6.94%	16	2.76%	18	12.14%	8
San Diego-Carlsbad-San Marcos AHS Area	6.87%	5	2.33%	19	12.04%	6	12.16%	4	10.38%	4	5.11%	6	11.28%	11
San Francisco-San Mateo-Redwood City, CA AHS Area	8.08%	1	2.42%	17	13.27%	3	12.94%	2	7.64%	11	3.40%	14	15.85%	2
San Jose-Sunnyvale-Santa Clara, CA AHS Area	3.32%	25	1.13%	28	6.20%	26	3.49%	27	6.67%	17	1.57%	26	7.39%	25
St. Louis, MO-IL AHS Area	3.00%	28	2.26%	20	4.92%	28	5.89%	21	0.00%	29	2.17%	22	6.55%	26
Virginia Beach-Norfolk-Newport News, VA-NC AHS Area	5.03%	15	1.86%	22	10.46%	9	8.62%	13	8.66%	8	4.45%	10	13.42%	5

Housing Units and Households with Mold in the Last 12 Months

	By Tenure						By Household Type							
	Occupied Units		Owner Occupied Units		Renter Occupied Units		Black		Hispanic		Elderly (65+)		Below Poverty Level	
Metropolitan Area	%	Rank	%	Rank	%	Rank	%	Rank	%	Rank	%	Rank	%	Rank
Anaheim-Santa Ana, CA AHS Area	3.13%	19	1.64%	25	5.16%	12	3.94%	18	5.07%	15	1.73%	17	2.83%	27
Atlanta-Sandy Springs-Marietta, GA AHS Area	3.26%	16	2.19%	20	5.37%	11	4.16%	14	6.35%	10	2.01%	14	5.93%	16
Birmingham-Hoover, AL AHS Area	4.15%	5	1.91%	22	10.43%	1	10.67%	1	14.75%	2	3.17%	3	8.81%	4
Buffalo-Niagara Falls, NY AHS Area	3.83%	10	3.34%	4	4.79%	17	4.31%	13	1.99%	24	2.35%	6	9.91%	2
Charlotte-Gastonia-Concord, NC-SC AHS Area	3.00%	21	2.84%	7	3.30%	24	2.93%	23	5.18%	14	4.77%	1	6.76%	12
Cincinnati-Middletown, OH-KY-IN AHS Area	3.31%	15	2.59%	10	4.87%	16	6.36%	9	1.34%	28	1.09%	23	6.01%	15
Cleveland-Elyria-Mentor, OH AHS Area	3.15%	18	2.52%	12	4.54%	18	3.73%	19	2.65%	19	1.32%	21	3.69%	26
Columbus, OH AHS Area	3.36%	14	3.60%	3	3.00%	26	6.76%	8	1.58%	27	0.76%	29	5.31%	18
Dallas-Plano-Irving, TX AHS Area	2.30%	25	1.77%	23	3.14%	25	2.86%	24	1.98%	25	2.04%	13	4.34%	22
Denver, CO AHS Area	1.53%	29	1.38%	26	1.80%	29	1.65%	29	1.99%	23	0.87%	27	2.48%	28
Fort Worth-Arlington, TX AHS Area	1.90%	28	0.77%	28	3.88%	22	3.39%	20	2.49%	21	0.84%	28	3.74%	25
Indianapolis-Carmel, IN AHS Area	3.46%	12	2.13%	21	6.19%	8	6.17%	10	9.45%	3	1.47%	20	7.84%	6
Kansas City, MO-KS AHS Area	2.73%	23	2.33%	17	3.56%	23	2.57%	26	2.87%	18	2.15%	12	5.37%	17
Los Angeles-Long Beach, CA AHS Area	3.80%	11	2.43%	16	5.00%	13	4.01%	17	5.55%	12	2.34%	7	5.07%	20
Memphis, TN-MS-AR AHS Area	5.06%	1	4.63%	1	5.86%	10	7.20%	6	1.31%	29	4.59%	2	8.89%	3
Milwaukee-Waukesha-West Allis, WI AHS Area	2.48%	24	2.44%	15	2.56%	28	8.06%	4	4.97%	17	1.28%	22	3.86%	24
New Orleans-Metairie-Kenner, LA AHS Area	2.07%	27	1.68%	24	2.83%	27	2.49%	27	1.71%	26	1.06%	24	1.95%	29
Oakland-Fremont-Hayward, CA AHS Area	**4.02%**	**7**	**2.28%**	**18**	**6.53%**	**5**	**9.58%**	**2**	**6.86%**	**8**	**1.49%**	**19**	**6.96%**	**11**
Phoenix-Mesa-Glendale, AZ AHS Area	2.16%	26	1.02%	27	4.25%	20	2.81%	25	2.52%	20	1.64%	18	4.03%	23
Pittsburgh, PA AHS Area	4.52%	3	3.79%	2	6.28%	7	6.99%	7	21.28%	1	2.31%	9	7.31%	9
Portland-Vancouver-Beaverton, OR-WA AHS Area	4.14%	6	2.76%	8	6.66%	3	3.25%	21	8.38%	5	1.89%	15	7.24%	10
Providence, RI AHS Area	3.41%	13	2.92%	6	4.18%	21	7.96%	5	5.43%	13	2.15%	11	8.49%	5
Riverside-San Bernadino-Ontario, CA AHS Area	4.00%	8	2.67%	9	6.36%	6	4.87%	12	4.99%	16	2.32%	8	7.75%	7
Sacramento--Arden-Arcade--Roseville, CA AHS Area	4.36%	4	2.46%	13	6.83%	2	2.97%	22	7.85%	6	1.82%	16	6.33%	14
San Diego-Carlsbad-San Marcos AHS Area	3.95%	9	3.07%	5	4.95%	14	2.05%	28	5.68%	11	3.13%	4	5.27%	19
San Francisco-San Mateo-Redwood City, CA AHS Area	4.65%	2	2.54%	11	6.58%	4	8.38%	3	9.24%	4	1.01%	26	4.62%	21
San Jose-Sunnyvale-Santa Clara, CA AHS Area	2.96%	22	0.73%	29	5.91%	9	4.07%	16	7.38%	7	1.05%	25	6.42%	13
St. Louis, MO-IL AHS Area	3.01%	20	2.46%	14	4.44%	19	4.09%	15	6.67%	9	2.28%	10	7.59%	8
Virginia Beach-Norfolk-Newport News, VA-NC AHS Area	3.22%	17	2.21%	19	4.93%	15	5.83%	11	2.16%	22	2.64%	5	11.54%	1

