

A stylized illustration of a row of houses and storefronts along a street. The buildings are rendered in a graphic style with teal roofs and facades, orange windows, and orange awnings over the storefronts. The street is depicted with a textured orange surface.

Housing Needs Assessment

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Presented to
The City of Pittsburgh
Affordable Housing Task Force

Project Consulting Team



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Introduction

Introduction

Housing has always been a major component of both American culture and public policy. However, the cost of housing has become a notably more prominent part of national discourse, and increasingly represented in the news media, since the Great Recession.¹ As the overall economy has slowly recovered and the millennial generation has begun to influence labor markets, transportation, urbanization, and more, housing patterns and preferences have continued to evolve.

Affordable housing has become a particularly important topic in Pittsburgh recently. Often lauded as a “livable” city, the cost of living in Pittsburgh has remained lower than many other similarly sized cities in the country. At the same time, Pittsburgh’s economy has diversified from its industrial past, fostering significant local job growth in the health care, education, and advanced technology sectors. The city is frequently portrayed as a Rust Belt success story.

That combination of livability and celebrity can be a double-edged sword, however, as investors’ and developers’ attentions are drawn to the potential high returns in the Pittsburgh market. As redevelopment and new market-rate housing construction occur, certain neighborhoods may be pushed beyond the reach of current residents. The city’s naturally occurring affordable housing stock, which has been the key component of Pittsburgh’s “livability,” may be at risk.

To influence housing affordability in Pittsburgh more directly, the Mayor and City Council formed the Affordable Housing Task Force, comprised of elected officials, city staff, county and state agencies, housing developers, and housing advocates, in June of 2015. The Task Force’s mission is to:

Assess the current and projected future landscape of housing affordability in the City of Pittsburgh, evaluate current programs and initiatives to produce new affordable units and preserve existing ones, and make recommendations to the Mayor and City Council to create new programs and initiatives and/or expand existing ones to promote mixed-income development in neighborhoods across the city and ensure a vibrant mix of housing options for people of all income levels.

1. The “Great Recession” or “housing market crisis” is defined as the 18 months of economic decline spanning December 2007 through June 2009.

Methodology

The analysis answers six primary research questions:

- » How well is supply meeting demand for various income levels and household sizes?
- » Where are the locations of “naturally affordable” low-cost housing?
- » What is the inventory of all subsidized housing that is at risk for loss?
- » Residents of which neighborhoods will be at risk for displacement due to rising housing costs?
- » What income groups will be served by new market-rate development?
- » How many residents live in housing that is unaffordable?

The analysis within the Housing Needs Assessment often uses the city’s median household income (MHI) as a benchmark for housing affordability. This approach articulates what a “typical” Pittsburgh household could afford. The citywide MHI in 2014 was \$40,009.

Obviously, those who earn less than the MHI usually have a harder time affording housing costs. Many federal, state, and local programs designed to provide housing assistance target households earning a certain percentage of MHI, such as 30% (which for Pittsburgh was \$12,003), 50%, or 80%. Analyses for these lower income groups were included wherever possible and practical.

In addition to relying on citywide data, the Housing Needs Assessment uses data at the neighborhood level. For technical reasons, some of the city’s official neighborhoods were combined into larger groups. In total, there are 77 neighborhoods referenced in this report.

The individual sources and characteristics of the datasets used are discussed in each chapter.

This Housing Needs Assessment is intended to fulfill one of the Task Force's goals of reporting "findings regarding the existing landscape of affordable housing options" in the city.

The legislation initiating the Task Force made certain claims about affordable housing in the city, including:

- » There is a severe shortage of both rental and for-sale housing that is affordable and available to very-low income (50% of the area median income) and extremely low-income (30% of the area median income) households.
- » The shortage of decent, safe, sanitary, and affordable housing is causing tens of thousands of very-low income and extremely low-income households to pay over half of their income for housing costs. The severe cost burden faced by these households makes them vulnerable to health hazards, eviction/foreclosure, and homelessness.
- » Much of Pittsburgh's existing affordable housing stock is both concentrated and often isolated in high-poverty/low-opportunity areas which have poor access to jobs, public transportation, and educational opportunities inadvertently perpetuating cycles of poverty.

The Housing Needs Assessment explores these ideas, and many others that affect affordable housing throughout the city, in detail.

About the Data

The data used in this report comes from several sources. The most heavily used sources are the American Community Survey (ACS) and Public Use Microsample (PUMS), which are both products of the US Census Bureau. This information comes from surveys, in which households self-report information on their social, economic, and housing conditions.

Due to the self-reported nature of census data and the potential for misunderstanding of the survey questions, it is possible that some survey respondents did not provide entirely accurate responses. For example, a respondent using a Section 8 Housing Choice Voucher may report their rent paid with or without the use of their voucher, depending on how they interpret the survey question. This may also impact the results of the Gaps Analysis presented in this report.

Despite these limitations, the US Census Bureau remains the most accurate and reliable data source available for most subjects covered in this analysis.

A Summary of Housing Need

Demographics & Housing Supply

Pittsburgh's population is changing, and housing needs are changing as well. Overall population growth is stable, but change varies widely by neighborhood. Much of the city continues to lose population. Largely as a result of Pittsburgh's long standing population decline, the city has also lost many of its housing units. Despite this, Pittsburgh's overall vacancy rate has still increased.

The demographics and preferences of Pittsburghers have also been changing. Pittsburgh is becoming more racially and ethnically diverse, as the city's Hispanic, Asian, and multiracial communities continue to grow. Pittsburgh is also getting younger. These younger households are more likely to rent, and their incomes tend to be lower than the overall population's.

Following national trends, renting in Pittsburgh is becoming more prominent. Most renters live in multi-family units, while most homeowners live in single-family units. While most homes in the city are single-family homes, preferences may be changing. Multi-family construction in Pittsburgh rebounded from the housing market crisis at a faster rate than single-family construction.

There are stark economic differences between homeowners and renters, and the two groups have very different needs. Renters earn less than homeowners, and real incomes for renters have not increased since 2000. Despite stagnant incomes, rents in Pittsburgh have steadily risen over time. This means that renter households have to spend more on rent, but have less real income to spend on other things.

Defining Affordability

Like much of Pennsylvania, Pittsburgh's housing stock tends to be older and less expensive than housing in the rest of the country. Home values have appreciated overall, but most homes are still worth less than \$100,000. Because rehabilitation costs of many older units would exceed the value of the house itself, housing quality is a significant concern. This is particularly true in Pittsburgh's weaker housing markets, where home values are particularly low.

Housing affordability varies by neighborhood, as well as by tenure. The East End neighborhoods between East Liberty and Oakland have a significant stock of affordable rental housing. The Hilltop neighborhoods, Beechview, and Brookline, as well as a few others like Stanton Heights, Greenfield, and Brighton Heights, have relatively high volumes of affordable owner-occupied housing.

Preserving this naturally occurring affordable housing will be critical for meeting future affordable housing demand. Some neighborhoods plainly lack affordable housing stock.

Housing Need

Pittsburgh's supply of affordable housing is currently inadequate to meet demand. About one-third of Pittsburgh residents spend over 30% of their income on housing costs. Spending over 30% of household income on housing, referred to as cost burden, generally means that a household may have difficulty paying for other necessities, such as food, transportation, or health care. Cost burden is more prevalent among renter households, younger households, single-person households, and low-income households.

Pittsburgh is not affordable for everyone. There is a city-wide deficit of 14,896 units that are affordable and available to households earning 30% of the median household income or below. The lack of affordable housing is most severe for those at the lowest income tiers: there are only 34 units of affordable and available housing per 100 extremely low-income households. While the problem is less severe for homeowners, there are still only 46 units of affordable and available housing for every 100 extremely low-income homeowner households.

It is important to note that the affordability of owner-occupied units is calculated based on the home's value, i.e. roughly what a new buyer of that home would pay for it, and not the current homeowner's real world costs. So if, for example, a household retires and experiences a drop in income but is already mortgage-free, their income relative to their home's value may appear unaffordable even if they can afford the ongoing monthly costs. In addition, the "cost" of purchasing a home does not take into account any potential financial benefits, such as a mortgage interest tax deduction.

As a result of the unknowns in the data that are unavoidable, these gap calculations are only approximates. The figures are likely impacted by seniors and other households who have paid off their mortgages, students, and other groups of people whose housing choices do not necessarily correspond to their current incomes. These demographics should be taken into account when evaluating these numbers.

Housing Market Characteristics

Despite significant need for affordable housing—particularly among young renters with low incomes—very few rental units currently being constructed are priced at levels affordable to these demographics. Rather, new rental developments tend to be smaller and much more expensive than existing units. According to a survey conducted for this report, the average rent for a 2-bedroom unit in a newly constructed rental development is \$2,163. The average rent for a 1-bedroom unit is \$1,599. These rents are unaffordable for the majority of Pittsburgh's households.

For the demographic groups most in need of affordable housing, most new rental units are significantly out of reach. Despite high rents, market rate developments have largely been absorbed into the inventory at rates that are at or above developers' expectations. The absorption rate ranges between 11 to 22 units per month.

Speculation and rapid resale are also significant concerns. Large amounts of investor activity can destabilize housing markets and make communities more vulnerable to destabilizing market forces. Corporations and investors pay less for homes than individuals. However, rapidly resold homes (bought by an investor and sold again within a short time period) sell for above-median prices. Rapid resale occurs in a wide cross-section of neighborhoods, in both weak and strong housing markets.

Income-restricted housing can partially alleviate the demand for affordable housing. There are approximately 200 income-restricted housing developments throughout the city, containing 15,809 units. These developments are concentrated in the Hill District, East Liberty, Homewood, Central Northside, and Northview Heights.

Depending on their funding source, income-restricted units may "expire," meaning that their affordability period is at risk of ending. While steps are often taken to ensure that income restrictions stay in place, these units are still at risk of expiring. A total of 1,729 units among 37 separate developments will have their affordability periods end between 2016 and 2020. These at-risk units are in neighborhoods containing very high levels of cost burden already.

Displacement Risk

Every neighborhood in Pittsburgh contains residents who are at risk of being displaced due to rising housing costs. Many residents are also vulnerable to displacement due to their poor economic circumstances. This creates vulnerability even in neighborhoods with stable economic conditions or average housing markets. However, residents in certain neighborhoods are at a higher risk than others.

Not every neighborhood is vulnerable in the same way. For instance, residents in the Hill District tend to be more economically unstable due to high unemployment and high receipt of public assistance (cash payments as defined by the Census Bureau). However, the Hill District has relatively low housing market volatility due to the number of public housing units in the neighborhoods and the effects that come with that type of housing stock – steady rents, lack of owner-occupied units limiting the number of rapid resales, and income restrictions that prevent residents earning above a certain amount from moving in.