Housing Units and Households with Musty Smells in Last 12 Months

	By Tenure						By Household Type							
	Occupied Units		Owner Occupied Units		Renter Occupied Units		Black		Hispanic		Elderly (65+)		Below Poverty	
Metropolitan Area	%	Rank	%	Rank	%	Rank	%	Rank	%	Rank	%	Rank	%	Rank
Anaheim-Santa Ana, CA AHS Area	13.71%	15	11.46%	17	16.80%	7	25.98%	1	16.48%	8	13.64%	11	18.12%	12
Atlanta-Sandy Springs-Marietta, GA AHS Area	13.83%	14	13.03%	12	15.41%	20	14.28%	21	14.15%	16	13.79%	10	17.03%	18
Birmingham-Hoover, AL AHS Area	15.18%	8	13.62%	11	19.58%	1	20.98%	7	22.13%	2	9.63%	24	22.56%	4
Buffalo-Niagara Falls, NY AHS Area	15.52%	5	16.16%	4	14.25%	24	11.86%	26	13.25%	19	15.40%	5	22.87%	3
Charlotte-Gastonia-Concord, NC-SC AHS Area	11.44%	27	11.60%	16	11.20%	29	12.73%	24	8.50%	26	11.14%	19	17.91%	13
Cincinnati-Middletown, OH-KY-IN AHS Area	18.56%	1	19.45%	1	16.64%	8	23.06%	5	23.66%	1	16.18%	3	19.87%	6
Cleveland-Elyria-Mentor, OH AHS Area	16.14%	3	16.39%	3	15.59%	17	16.42%	15	13.03%	20	12.33%	14	14.63%	21
Columbus, OH AHS Area	14.97%	9	14.33%	9	15.97%	12	23.75%	4	8.42%	27	18.46%	1	28.60%	1
Dallas-Plano-Irving, TX AHS Area	11.79%	24	10.38%	23	14.04%	26	14.77%	18	12.16%	22	13.08%	12	15.90%	20
Denver, CO AHS Area	12.48%	21	11.75%	15	13.74%	27	17.00%	13	17.46%	6	8.61%	27	14.11%	23
Fort Worth-Arlington, TX AHS Area	11.28%	28	9.47%	26	14.45%	21	12.32%	25	7.52%	29	11.66%	17	14.46%	22
Indianapolis-Carmel, IN AHS Area	13.89%	13	12.71%	14	16.32%	10	20.63%	9	18.28%	5	14.37%	9	17.81%	14
Kansas City, MO-KS AHS Area	14.64%	12	13.80%	10	16.39%	9	16.61%	14	10.53%	24	15.28%	6	19.63%	7
Los Angeles-Long Beach, CA AHS Area	13.36%	17	10.98%	19	15.49%	19	16.33%	16	14.76%	14	12.03%	15	13.03%	27
Memphis, TN-MS-AR AHS Area	15.31%	6	14.36%	8	17.10%	6	15.64%	17	21.83%	3	18.45%	2	19.46%	8
Milwaukee-Waukesha-West Allis, WI AHS Area	14.86%	11	14.41%	7	15.72%	15	19.76%	10	13.54%	18	15.65%	4	19.18%	10
New Orleans-Metairie-Kenner, LA AHS Area	10.32%	29	8.26%	29	14.33%	23	14.61%	19	8.22%	28	8.28%	29	11.24%	29
Oakland-Fremont-Hayward, CA AHS Area	**13.28%**	**18**	**11.31%**	**18**	**16.16%**	**11**	**14.60%**	**20**	**14.50%**	**15**	**12.87%**	**13**	**13.64%**	**25**
Phoenix-Mesa-Glendale, AZ AHS Area	13.54%	16	10.71%	21	18.82%	3	20.79%	8	10.99%	23	10.89%	20	19.45%	9
Pittsburgh, PA AHS Area	18.37%	2	18.35%	2	18.41%	4	21.45%	6	20.21%	4	14.78%	8	21.69%	5
Portland-Vancouver-Beaverton, OR-WA AHS Area	15.28%	7	13.00%	13	19.46%	2	24.03%	3	15.55%	13	10.48%	22	23.32%	2
Providence, RI AHS Area	14.92%	10	15.76%	6	13.61%	28	19.43%	11	15.80%	12	11.33%	18	17.39%	17
Riverside-San Bernadino-Ontario, CA AHS Area	11.75%	25	9.57%	25	15.59%	18	10.77%	27	12.38%	21	10.75%	21	17.54%	16
Sacramento--Arden-Arcade--Roseville, CA AHS Area	13.12%	20	9.76%	24	17.48%	5	17.13%	12	15.87%	11	12.02%	16	16.74%	19
San Diego-Carlsbad-San Marcos AHS Area	13.18%	19	10.90%	20	15.80%	13	13.59%	22	16.52%	7	9.40%	25	13.64%	26
San Francisco-San Mateo-Redwood City, CA AHS Area	11.54%	26	8.42%	28	14.38%	22	8.63%	28	13.69%	17	10.14%	23	11.76%	28
San Jose-Sunnyvale-Santa Clara, CA AHS Area	12.10%	22	9.41%	27	15.64%	16	7.56%	29	15.97%	10	8.37%	28	14.09%	24
St. Louis, MO-IL AHS Area	15.83%	4	15.86%	5	15.77%	14	24.09%	2	16.30%	9	15.06%	7	18.34%	11
Virginia Beach-Norfolk-Newport News, VA-NC AHS Area	11.82%	23	10.40%	22	14.24%	25	13.11%	23	9.96%	25	8.91%	26	17.75%	15

Housing Units and Households with No Working Carbon Monoxide Detector

	By Tenure						By Household Type							
	Occupied Units		Owner Occupied Units		Renter Occupied Units		Black		Hispanic		Elderly (65+)		Below Poverty	
Metropolitan Area	%	Rank	%	Rank	%	Rank	%	Rank	%	Rank	%	Rank	%	Rank
Anaheim-Santa Ana, CA AHS Area	72.35%	3	67.02%	4	79.64%	4	74.02%	2	82.13%	2	76.95%	2	76.38%	7
Atlanta-Sandy Springs-Marietta, GA AHS Area	61.73%	13	57.92%	11	69.28%	15	63.88%	15	74.75%	8	59.13%	17	68.81%	17
Birmingham-Hoover, AL AHS Area	69.94%	5	64.46%	7	85.31%	2	76.40%	1	58.20%	22	76.70%	3	77.91%	6
Buffalo-Niagara Falls, NY AHS Area	18.97%	29	14.01%	29	28.69%	29	27.43%	29	33.11%	28	19.06%	29	33.16%	29
Charlotte-Gastonia-Concord, NC-SC AHS Area	41.99%	26	36.85%	25	51.55%	25	38.33%	25	61.00%	21	47.82%	23	55.57%	23
Cincinnati-Middletown, OH-KY-IN AHS Area	56.27%	19	48.12%	19	74.01%	9	57.02%	20	49.11%	25	59.18%	16	71.37%	14
Cleveland-Elyria-Mentor, OH AHS Area	43.71%	24	35.14%	26	62.60%	21	49.61%	22	50.71%	23	42.49%	27	51.46%	26
Columbus, OH AHS Area	51.80%	21	39.19%	23	71.48%	11	69.59%	9	75.79%	7	48.86%	22	74.01%	10
Dallas-Plano-Irving, TX AHS Area	68.83%	6	61.47%	8	80.60%	3	73.56%	3	79.97%	4	60.75%	12	81.70%	2
Denver, CO AHS Area	36.50%	27	32.04%	27	44.18%	27	37.11%	26	50.69%	24	42.76%	25	52.27%	25
Fort Worth-Arlington, TX AHS Area	70.01%	4	67.05%	3	75.20%	7	72.94%	5	73.42%	10	69.34%	6	78.83%	5
Indianapolis-Carmel, IN AHS Area	58.08%	17	52.54%	18	69.48%	14	68.16%	11	65.71%	18	54.78%	19	68.42%	18
Kansas City, MO-KS AHS Area	51.98%	20	43.25%	20	69.79%	13	60.34%	18	67.94%	16	54.00%	20	60.45%	22
Los Angeles-Long Beach, CA AHS Area	72.40%	2	67.91%	2	76.39%	6	68.58%	10	80.96%	3	73.24%	4	80.79%	4
Memphis, TN-MS-AR AHS Area	66.77%	9	61.35%	9	76.99%	5	71.64%	8	68.56%	15	66.35%	8	71.28%	15
Milwaukee-Waukesha-West Allis, WI AHS Area	43.98%	23	40.20%	22	50.79%	26	43.82%	23	44.48%	26	47.60%	24	52.67%	24
New Orleans-Metairie-Kenner, LA AHS Area	68.70%	7	65.32%	6	75.11%	8	73.13%	4	77.74%	5	71.61%	5	72.00%	12
Oakland-Fremont-Hayward, CA AHS Area	**59.33%**	**15**	**56.96%**	**12**	**62.81%**	**20**	**64.31%**	**14**	**67.86%**	**17**	**64.13%**	**10**	**64.65%**	**19**
Phoenix-Mesa-Glendale, AZ AHS Area	80.71%	1	77.67%	1	86.36%	1	72.70%	6	87.19%	1	80.31%	1	90.25%	1
Pittsburgh, PA AHS Area	49.10%	22	41.64%	21	67.07%	18	60.43%	17	63.83%	19	51.95%	21	63.77%	20
Portland-Vancouver-Beaverton, OR-WA AHS Area	59.69%	14	58.99%	10	60.93%	23	39.61%	24	69.66%	13	60.05%	14	70.50%	16
Providence, RI AHS Area	28.60%	28	24.67%	28	34.74%	28	31.53%	28	31.85%	29	34.00%	28	36.93%	28
Riverside-San Bernadino-Ontario, CA AHS Area	68.26%	8	65.35%	5	73.41%	10	71.82%	7	73.98%	9	67.56%	7	76.19%	8
Sacramento--Arden-Arcade--Roseville, CA AHS Area	57.97%	18	54.80%	16	62.08%	22	60.63%	16	61.49%	20	57.61%	18	61.67%	21
San Diego-Carlsbad-San Marcos AHS Area	62.40%	11	56.94%	13	68.64%	17	65.88%	13	69.85%	12	60.28%	13	73.22%	11
San Francisco-San Mateo-Redwood City, CA AHS Area	62.91%	10	56.43%	15	68.85%	16	53.55%	21	72.72%	11	65.95%	9	81.24%	3
San Jose-Sunnyvale-Santa Clara, CA AHS Area	59.08%	16	53.65%	17	66.23%	19	58.14%	19	69.13%	14	61.38%	11	75.03%	9
St. Louis, MO-IL AHS Area	42.44%	25	37.41%	24	55.47%	24	35.28%	27	42.96%	27	42.66%	26	50.83%	27
Virginia Beach-Norfolk-Newport News, VA-NC AHS Area	61.89%	12	56.91%	14	70.37%	12	67.84%	12	77.06%	6	59.85%	15	71.72%	13