In nearby Shadyside and Bloomfield, as other examples, residents are much more economically stable but the housing market is much more volatile because of resident turnover and rising rents.

Some neighborhoods such as Knoxville, Lincoln-Lemmington-Belmar, Upper Hill, Central Northside, and Lower Lawrenceville are vulnerable to multiple factors. These types of neighborhoods might require various types of interventions to defend against involuntary displacement.

Income Benchmarking

Housing assistance programs can use any number of income measurements in their program designs. Common ones include:

- » **Median household income (MHI)**, the median income among all household units in an area. For Pittsburgh in 2014, this number was \$40,009.
- » **Area median income (AMI)**, the median household income for an entire metropolitan statistical area (MSA). The Pittsburgh MSA includes the city proper and the counties of Allegheny, Armstrong, Beaver, Butler, Fayette, Washington, and Westmoreland. For the Pittsburgh MSA in 2014, this number was \$51,883.
- » **Median family income (MFI or HAMFI)**, the income published by HUD for states, counties, and large urban areas that are adjusted for household size. For the Pittsburgh metro area in 2014, this number was \$65,600 per year for a four-person household.

For practitioners, the distinction between these different terms is important as each one is typically a different value and will therefore affect the math governing any funding allocation formula.

For the sake of clarity, error minimization, and because all geographical analyses were done at the relatively small neighborhood scale, the city's MHI was the most appropriate global benchmark of affordability for the Housing Needs Assessment. Keep this in mind when comparing the numbers in this report to any other assessment of housing affordability.

Income Benchmarks, 2014

	MHI	AMI	HAMFI
30%	\$12,003	\$15,565	\$19,680
50%	\$20,005	\$25,942	\$32,800
80%	\$32,007	\$41,506	\$52,480
100%	\$40,009	\$51,883	\$65,600

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Demographics &
Housing Supply

Demographics & Housing Supply

Understanding the social, economic, and demographic characteristics of a population, as well as how those characteristics change over time, is crucial to evaluating current and future housing needs. Analyzing demographic trends can indicate places or people who may not be served by the housing market as it is, and who may need assistance or intervention.

This chapter will explore demographic differences that affect housing need among the population of Pittsburgh. It will provide context to existing conditions, and will pinpoint issues affecting future strategies for broadening the availability of housing opportunities for all residents.

Population & Households

The overall population is stabilizing, but change varies widely by neighborhood

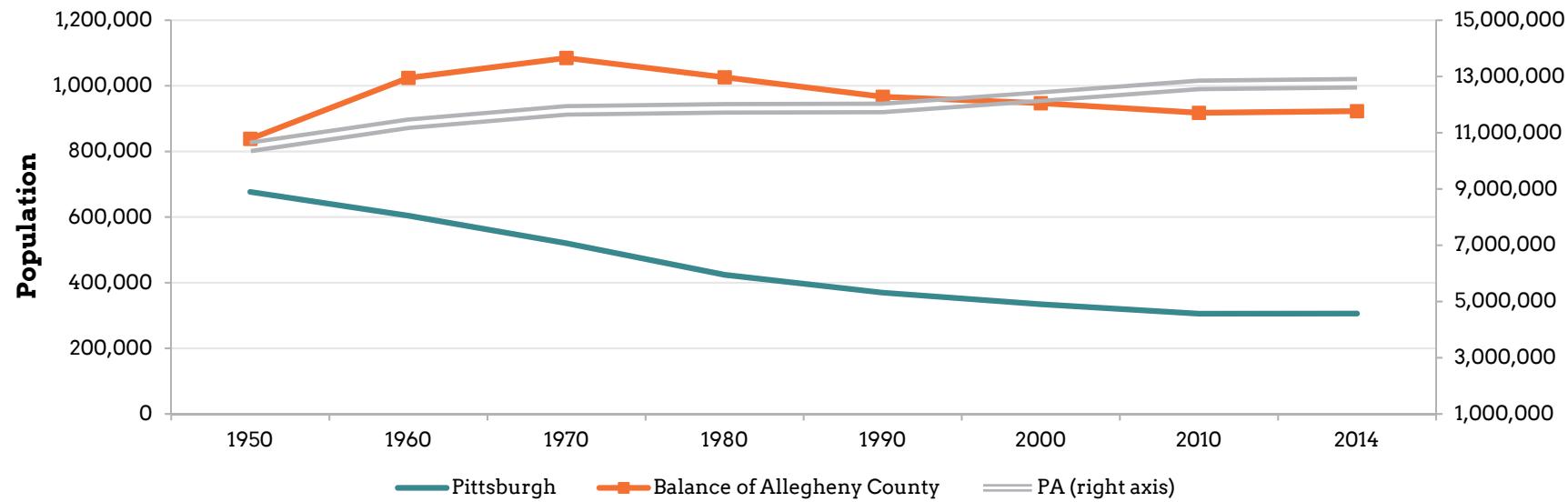
Pittsburgh's population has stabilized recently, following

Methodology

Data for this chapter was drawn primarily from the Census's 2010-2014 American Community Survey. The raw data was downloaded at the census tract level, then converted into city neighborhoods. Many of Pittsburgh's neighborhoods correspond precisely to one tract. Some of the smaller ones share one or more tracts with other neighborhoods; in these instances the neighborhoods were grouped together into a single unit. Some of the larger neighborhoods are comprised of multiple tracts; in these instances, any "median" value reported is actually the average of the medians of all tracts within the neighborhood.

decades of decline. Based on figures from the 5-Year American Community Survey, population growth between 2010 and 2014 marks the first increase in the city's population since at least 1950.

Population Trends, 1950-2014



Despite citywide population decline between 2000 and 2014, one-fifth of individual neighborhoods gained population during the decade. The highest growth rates were in the East End and Strip District. Other centers of significant growth were Bluff (54% increase) and the South Side Flats (19% increase). Population loss occurred throughout the rest of the city regardless of neighborhood size, although neighborhoods with lower household incomes appear to have suffered some of the highest losses.

The population of Pittsburgh is primarily White, but is becoming more racially and ethnically diverse

While the largest racial group in Pittsburgh is still White residents, the racial and ethnic composition of the city is changing. From 2000 to 2014, residents identifying as White, African American, and “some other race” all decreased in terms of both raw totals and the overall share of the city’s overall population. Meanwhile, the city’s population of Hispanics, Asians, and people identifying as two or more races grew.

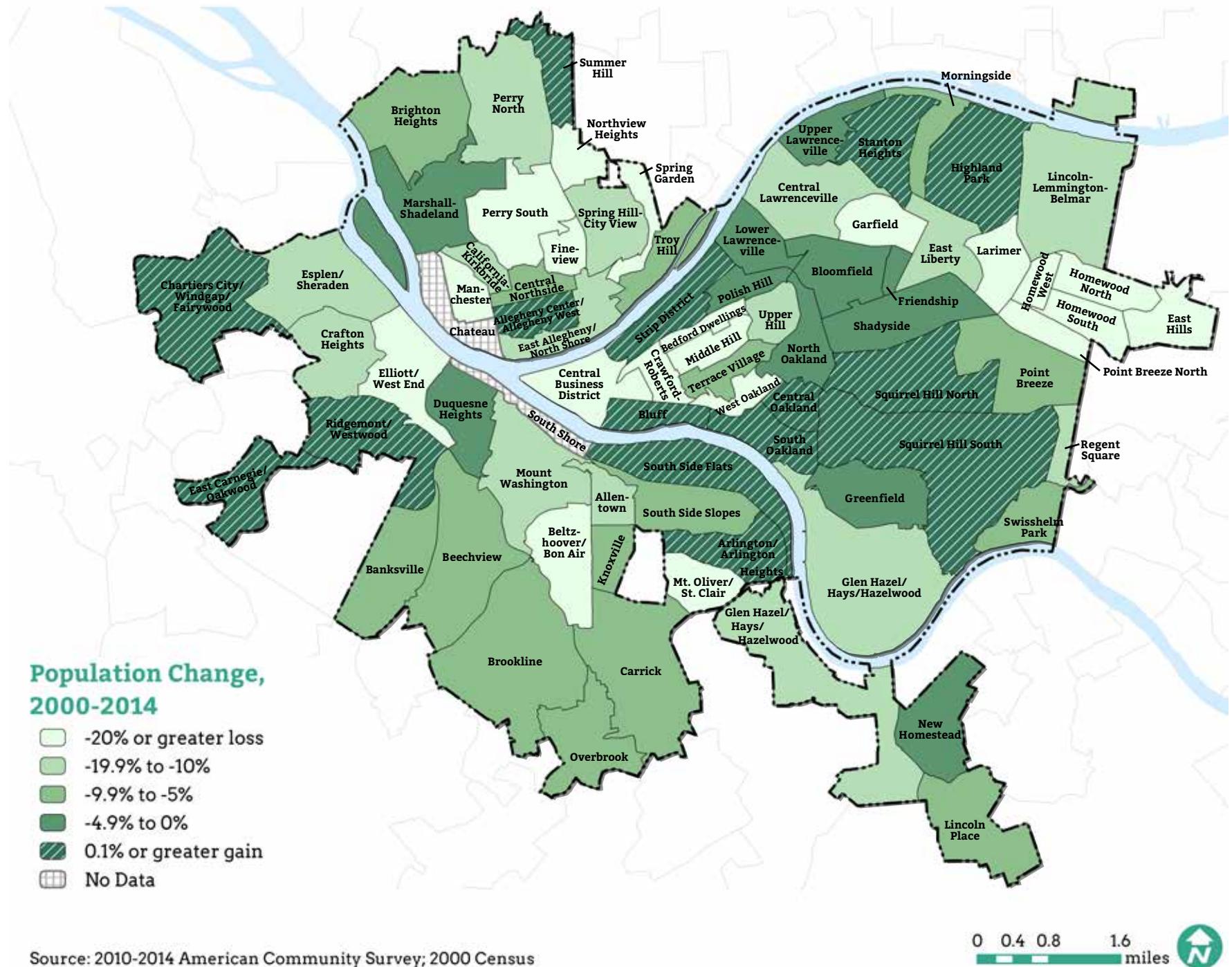
Race and Ethnicity, 2000-2014

	2000		2014		Change
	Population	%	Population	%	
<i>Total Population</i>	334,563	100.0%	306,045	100.0%	-8.5%
White	226,258	67.6%	204,358	66.8%	-9.7%
Black or African American	90,750	27.1%	75,278	24.6%	-17.0%
Asian	9,195	2.7%	14,807	4.8%	61.0%
Some other race	2,218	0.7%	1,583	0.5%	-28.6%
Two or more races	5,403	1.6%	9,386	3.1%	73.7%
Hispanic*	4,425	1.3%	8,128	2.7%	83.7%

*Hispanic ethnicity is counted independently of race

Demographics & Housing Supply

Population Change Between 2000 and 2014



The size of renter households is increasing

As a counter to Pittsburgh's recent population growth, the total number of households in Pittsburgh decreased slightly from 2010 to 2014. When population grows more than the total number of households, it suggests that new residents are more likely a result of births or changes in preferences and lifestyles than new household formation or in-migration to the city. In other words, households have more people in them overall.