Signs of Rodents (Rats, Mice, Other) in Last 12 Months

	By Tenure						By Household Type							
	Occupied Units		Owner Occupied Units		Renter Occupied Units		Black		Hispanic		Elderly (65+)		Below Poverty	
Geography	%	Rank	%	Rank	%	Rank	%	Rank	%	Rank	%	Rank	%	Rank
Anaheim-Santa Ana, CA AHS Area	5.54%	28	6.32%	27	4.46%	28	2.36%	28	7.06%	23	5.90%	25	8.41%	23
Atlanta-Sandy Springs-Marietta, GA AHS Area	5.70%	27	5.64%	28	5.82%	26	4.87%	26	5.43%	26	6.57%	23	6.64%	28
Birmingham-Hoover, AL AHS Area	12.11%	6	11.90%	11	12.69%	3	14.74%	5	18.03%	2	13.68%	5	20.80%	1
Buffalo-Niagara Falls, NY AHS Area	9.09%	19	9.45%	19	8.39%	15	8.17%	23	15.89%	4	6.01%	24	12.58%	9
Charlotte-Gastonia-Concord, NC-SC AHS Area	10.83%	11	13.70%	6	5.49%	27	8.24%	21	11.83%	11	14.24%	3	10.73%	16
Cincinnati-Middletown, OH-KY-IN AHS Area	10.33%	14	10.93%	14	9.04%	11	8.44%	18	8.93%	20	8.45%	15	12.35%	10
Cleveland-Elyria-Mentor, OH AHS Area	11.36%	10	11.54%	13	10.94%	6	10.79%	13	11.81%	12	6.73%	22	8.74%	22
Columbus, OH AHS Area	9.58%	17	10.12%	16	8.73%	13	8.20%	22	2.11%	29	5.76%	26	10.92%	14
Dallas-Plano-Irving, TX AHS Area	7.15%	25	7.87%	24	6.00%	24	9.86%	15	6.75%	24	9.44%	11	8.94%	21
Denver, CO AHS Area	11.73%	9	13.76%	5	8.23%	17	9.87%	14	9.43%	19	9.13%	12	8.98%	20
Fort Worth-Arlington, TX AHS Area	7.06%	26	7.67%	25	5.95%	25	7.08%	24	6.37%	25	8.11%	17	10.15%	19
Indianapolis-Carmel, IN AHS Area	12.58%	5	12.91%	8	11.89%	4	14.69%	6	9.45%	18	10.12%	8	14.33%	5
Kansas City, MO-KS AHS Area	14.99%	1	16.08%	2	12.75%	2	14.47%	7	14.11%	7	14.39%	2	20.31%	3
Los Angeles-Long Beach, CA AHS Area	7.25%	24	7.61%	26	6.94%	22	5.28%	25	11.04%	15	5.45%	27	8.08%	24
Memphis, TN-MS-AR AHS Area	14.09%	3	15.64%	3	11.18%	5	13.43%	8	18.78%	1	19.98%	1	20.49%	2
Milwaukee-Waukesha-West Allis, WI AHS Area	11.79%	8	12.61%	9	10.28%	8	10.93%	12	10.50%	16	10.48%	7	10.67%	17
New Orleans-Metairie-Kenner, LA AHS Area	10.43%	13	8.03%	23	14.90%	1	15.60%	3	4.45%	27	10.01%	9	13.73%	6
Oakland-Fremont-Hayward, CA AHS Area	**8.97%**	**20**	**10.25%**	**15**	**7.10%**	**21**	**8.44%**	**19**	**11.93%**	**10**	**7.11%**	**19**	**8.06%**	**25**
Phoenix-Mesa-Glendale, AZ AHS Area	2.28%	29	2.27%	29	2.30%	29	0.89%	29	4.22%	28	3.16%	29	3.38%	29
Pittsburgh, PA AHS Area	13.54%	4	15.12%	4	9.72%	9	11.61%	11	14.89%	5	8.60%	14	11.92%	12
Portland-Vancouver-Beaverton, OR-WA AHS Area	10.63%	12	11.92%	10	8.30%	16	12.34%	9	11.43%	13	8.19%	16	10.86%	15
Providence, RI AHS Area	14.92%	2	18.74%	1	8.85%	12	15.61%	2	16.30%	3	13.93%	4	13.34%	7
Riverside-San Bernadino-Ontario, CA AHS Area	9.46%	18	9.45%	18	9.47%	10	8.33%	20	8.83%	21	4.67%	28	14.49%	4
Sacramento–Arden-Arcade–Roseville, CA AHS Area	10.18%	15	9.85%	17	10.59%	7	15.32%	4	9.92%	17	8.77%	13	10.49%	18
San Diego-Carlsbad-San Marcos AHS Area	9.75%	16	11.58%	12	7.65%	19	3.48%	27	12.10%	9	9.67%	10	11.97%	11
San Francisco-San Mateo-Redwood City, CA AHS Area	7.87%	23	9.15%	20	6.71%	23	9.39%	16	13.27%	8	6.86%	21	7.93%	26
San Jose-Sunnyvale-Santa Clara, CA AHS Area	8.03%	22	8.62%	22	7.21%	20	20.35%	1	8.73%	22	7.41%	18	6.97%	27
St. Louis, MO-IL AHS Area	11.79%	7	13.04%	7	8.53%	14	12.26%	10	14.81%	6	11.63%	6	13.24%	8
Virginia Beach-Norfolk-Newport News, VA-NC AHS Area	8.49%	21	8.96%	21	7.72%	18	9.14%	17	11.26%	14	7.02%	20	11.54%	13

Signs of Cockroaches in Last 12 Months

	By Tenure						By Household Type							
	Occupied Units		Owner Occupied Units		Renter Occupied Units		Black		Hispanic		Elderly (65+)		Below Poverty	
Geography	%	Rank	%	Rank	%	Rank	%	Rank	%	Rank	%	Rank	%	Rank
Anaheim-Santa Ana, CA AHS Area	9.98%	12	5.03%	12	16.72%	12	9.45%	18	24.17%	9	6.67%	12	20.87%	12
Atlanta-Sandy Springs-Marietta, GA AHS Area	27.20%	3	23.04%	3	35.40%	3	26.44%	5	33.97%	5	19.72%	5	37.79%	1
Birmingham-Hoover, AL AHS Area	29.87%	2	25.13%	2	43.16%	1	37.79%	1	43.44%	1	26.81%	2	37.25%	2
Buffalo-Niagara Falls, NY AHS Area	1.49%	28	0.10%	28	4.22%	27	3.39%	28	12.58%	16	0.28%	29	7.37%	25
Charlotte-Gastonia-Concord, NC-SC AHS Area	17.13%	9	14.23%	8	22.58%	9	19.98%	8	29.76%	6	13.99%	6	23.90%	10
Cincinnati-Middletown, OH-KY-IN AHS Area	6.18%	16	2.29%	17	14.61%	15	16.32%	11	4.91%	26	3.74%	15	13.86%	17
Cleveland-Elyria-Mentor, OH AHS Area	3.00%	24	0.66%	23	8.19%	21	9.25%	19	9.16%	21	1.44%	23	9.71%	23
Columbus, OH AHS Area	3.01%	23	1.22%	21	5.85%	25	11.00%	17	4.21%	27	0.93%	28	8.50%	24
Dallas-Plano-Irving, TX AHS Area	25.00%	5	19.60%	5	33.61%	4	27.89%	4	34.25%	4	22.62%	4	30.11%	5
Denver, CO AHS Area	3.11%	22	0.13%	27	8.25%	20	5.30%	26	11.66%	17	1.22%	25	17.45%	14
Fort Worth-Arlington, TX AHS Area	17.76%	8	14.46%	7	23.57%	8	21.05%	7	22.69%	10	12.50%	7	20.88%	11
Indianapolis-Carmel, IN AHS Area	4.17%	20	2.22%	18	8.18%	22	5.94%	25	8.83%	22	2.29%	20	6.49%	27
Kansas City, MO-KS AHS Area	7.48%	14	3.98%	14	14.62%	14	15.43%	14	12.92%	15	5.13%	13	16.41%	15
Los Angeles-Long Beach, CA AHS Area	17.83%	7	8.32%	11	26.28%	7	18.53%	9	26.90%	8	11.32%	9	29.44%	6
Memphis, TN-MS-AR AHS Area	25.72%	4	22.50%	4	31.74%	5	31.76%	3	36.24%	2	25.81%	3	37.04%	3
Milwaukee-Waukesha-West Allis, WI AHS Area	2.61%	26	0.27%	25	6.83%	24	8.50%	21	7.18%	24	1.92%	21	9.99%	22
New Orleans-Metairie-Kenner, LA AHS Area	35.64%	1	34.91%	1	37.02%	2	32.63%	2	34.59%	3	33.30%	1	31.57%	4
Oakland-Fremont-Hayward, CA AHS Area	**3.38%**	**21**	**2.04%**	**19**	**5.34%**	**26**	**6.27%**	**24**	**5.77%**	**25**	**1.62%**	**22**	**7.33%**	**26**
Phoenix-Mesa-Glendale, AZ AHS Area	20.34%	6	16.34%	6	27.77%	6	25.00%	6	28.55%	7	11.72%	8	28.84%	7
Pittsburgh, PA AHS Area	1.59%	27	0.71%	22	3.71%	28	4.38%	27	0.00%	29	1.37%	24	4.15%	28
Portland-Vancouver-Beaverton, OR-WA AHS Area	0.86%	29	0.05%	29	2.36%	29	1.95%	29	1.22%	28	1.14%	27	1.81%	29
Providence, RI AHS Area	2.87%	25	0.25%	26	6.98%	23	13.06%	16	7.65%	23	1.19%	26	10.38%	20
Riverside-San Bernadino-Ontario, CA AHS Area	12.68%	11	8.55%	10	19.97%	11	16.01%	12	17.60%	11	9.15%	11	27.00%	8
Sacramento--Arden-Arcade--Roseville, CA AHS Area	4.86%	17	1.33%	20	9.44%	17	8.90%	20	10.66%	20	3.07%	18	14.14%	16
San Diego-Carlsbad-San Marcos AHS Area	8.74%	13	3.02%	16	15.27%	13	15.64%	13	14.49%	14	3.85%	14	17.61%	13
San Francisco-San Mateo-Redwood City, CA AHS Area	4.60%	19	0.52%	24	8.30%	19	8.38%	22	10.83%	18	2.86%	19	13.08%	18
San Jose-Sunnyvale-Santa Clara, CA AHS Area	7.39%	15	4.54%	13	11.14%	16	13.37%	15	15.05%	13	3.14%	17	12.13%	19
St. Louis, MO-IL AHS Area	4.85%	18	3.46%	15	8.46%	18	7.01%	23	10.74%	19	3.38%	16	10.00%	21
Virginia Beach-Norfolk-Newport News, VA-NC AHS Are	14.31%	10	10.55%	9	20.71%	10	18.33%	10	15.58%	12	11.25%	10	26.70%	9