Change in Average Household Size, 2000-2014

Average Household Size	2000	2010	2014
All households	2.17	2.11	2.13
Owner occupied	2.37	2.3	2.29
Renter occupied	1.95	1.91	1.98

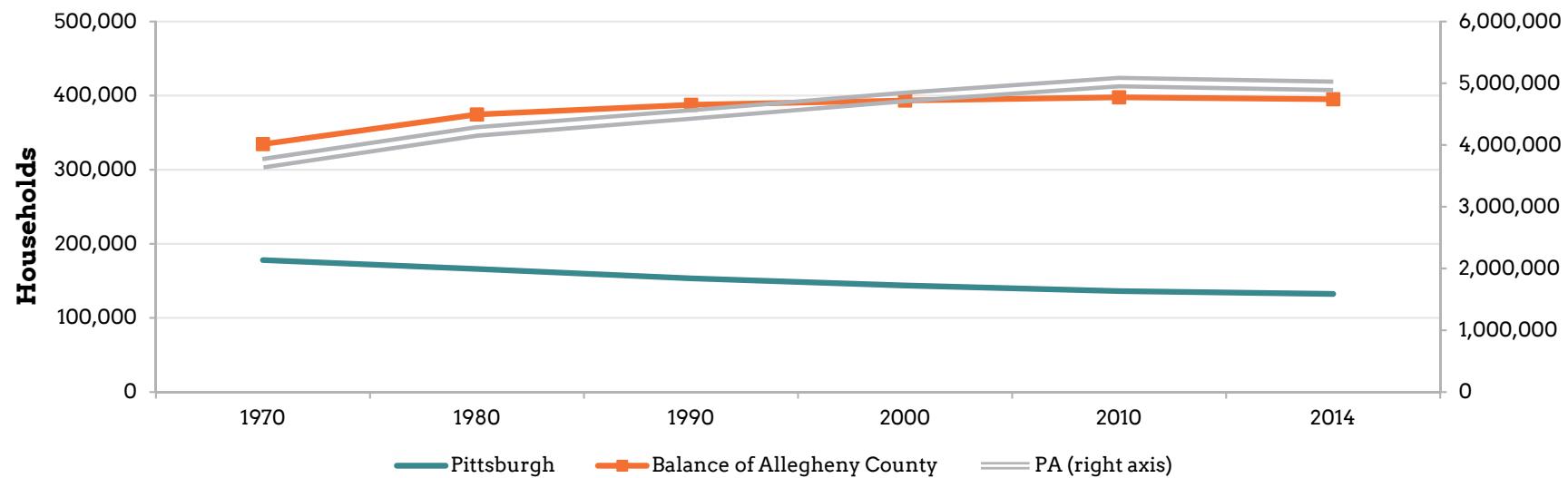
The households that are increasing are disproportionately renters. This may be due partly to changes in lifestyles and consumer preferences, and partly due to the difficulties of affording a home. Expansion in the size of renter households could account for the uptick in population, even as the total number of households and the units they live in continue to shrink.

Over the long term, the average household size in Pittsburgh has fallen from 2.17 persons in 2000 to 2.13 in 2014, reflecting national trends attributed to changing cultural factors (wealth, mobility, the delay of marriage, increased longevity, the creation of more non-traditional family structures, etc.).

This change has been primarily driven by three or more person households, which all shrank at high rates. In total, households with two people or fewer decreased by 2.4%, while households with three or more people decreased by 20.7%. Homeowners still tend to have larger households (an average 2.29 people in 2014) than renters (an average of 1.98), despite the difference in growth trends between them.

Demographics & Housing Supply

Household Trends, 1970-2014



Household Size by Tenure, 2000-2014

	2000			2014			Total Change
	Owner-occupied	Renter-occupied	Total	Owner-occupied	Renter-occupied	Total	
1-person households	22,393	34,169	56,562	21,418	33,186	54,604	-3.46%
2-person households	25,957	18,022	43,979	24,004	19,529	43,533	-1.01%
3-person households	12,078	8,345	20,423	9,154	8,041	17,195	-15.81%
4-person households	8,733	4,674	13,407	6,351	4,368	10,719	-20.05%
5-person households	3,795	2,253	6,048	2,326	1,792	4,118	-31.91%
6-person households	1,298	866	2,164	794	588	1,382	-36.14%
7-or-more person households	673	483	1,156	546	282	828	-28.37%
Total households	74,927	68,812	143,739	64,593	67,786	132,379	-7.90%

Housing Units

The city has lost housing stock...

Between 2000 and 2014, while Pittsburgh lost 7.9% of its households, housing units decreased by 5.2%. This means there was a net increase in the citywide vacancy rate since more households left than units were taken offline. The largest numbers of units were lost in Mt. Oliver/St. Clair, Bluff, Terrace Village, and Larimer. The loss in Terrace Village was in part due to the demolition of the Terrace Village public housing development, which contained 289 units, and is in the process of being redeveloped.

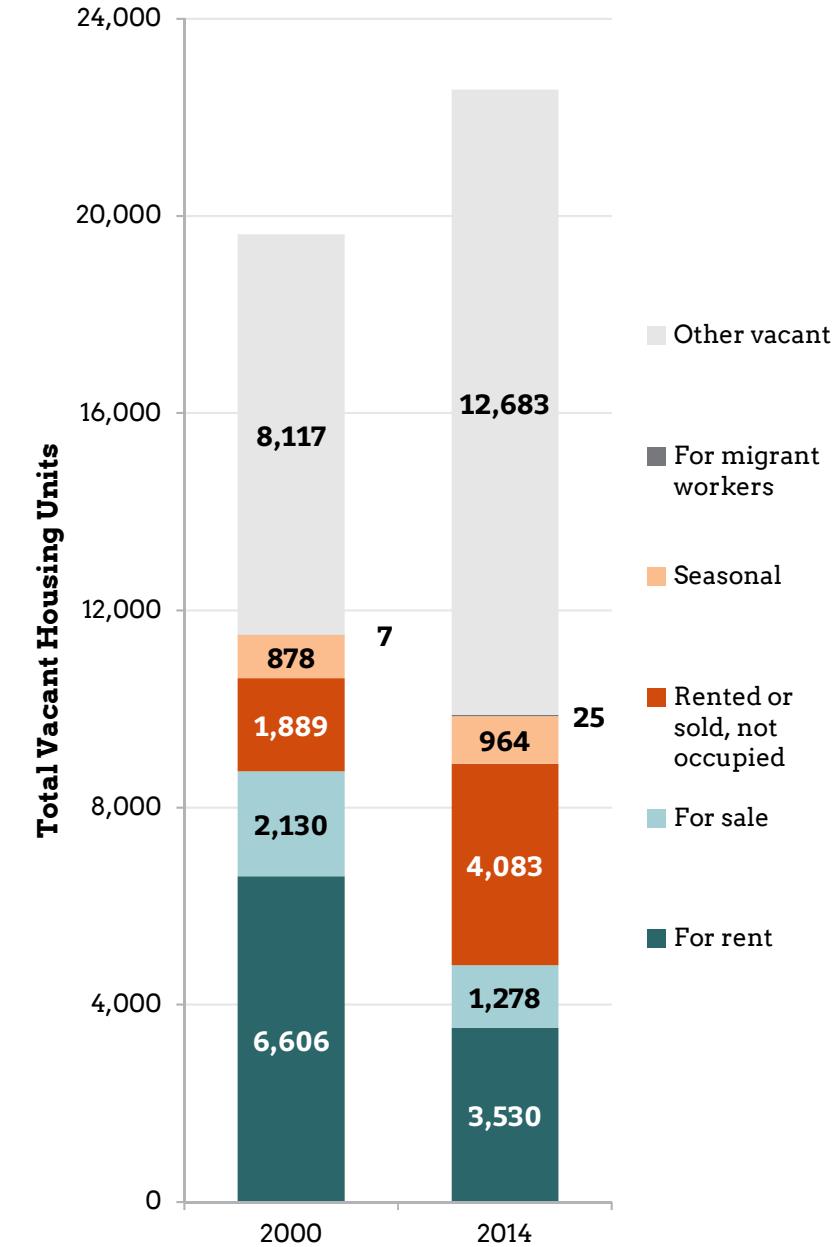
...but the vacancy rate has still increased, particularly in the “Other Vacant” category

The number of vacant units in the city did indeed increase by about 15% between 2000 and 2014, from 19,600 units to 22,600. Not all categories of vacant units increased, however. The number of units actively listed as for sale or for rent went down almost by half. All other types of vacancies increased by varying degrees.

Units described as rented or sold but not yet occupied more than doubled over the past decade; “other vacant” units increased by 56%. Common reasons a housing unit is labeled “other vacant” is that no one lives in the unit and the owner is making repairs or renovations, does not want to rent or sell, is using the unit for storage, or is elderly and living in a nursing home or with family members. Additional reasons are that the unit is being held for settlement of an estate or that the unit is being foreclosed.¹ This stark change in vacancy is an indicator that Pittsburgh’s housing market is transitioning.

Since these units are not freely available, the increase in the city’s overall vacancy rate did not loosen the open housing market. Instead, more units are inaccessible for households looking for a new primary residence, likely increasing competition.