Broken Plaster or Peeling Paint (Interior)

	By Tenure						By Household Type							
	Occupied Units		Owner Occupied Units		Renter Occupied Units		Black		Hispanic		Elderly (65+)		Below Poverty	
Geography	%	Rank	%	Rank	%	Rank	%	Rank	%	Rank	%	Rank	%	Rank
Anaheim-Santa Ana, CA AHS Area	1.51%	22	0.93%	24	2.31%	18	0.79%	27	3.00%	6	0.15%	28	3.56%	13
Atlanta-Sandy Springs-Marietta, GA AHS Area	1.30%	26	0.80%	26	2.30%	21	2.11%	18	2.37%	9	1.02%	13	2.95%	17
Birmingham-Hoover, AL AHS Area	2.22%	8	1.58%	8	3.99%	5	4.70%	4	3.28%	4	1.75%	6	5.29%	5
Buffalo-Niagara Falls, NY AHS Area	3.66%	2	3.08%	2	4.73%	3	3.54%	10	0.66%	26	2.07%	4	7.75%	1
Charlotte-Gastonia-Concord, NC-SC AHS Area	1.62%	18	1.04%	23	2.70%	14	1.62%	21	2.96%	8	0.50%	23	1.01%	29
Cincinnati-Middletown, OH-KY-IN AHS Area	2.49%	7	1.77%	5	4.05%	4	4.74%	3	0.00%	29	1.15%	11	4.84%	9
Cleveland-Elyria-Mentor, OH AHS Area	1.74%	14	1.49%	9	2.31%	19	3.73%	9	0.81%	24	0.48%	24	2.07%	22
Columbus, OH AHS Area	1.87%	12	1.27%	16	2.81%	13	3.28%	11	2.11%	12	0.42%	26	4.35%	11
Dallas-Plano-Irving, TX AHS Area	1.90%	10	1.60%	7	2.37%	17	2.21%	17	2.96%	7	2.63%	2	5.48%	4
Denver, CO AHS Area	1.67%	16	1.20%	18	2.47%	15	0.55%	29	1.27%	19	0.87%	17	1.37%	27
Fort Worth-Arlington, TX AHS Area	1.28%	27	0.81%	25	2.10%	22	1.07%	25	1.40%	18	0.59%	22	1.63%	24
Indianapolis-Carmel, IN AHS Area	1.88%	11	1.41%	11	2.85%	12	4.37%	5	0.21%	28	0.73%	18	4.48%	10
Kansas City, MO-KS AHS Area	1.76%	13	1.11%	21	3.10%	11	3.97%	8	0.72%	25	0.31%	27	3.91%	12
Los Angeles-Long Beach, CA AHS Area	2.67%	5	1.94%	4	3.32%	9	2.57%	14	3.02%	5	1.47%	9	2.80%	18
Memphis, TN-MS-AR AHS Area	3.25%	3	2.90%	3	3.95%	7	4.28%	6	0.87%	23	2.39%	3	6.45%	2
Milwaukee-Waukesha-West Allis, WI AHS Area	2.09%	9	1.28%	15	3.55%	8	2.87%	13	6.35%	1	1.34%	10	2.95%	16
New Orleans-Metairie-Kenner, LA AHS Area	1.51%	21	1.48%	10	1.63%	27	1.51%	23	0.34%	27	1.06%	12	2.05%	23
Oakland-Fremont-Hayward, CA AHS Area	**1.66%**	**17**	**1.23%**	**17**	**2.30%**	**20**	**4.22%**	**7**	**1.15%**	**20**	**1.67%**	**7**	**5.04%**	**7**
Phoenix-Mesa-Glendale, AZ AHS Area	1.22%	28	0.75%	27	2.10%	23	2.04%	19	2.32%	10	0.12%	29	3.38%	14
Pittsburgh, PA AHS Area	3.96%	1	3.29%	1	5.60%	1	8.29%	1	1.60%	15	2.89%	1	5.62%	3
Portland-Vancouver-Beaverton, OR-WA AHS Area	1.70%	15	1.32%	13	2.40%	16	1.30%	24	0.91%	22	0.97%	15	3.09%	15
Providence, RI AHS Area	1.59%	19	0.63%	29	3.14%	10	1.59%	22	3.70%	2	0.59%	21	1.62%	25
Riverside-San Bernadino-Ontario, CA AHS Area	1.46%	23	1.34%	12	1.68%	26	2.34%	16	1.97%	14	1.00%	14	2.68%	20
Sacramento--Arden-Arcade--Roseville, CA AHS Area	0.74%	29	0.63%	28	0.88%	29	0.99%	26	1.57%	16	0.44%	25	1.04%	28
San Diego-Carlsbad-San Marcos AHS Area	1.56%	20	1.18%	19	2.00%	24	0.63%	28	2.08%	13	1.93%	5	1.55%	26
San Francisco-San Mateo-Redwood City, CA AHS Area	2.58%	6	1.05%	22	3.98%	6	5.08%	2	0.96%	21	0.66%	19	5.02%	8
San Jose-Sunnyvale-Santa Clara, CA AHS Area	1.43%	24	1.30%	14	1.60%	28	1.74%	20	3.62%	3	0.61%	20	2.65%	21
St. Louis, MO-IL AHS Area	1.38%	25	1.18%	20	1.90%	25	2.43%	15	1.48%	17	0.87%	16	2.69%	19
Virginia Beach-Norfolk-Newport News, VA-NC AHS Area	2.93%	4	1.71%	6	5.02%	2	3.05%	12	2.16%	11	1.66%	8	5.05%	6