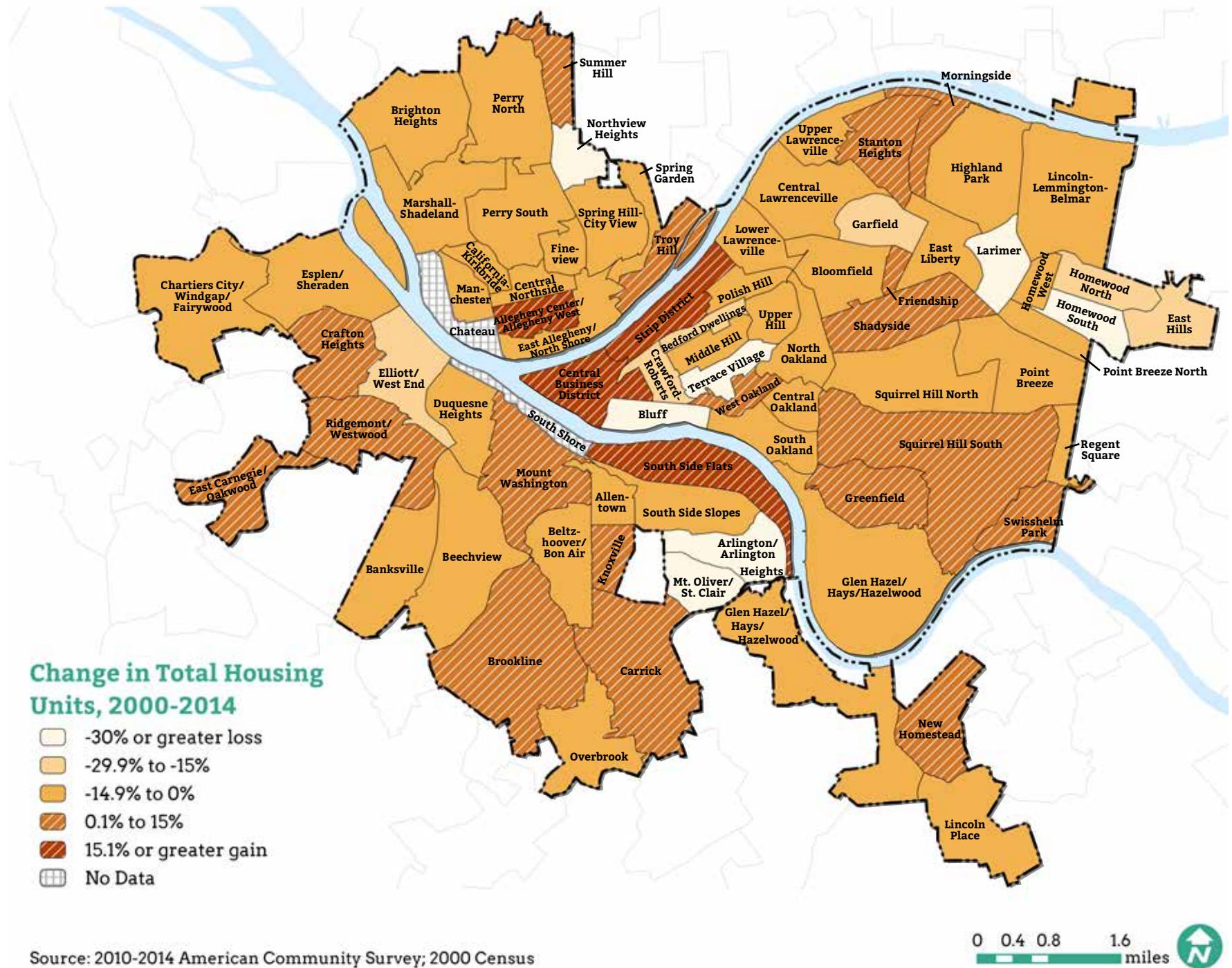
Vacant Units by Type, 2000-2014



1. While foreclosed properties may be classified as “other vacant,” they may also appear in any of the vacant or occupied categories.

Demographics & Housing Supply

Change in Housing Units Between 2000 and 2014



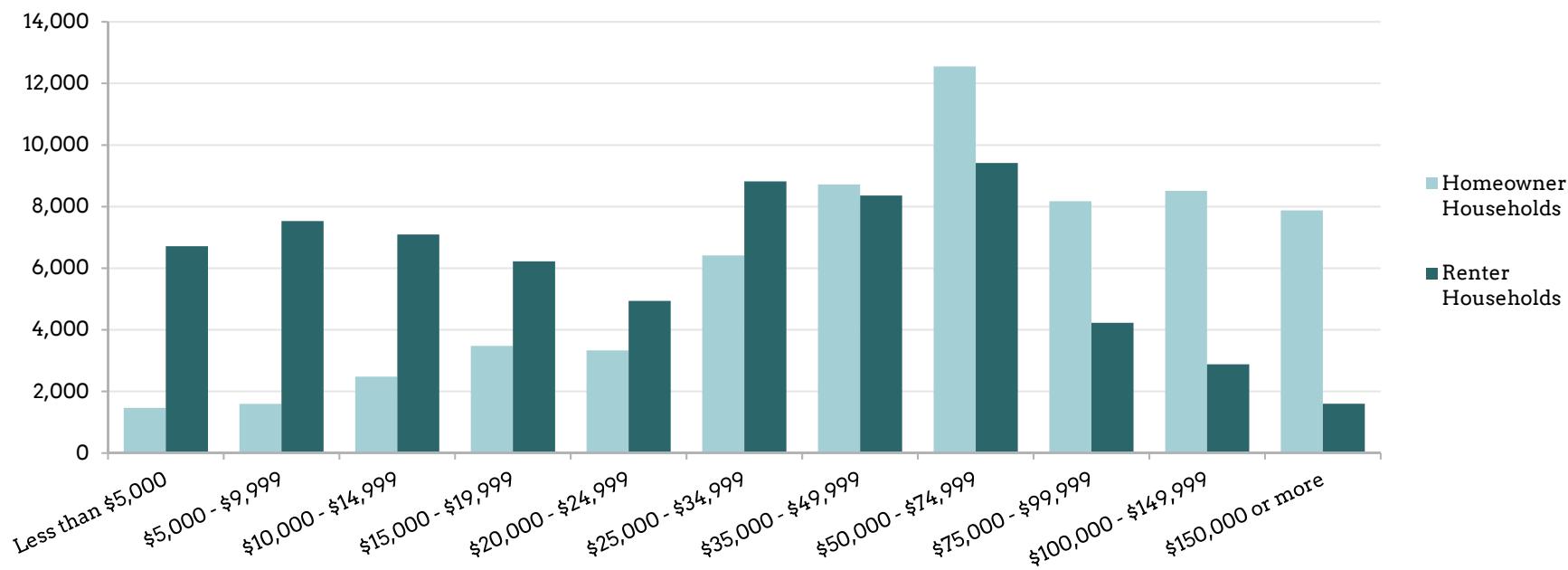
Income

Renters earn less than homeowners...

A useful approach when quantifying housing affordability is to group households into bands based on their income. The thresholds for the bands used throughout the Housing Needs Assessment are 30%, 50%, 80%, and 100% of the median household income (MHI), which was \$40,009 in Pittsburgh for 2014.

In 2014, approximately 17.2% of all households in Pittsburgh were extremely low-income, earning 30% of the MHI (\$12,003) and below. These households have the most difficulty attaining affordable housing.

Household Income by Tenure, 2014



Renters' incomes tend to be lower than homeowners' incomes, and are thus in a much more precarious position in terms of their ability to procure affordable housing. Almost 67% of renter-occupied households earn below the MHI, compared to 37.7% of owner-occupied households. And 27% of renters are extremely low-income, compared to just 6.8% of homeowners.

...and have not had their income increase since 2000

The median income among Pittsburgh households has just barely kept pace with inflation. In 2014, the median of \$40,009 represented a 2.31% rise from the median in 2000, after adjusting for inflation.

However, this increase can be entirely accounted for by homeowner households. The median income for renter households in 2014 (\$26,217) was flat compared to the value in 2000, while the median income among homeowner households (\$58,430) had grown by 6%.

The highest median household incomes are in the East End neighborhoods of Squirrel Hill, Point Breeze, Regent Square, and the Strip District. The lowest income neighborhoods are in the Hill District and Homewood.

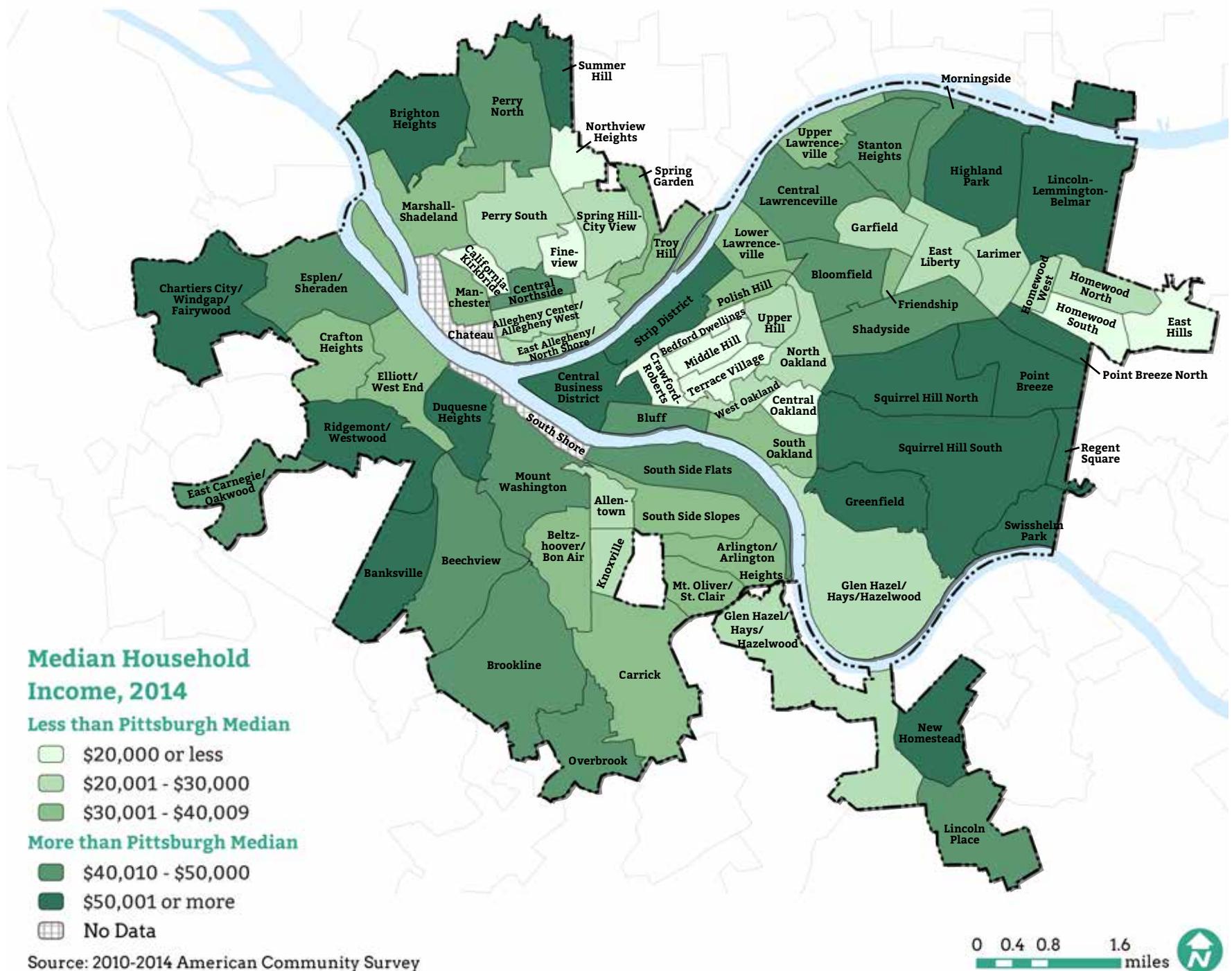
Interestingly, although median household incomes generally appear to follow a clustered pattern at the neighborhood level, very high and very low income clusters can be next to each other. This is likely made possible by Pittsburgh's unique topography, which can create intense physical barriers between adjacent neighborhoods.

Median Household Income by Tenure, 2000-2014



Demographics & Housing Supply

Median Household Income in 2014



Age

Pittsburgh is getting younger...

The median age of Pittsburgh's population dropped from 35.5 in 2000 to 33.3 in 2014, in contrast to the median at the state level which climbed from 38.0 to 40.4.

In 2014, 58.1% of all Pittsburgh residents were age 40 and under, representing a 1.2% increase in the city since 2000. The bulk of that growth was driven by the "young professional" category, aged 25 to 35.

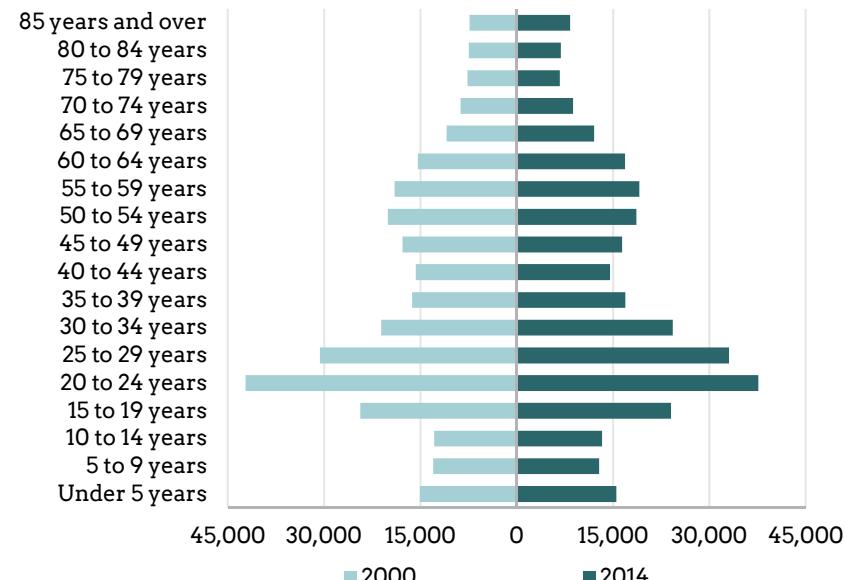
This demographic shift, although slight, represents a corresponding change in housing demand.

...but younger households earn less

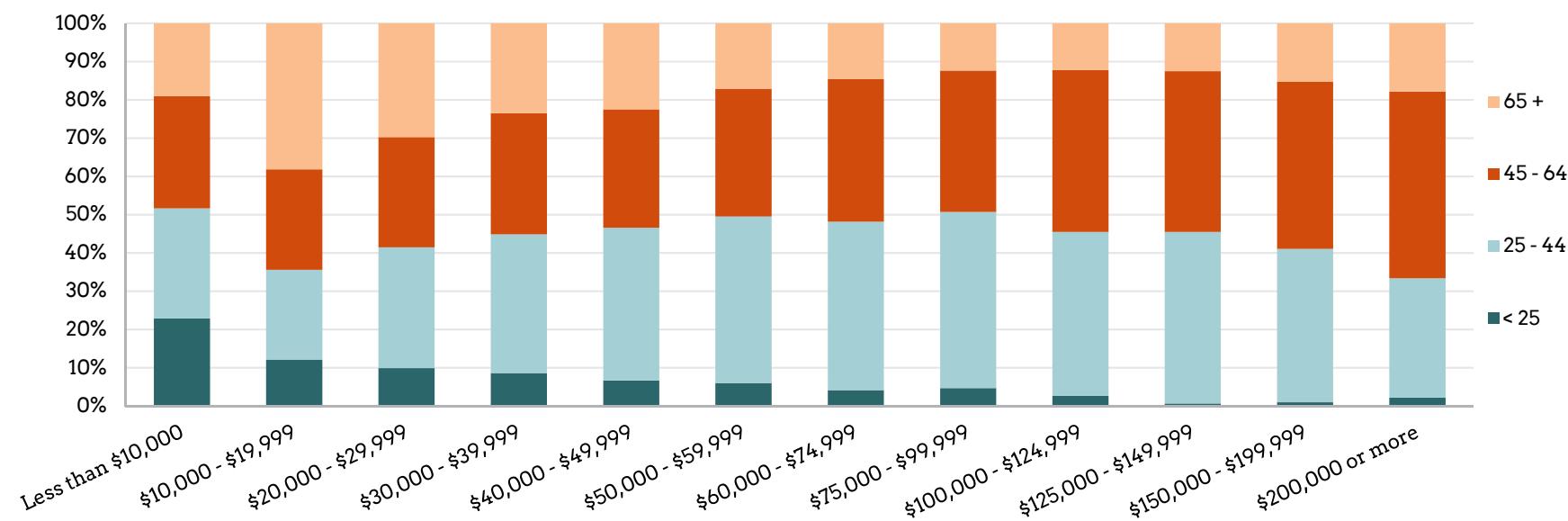
The age of a householder bears strong relation to earning power. The youngest and oldest households are more heavily represented in the lower income tiers. Only 9% of all households in Pittsburgh are led by a person under age 25, compared to 35.9% led by those aged 25 to 44, 33.3% led by those aged 45 to 64, and 21.9% led by seniors 65 and older.

While the large proportion of extremely low-income households under age 25 is likely the influence of students, there are also a large number of households ages 45 to 64 making less than \$10,000 a year.

Age, 2000-2014



Income by Age, 2014



Tenure

Renting is becoming more prominent

The rate of homeownership fell citywide from 52.1% in 2000 to 48.8% in 2014, reflecting national trends. Lenders extended credit to large numbers of high-risk borrowers in the early 2000s, which contributed to an unprecedented surge of defaults during the ensuing national housing market crisis. Since 2008, underwriting criteria have tightened considerably, which has limited access to mortgage products even among well qualified would-be borrowers.

Additional provisions of the Dodd-Frank Wall Street Reform and Consumer Protection Act which took effect in January 2014 define and incentivize “qualified mortgages,” which must meet very specific standards that may disproportionately impact lower-income households. For instance, the tightening of requirements for acceptable credit scores and debt ratios directly impacts lower-income households, who typically have lower credit scores and higher debt ratios.

While homeownership decreased in Pittsburgh overall, the change in homeownership rates varied by neighborhood. The neighborhoods of Squirrel Hill, Shadyside, Regent Square, Swisselm Park, and North Oakland all experienced increases in the homeownership rate. On Pittsburgh’s North Side, the neighborhoods of Manchester, Central Northside, East Allegheny, and Spring Garden all experienced increases in the homeownership rate as well. The increase in homeownership in these neighborhoods mostly coincides with the increase in median household income. Rates also increased in Mt. Oliver, Crawford Roberts, Bluff, and Duquesne Heights.

Fewer young people are homeowners than in 2000

Four out of every five households in Pittsburgh headed by a person under the age of 35 rents rather than owns a home. As householders age into their 40s and beyond, more and more become homeowners. Home ownership rates peak at ages 65 to 74.

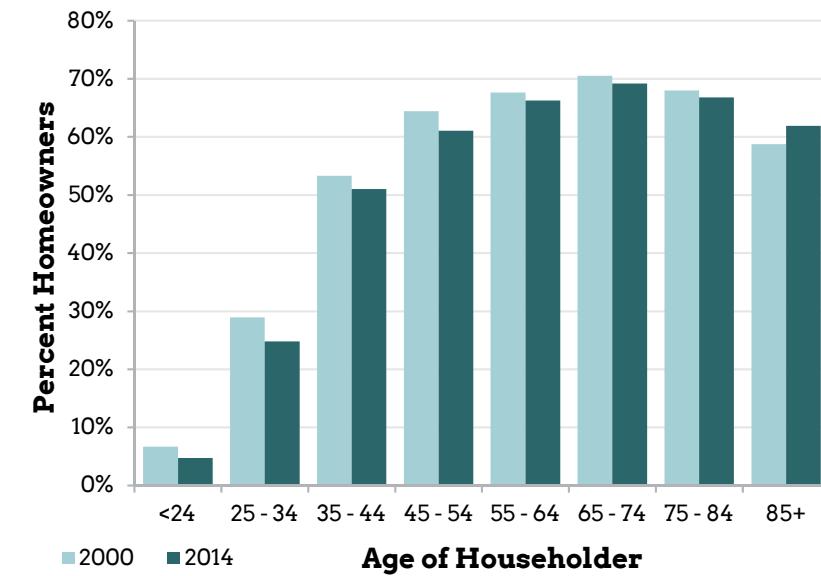
Since 2000, the share of the city’s households who own their homes has decreased in nearly every age category. A falling ownership rate in younger age groups can signal the difficulty of making a first-time home purchase as relative incomes

for young workers remain stagnant. Falling ownership rates among the middle-aged usually signals moves to the rental market, whether due to having been priced out of the sales market, default, downsizing, an inability to access or maintain credit, or a perceived advantage of renting.

For elderly households, however, any decrease in homeownership and the resulting move to the rental market can result in paying a high percentage of income on housing costs. The specific needs of older renters such as accessible housing units, easy access to health care, and low-maintenance homes are very different from the needs of other age groups. Because many elderly households are on fixed incomes, this demographic is highly sensitive to changes in the overall affordability of the housing market.