Heating Problems: Uncomfortably Cold for 24 Hours or More

	By Tenure						By Household Type							
	Occupied Units		Owner Occupied Units		Renter Occupied Units		Black		Hispanic		Elderly (65+)		Below Poverty	
Geography	%	Rank	%	Rank	%	Rank	%	Rank	%	Rank	%	Rank	%	Rank
Anaheim-Santa Ana, CA AHS Area	3.53%	28	2.43%	29	5.04%	28	2.36%	28	6.72%	24	3.36%	23	4.37%	29
Atlanta-Sandy Springs-Marietta, GA AHS Area	7.92%	16	6.83%	15	10.07%	11	11.24%	13	8.80%	19	3.81%	22	12.39%	8
Birmingham-Hoover, AL AHS Area	8.18%	13	8.86%	7	6.26%	26	9.04%	16	11.48%	8	6.46%	10	15.98%	3
Buffalo-Niagara Falls, NY AHS Area	6.77%	22	5.56%	21	9.14%	14	8.63%	18	4.64%	27	2.91%	25	13.60%	7
Charlotte-Gastonia-Concord, NC-SC AHS Area	5.98%	24	5.80%	20	6.31%	25	5.49%	27	7.02%	23	7.54%	7	8.78%	22
Cincinnati-Middletown, OH-KY-IN AHS Area	8.99%	11	9.09%	6	8.77%	16	16.60%	1	11.61%	7	6.04%	11	11.44%	12
Cleveland-Elyria-Mentor, OH AHS Area	9.32%	8	8.72%	9	10.61%	10	15.06%	5	11.81%	6	8.53%	6	11.20%	13
Columbus, OH AHS Area	11.02%	1	11.24%	1	10.64%	8	11.39%	12	9.47%	18	10.08%	2	12.37%	9
Dallas-Plano-Irving, TX AHS Area	9.47%	6	8.75%	8	10.63%	9	8.69%	17	10.70%	11	5.59%	12	11.73%	11
Denver, CO AHS Area	9.18%	10	6.34%	18	14.07%	1	13.89%	9	13.35%	4	5.06%	16	16.85%	2
Fort Worth-Arlington, TX AHS Area	8.05%	15	7.98%	12	8.15%	19	7.66%	21	5.86%	25	7.26%	8	6.70%	27
Indianapolis-Carmel, IN AHS Area	8.11%	14	8.36%	11	7.59%	23	14.13%	8	9.65%	16	4.00%	21	9.85%	17
Kansas City, MO-KS AHS Area	6.88%	21	6.74%	16	7.16%	24	7.61%	22	7.42%	21	4.34%	19	7.91%	24
Los Angeles-Long Beach, CA AHS Area	8.76%	12	7.86%	13	9.58%	13	9.82%	15	10.48%	13	6.64%	9	9.72%	19
Memphis, TN-MS-AR AHS Area	10.11%	4	9.70%	4	10.88%	7	14.66%	6	10.92%	9	9.27%	4	11.13%	14
Milwaukee-Waukesha-West Allis, WI AHS Area	7.42%	17	5.26%	24	11.41%	4	14.13%	7	18.23%	1	5.18%	15	14.53%	4
New Orleans-Metairie-Kenner, LA AHS Area	6.31%	23	5.26%	23	8.23%	18	8.58%	19	4.11%	28	4.91%	17	10.70%	16
Oakland-Fremont-Hayward, CA AHS Area	**10.74%**	**2**	**10.50%**	**2**	**11.09%**	**5**	**15.39%**	**4**	**10.39%**	**15**	**9.27%**	**5**	**14.47%**	**5**
Phoenix-Mesa-Glendale, AZ AHS Area	3.27%	29	2.87%	28	4.04%	29	1.91%	29	5.51%	26	1.58%	29	5.07%	28
Pittsburgh, PA AHS Area	10.65%	3	9.76%	3	12.77%	2	16.00%	2	13.30%	5	10.08%	1	12.31%	10
Portland-Vancouver-Beaverton, OR-WA AHS Area	10.01%	5	9.46%	5	10.99%	6	5.84%	25	10.67%	12	9.39%	3	20.02%	1
Providence, RI AHS Area	6.93%	19	5.56%	22	9.09%	15	8.28%	20	14.57%	3	2.37%	27	10.92%	15
Riverside-San Bernadino-Ontario, CA AHS Area	6.89%	20	5.91%	19	8.63%	17	5.99%	23	8.28%	20	5.31%	14	9.51%	20
Sacramento--Arden-Arcade--Roseville, CA AHS Area	7.32%	18	6.71%	17	8.12%	20	12.03%	11	9.59%	17	4.26%	20	8.76%	23
San Diego-Carlsbad-San Marcos AHS Area	5.87%	25	4.31%	26	7.64%	22	5.53%	26	7.40%	22	2.19%	28	9.80%	18
San Francisco-San Mateo-Redwood City, CA AHS Area	9.23%	9	8.57%	10	9.84%	12	13.45%	10	10.40%	14	5.37%	13	9.11%	21
San Jose-Sunnyvale-Santa Clara, CA AHS Area	9.42%	7	7.44%	14	12.07%	3	15.70%	3	15.90%	2	4.45%	18	13.81%	6
St. Louis, MO-IL AHS Area	5.48%	27	5.23%	25	6.15%	27	9.83%	14	4.07%	29	3.31%	24	7.66%	25
Virginia Beach-Norfolk-Newport News, VA-NC AHS Area	5.57%	26	4.15%	27	7.98%	21	5.94%	24	10.82%	10	2.49%	26	7.36%	26

Appendix 2: Word Frequency Counts for Occupied Blight Complaints in Oakland, 2003 to July 2013

Descriptive Terms

TERM(S)	FREQUENCY
LEAKING; LEAKS; LEAK; LEAKAGE	1,416
DAMAGED; DAMAGE	1,022
VACANT	905
UNAPPROVED	749
ACCUMULATION	740
ABANDONED	682
BLIGHTED; BLIGHT	652
ILLEGAL	551
UNSECURED; UNSECURE	344
PEELING	325
DILAPIDATED	293
HAZARD; HAZARDOUS	246
INFESTATION; INFESTED	220
OVERFLOWING	198
ROTTED; ROT; ROTTING; ROTTEN	159
ENCROACHING; ENCROACHMENT	155
CRACKS; CRACKED	129
UNREGISTERED	100
UNSAFE	85
FLOODING; FLOODED	73
SUBSTANDARD	61
INADEQUATE	58
FAULTY	58
UNSTABLE	53
DEFECTIVE	37
DRYROT	24
SPILLING	22

Sensory Nuisance/Physical Hazard

TERM(S)	FREQUENCY
FECES	168
ODOR	99
OIL	94
NOISE	74
SMELL	60
DRUG	49
SMELLS	32
URINE	23
STENCH	20

Fire

TERM(S)	FREQUENCY
FIRE	502
BURNED	36

Mold

TERM(S)	FREQUENCY
MOLD	623
MILDEW	250

People

TERM(S)	FREQUENCY
HOMELESS	60
SQUATTERS	48
VAGRANTS	23

Garbage/Blight Related

TERM(S)	FREQUENCY
TRASH	11,028
DEBRIS	9,364
GARBAGE	1,979
JUNK	423
GRAFFITI	344
WASTE	156
RUBBISH	82
DUMPING	75
LITTER	51

Vegetation

TERM(S)	FREQUENCY
OVERGROWN; OVERGROWTH	8,691
VEGETATION	5,777
WEEDS	1,422

Vehicles

TERM(S)	FREQUENCY
VEHICLE; VEHICLES	2,498
CARS; CAR	1,072
TRUCK; TRUCKS	200
TRAILER	173
CAMPER	92
VAN	54

Furniture

TERM(S)	FREQUENCY
FURNITURE; FURNITURES	835
MATTRESS; MATTRESSES	410
COUCH; COUCHES	108
SOFA	88
CHAIRS; CHAIR	48
BED	42

Vectors

TERM(S)	FREQUENCY
RATS; RAT	187
RODENT; RODENTS	150
ROACH; ROACHES	142
VECTOR	94
MICE	65
INSECT; INSECTS	58
BUGS	20

Animals

TERM(S)	FREQUENCY
DOG; DOGS	169
CHICKENS; CHICKEN	86
ROOSTERS; ROOSTER	80
CAT	21

Locational/Room

TERM(S)	FREQUENCY
DRIVEWAY	1,240
GARAGE	1,224
FENCE	1,117
SIDEWALK	901
BATHROOM; BATHRM	623
LAWN	579
KITCHEN	561
EXTERIOR	364
PORCH	354
BASEMENT	332
DECK	241
BEDROOM; BEDROOMS	230
PATIO	78
BALCONY	64
LIVINGROOM	23

Appliances

TERM(S)	FREQUENCY
APPLIANCES; APPLIANCE	402
STOVE	176
REFRIGERATOR	161
LAUNDRY	111
DRYER	40
WASHER	39

Utility Related

TERM(S)	FREQUENCY
HEATER; HEAT; HEATING; HEATERS	1,204
ELECTRICAL; ELECTRICITY; POWER; ELECTRIC	860
SEWER	231
WIRING; WIRES	194
SEWAGE	173
GAS	164
FURNACE	75
PGE	35

Specific Housing Items

TERM(S)	FREQUENCY
WINDOWS; WINDOW	1,567
WALL; WALLS	891
DOOR; DOORS	680
PLUMBING	602
ROOF; ROOFING	574
CEILING	550
STAIRS; STAIR; STAIRWAY	525
PAINT	522
FLOOR; FLOORING	335
TOILET; TOILETS	319
SINK	289
CARPET; CARPETS	208
FOUNDATION	117
SHOWER	113
LIGHTS; LIGHTING	96
BATH	94
CABINETS; CABINET	87
CLOSET	61
BATHTUB	54
STEPS	48
RAILING	43
HALLWAY	42
ELEVATOR	41
FAUCET	39
GUTTER	33
INSULATION	26
ATTIC	26
SHEETROCK	26
TILES	26
HANDRAIL	25
CHIMNEY	24
VENTILATION	24
GUTTERS	23
EXHAUST	23