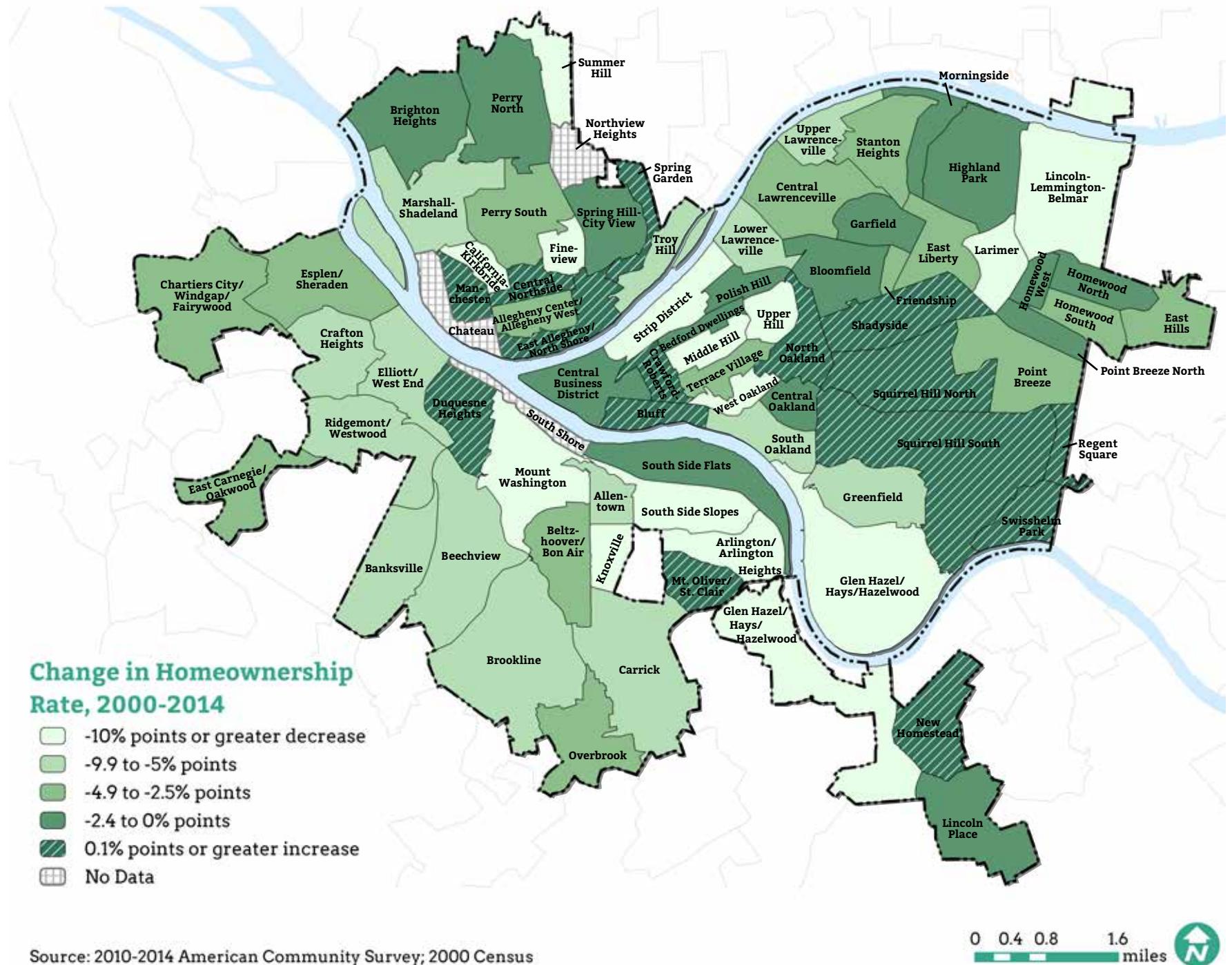
No matter the age category, decreasing homeownership translates into increased competition for all rental units, including affordable ones. Both young and old households for whom homeownership is not an option and who depend on those affordable units could see their housing choices decrease even further.

Age of Homeowners, 2000-2014



Demographics & Housing Supply

Change in Rate of Homeownership between 2000 and 2014



Structure Type

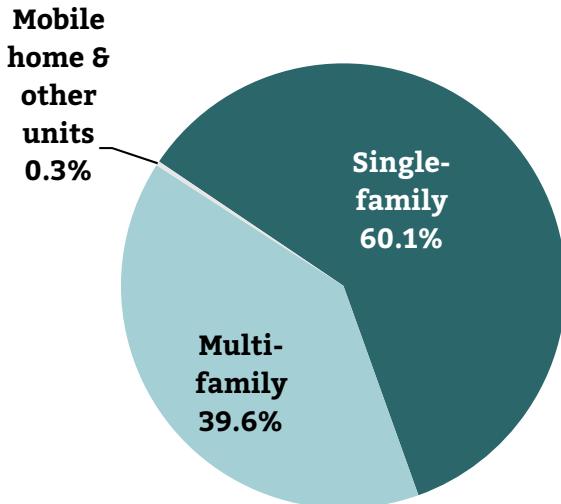
While most homes in the city are single-family houses, preferences may be changing

As of 2014, not quite two-thirds of Pittsburgh's occupied housing (60.1%) consisted of single-family structures, a proportion that has remained substantially unchanged since 2000.

The prevalence of single-family housing is consistent with national policies and cultural tendencies that emphasize the importance of single-family homeownership. However, demographic trends such as a younger population and gains in renter households indicate potential unfulfilled demand for higher-density housing.

The housing mix varies by neighborhood. Housing in Downtown and North Oakland is almost entirely in multi-family structures (95.3% and 94% of all units, respectively). Other neighborhoods with high amounts of multi-family units include Friendship (89%), the Strip District (88.9%), Allegheny Center/Allegheny West (85.6%), Shadyside (77.7%), and East Liberty (77.5%). This is compared to neighborhoods like New Homestead (1.1%), Lincoln Place (2.9%), Swisselm Park (3.2%), and Stanton Heights (6.2%) that have few multi-family options.

Structure Types, 2014

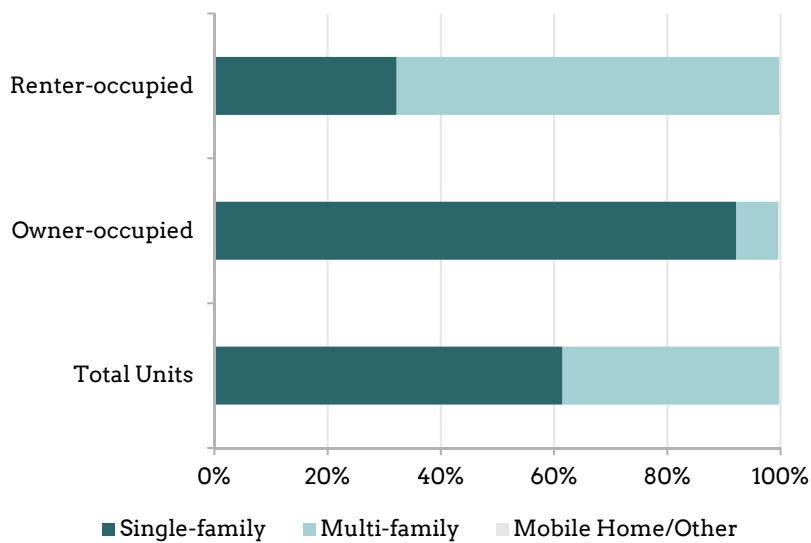


Most renters live in multi-family units

The housing mix also varies by tenure. In 2014, 92.2% of owner-occupied units were single-family structures, nearly all of which were detached. Only 7.4% were in multi-family buildings, most commonly in either small (two units) or large (50 or more units) structures. Meanwhile, 67.6% of renters lived in multi-family structures in 2014, while 32.2% lived in single-family structures.

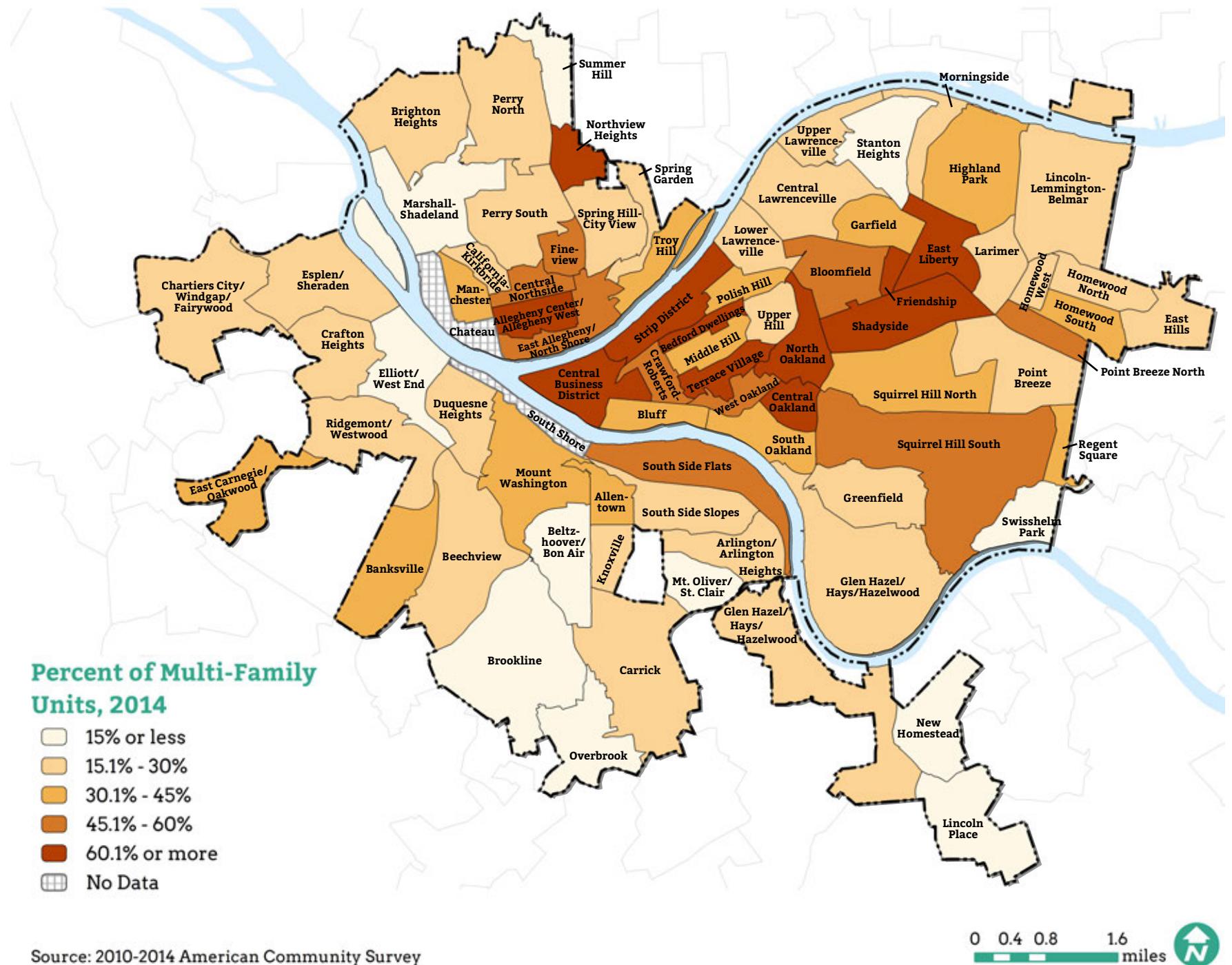
The only category of residents that increased between 2000 and 2014 were renters living in single-family homes (up by 14.1%). Renters in multi-family units (-7.8%) and owners of both single-family (-12.6%) and multi-family homes (-27.2%) decreased over those years. These trends reinforce the findings elsewhere in this analysis that the relationship between homeownership and housing type is continuing to evolve, and shifting toward renters.

Structure Type by Tenure, 2014



Demographics & Housing Supply

Percent of Occupied Units in Multi-Family Structures in 2014



3

Defining Affordability

Defining Affordability

What does affordability really mean? What makes a house affordable, and why? What does it really cost to live in Pittsburgh today?

The Housing Needs Assessment describes factors that determine whether or not housing is affordable, to whom it is affordable, and what places are more affordable than others.

Public Housing

The Housing Authority of the City of Pittsburgh operates approximately 3,056 units of public housing across 20 major sites, with an additional 1,204 units in 10 sites that are privately managed. This total accounts only for units still in service and does not include the recently redeveloped Addison Terrace, now known as Skyline Terrace, or any other short term development plans already underway. More information about HACP's inventory can be found later in Chapter 4 of the Housing Needs Assessment.

Currently, Northview Heights is the only neighborhood that is almost entirely comprised of public housing units, although there are other neighborhoods that also contain large concentrations of public housing. These units may influence the values reported for these neighborhoods because the incomes and housing costs of public housing residents may not compare to those of households in the free market.

Public Housing Units per Neighborhood, 2015

Neighborhood	% of All Units That are Public Housing
Northview Heights	90.4%
Bedford Dwellings	57.2%
Terrace Village	39.5%
Fineview	34.4%
Middle Hill	23.8%

Methodology

Housing "affordability" generally takes into account related housing costs such as taxes, insurance, and utilities. Rents used throughout this chapter are "gross rents," which include the amount of the contract rent plus the estimated average monthly cost of utilities and fuels. In order to establish the most "apples to apples" comparison, the monthly costs of an affordable owner-occupied unit contains a utility adjustment, based on the median utility rate paid by renters in the city.

Records of home sales were collected from RealSTATS for 2013-2015. In order to construct an accurate depiction of the open residential housing market, calculations in this chapter excluded the following types of sales: sales of non-residential property, sales with a purchase price of \$1,000 or less, sales for which a bank or other lending agency was the buyer, sales which conveyed a partial interest in a property, and sales in which multiple parcels were conveyed. After the above exclusions, there were 10,892 sales during the period between January 11, 2013 and January 1, 2016.

Due to the specific nature of the Pittsburgh local housing market, low-priced but uninhabitable homes are not an uncommon sales transaction in the city. In some neighborhoods, this type of sale may even noticeably affect the overall median sales price, even though it is not reflective of the true cost to the buyer of moving into the home. Despite this, the condition of units was not considered in this analysis because there is no reliable data source describing it.

Rent Costs

The cost of rent has been rising

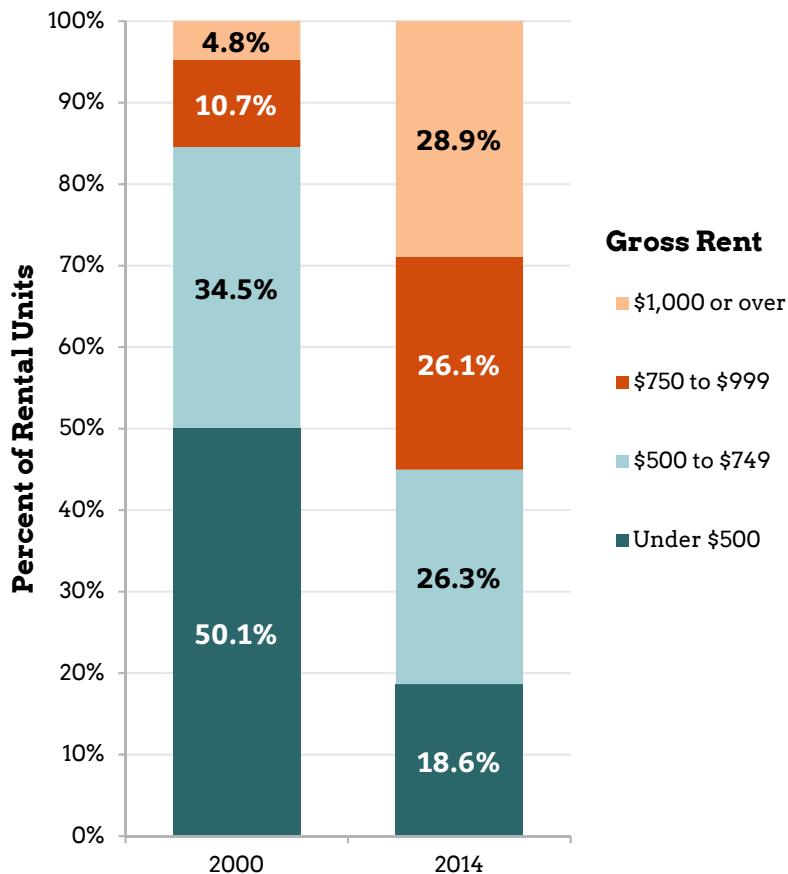
In 2014, the median gross rent (which includes monthly utilities) across Pittsburgh was \$794 per month, compared to \$500 in 2000. If median gross rent had increased solely at the rate of inflation, it would have been only \$678 in 2014, over \$100 less than the actual value.

Between 2000 and 2014, units renting for less than \$500 decreased from 50.1% of the inventory to 18.6%, while units renting for \$1,000 or more increased from 4.8% to 28.9%. This represents a significant shift in the overall rental housing stock over the past decade toward more expensive units. A diverse set of factors likely influenced these changes, including more demand in the rental market due to loss of housing units, lower homeownership rates, etc.

The inflation-adjusted median gross rent rose in most Pittsburgh neighborhoods between 2000 and 2014, though the rate of increase varied substantially. Rents increased more than 50% in Bluff, Lincoln-Lemington-Belmar, Fineview, North Oakland, and Troy Hill, and more than doubled in the Strip District.

On the other hand, median rent decreased in almost one-fourth of neighborhoods, ranging from -2.35% in Allentown to -44.78% in East Allegheny/North Shore. These neighborhoods were located in all parts of the city and at starting prices ranging from \$253 to \$894 (in 2014 dollars).

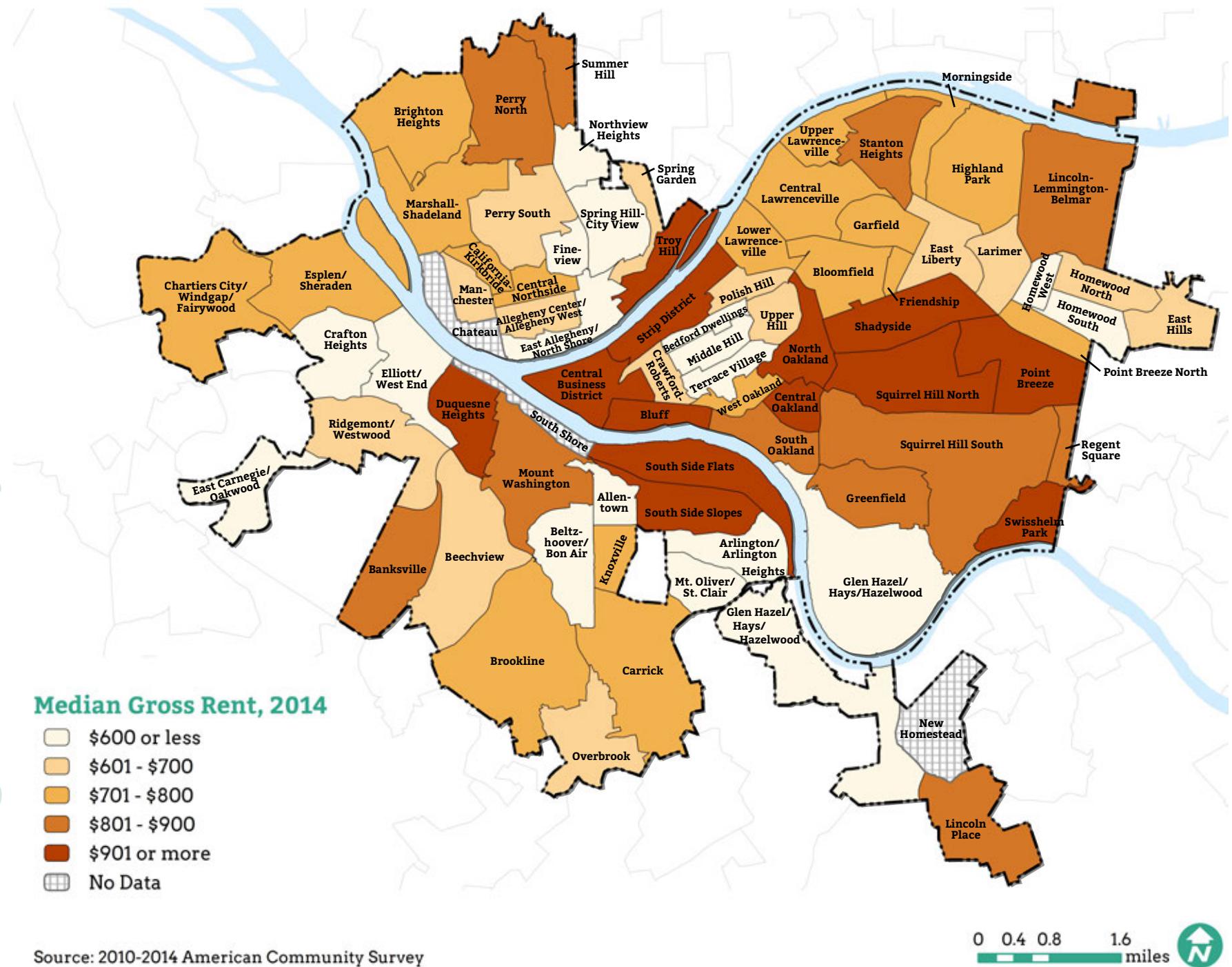
Percent of Rental Units Grouped by Gross Rent, 2000-2014



If the 2000 categories were adjusted to represent 2014 dollars, they would be - Under \$687; \$688 to \$1,030; \$1,031 to \$1,373; \$1,374 or over.

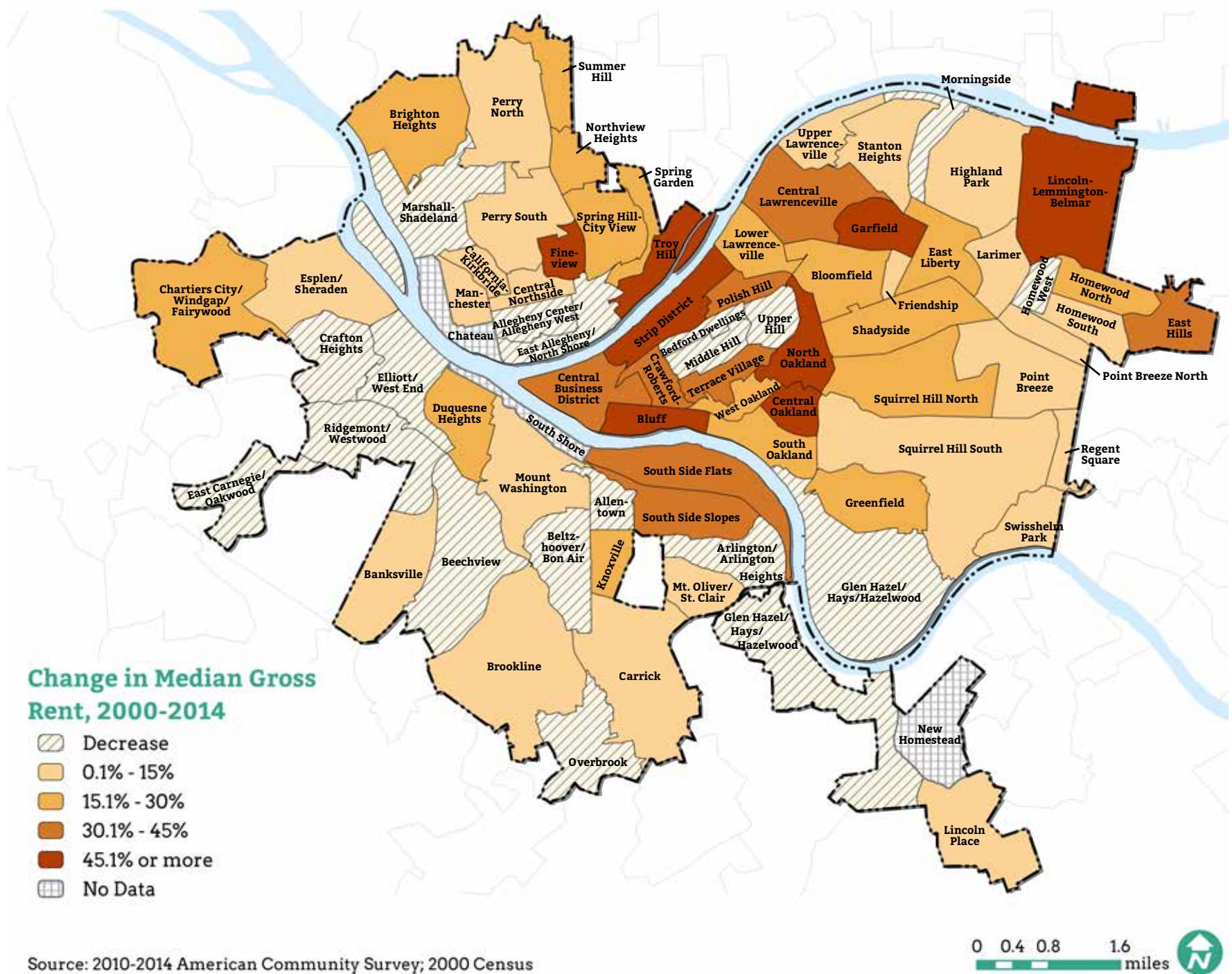
Defining Affordability

Median Gross Rent in 2014



Defining Affordability

Change in Median Gross Rent between 2000 and 2014



Home Values

Home values have appreciated, but most are still worth less than \$100,000

The median value of all homes citywide in 2014 was \$91,500, compared to \$59,700 in 2000. This represents an inflation-adjusted increase of 11.5%. It is important to note that median value is subject to over-estimation or under-estimation because it is self-reported by homeowners on Census questionnaires.

By category, 55% of homes across the city were valued by their owners at less than \$100,000, an additional 25.3% were between \$100,000 and \$200,000, and the remaining 19.7% were more than \$200,000.

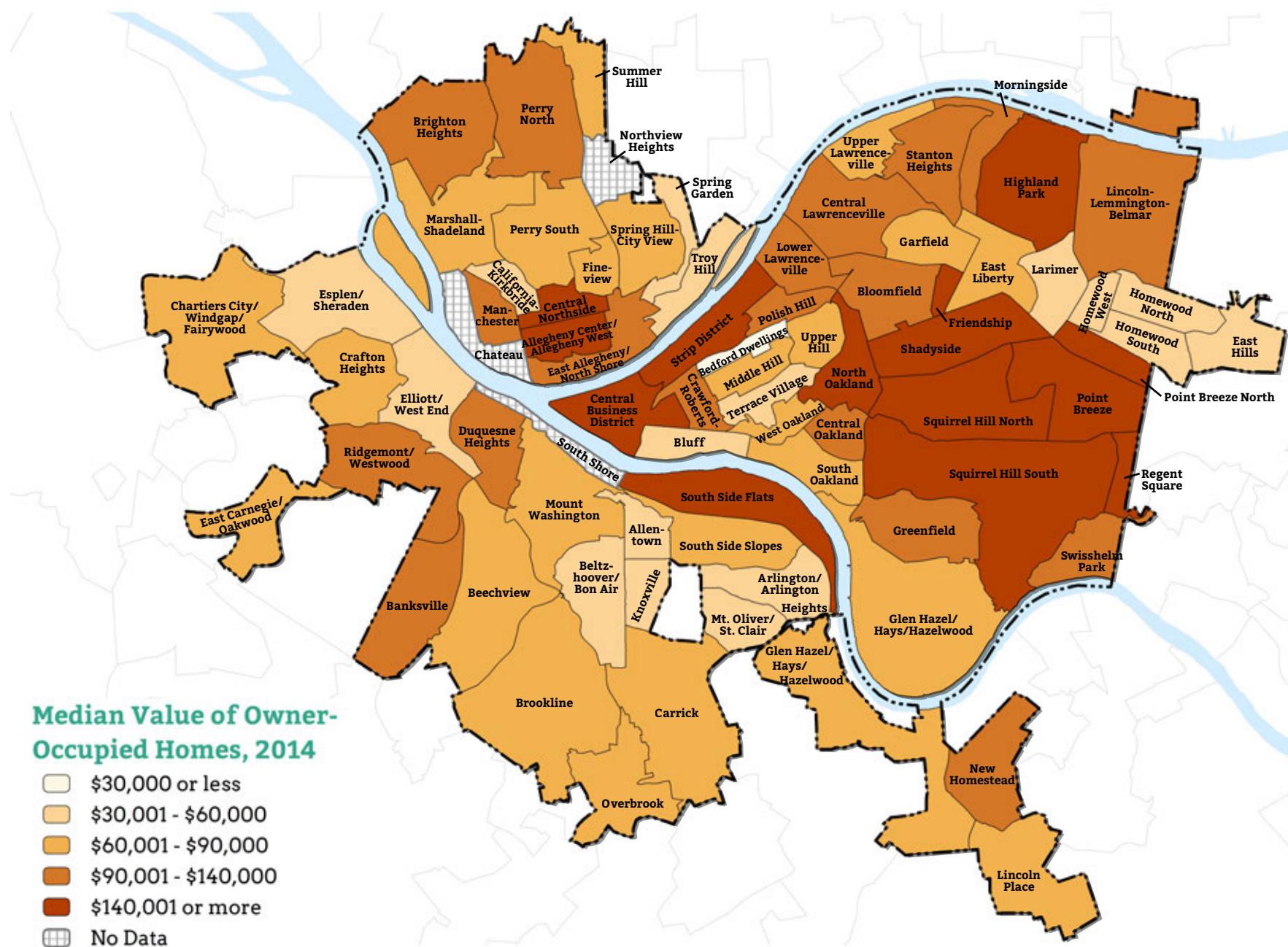
Housing Values, 2014



Even though the citywide median value has increased, the homes available to different income levels in specific geographies is what really determines how affordable purchasing a home in Pittsburgh is.

Variation among median values was substantial, with a difference of \$413,067 separating the median value of the most expensive (Squirrel Hill North) and least expensive (Bedford Dwellings) neighborhoods. Overall, higher values were focused in the East End, around Downtown, and in Central Northside. Lower values occur in all parts of the city, with some of the lowest medians in the Hill District, Uptown, and the Larimer/Homewood area.

Median Home Value in 2014



Defining Affordability

Source: 2010-2014 American Community Survey

Home Sales

Recent sales prices roughly match current home values

From 2013 through 2015, the median home sale price was \$99,900, just above the median self-reported value of \$91,500. Median home sale prices varied widely between the most expensive neighborhood, Squirrel Hill North (\$474,950) and the least expensive, Homewood North (\$8,000). Median sales in each neighborhood follow similar geographic patterns to the median self-reported home values. High home prices are concentrated in the East End and directly across the rivers from Downtown in the North Side and South Side Flats.

Corporations and investors pay less for homes

Most home buyers in Pittsburgh were individuals or families, but another large portion of homes were purchased by corporate entities.¹ When corporate entities buy a home, they may be able to make a larger investment or rehabilitate substandard conditions faster than an ordinary aspiring homeowner. However, they also may be able to make more attractive cash offers to home sellers, effectively excluding buyers who would put contingencies on their purchase offers.

Corporate buyers purchased just 20% of homes citywide, but several neighborhoods saw a large amount of purchases by corporate entities.² In almost every neighborhood, corporate buyers paid significantly less for homes than non-corporate buyers. This means that ordinary families are paying more for homes than the median sales prices would suggest. Citywide, the median sales price for non-corporate buyers was \$120,000, 20% higher than the total citywide median.

Similarly, investor activity can help turn a struggling neighborhood around. However, it can also contribute to patterns that may ultimately make a neighborhood unaffordable to some of its current residents. Investors purchased 39% of the homes sold during the study period.³ In 23 neighborhoods investors purchased more than half of all of the homes sold. Like corporate buyers, investors pay lower sales prices than owner-occupants.⁴ Citywide, the median sales price for owner-occupants was \$134,500, 35% higher than the overall citywide median.

1. Most of the corporate entities that purchased homes within the study period were limited partnerships created to invest in one or more Pittsburgh properties. Some sales that listed a corporate buyer showed that the property was purchased by a non-profit housing or civic organization, a university, or another local institution such as the Animal Rescue League. Properties purchased by mortgage companies were also listed as sales to corporate buyers, but they were categorized as "non-standard sales" because the sales price may not accurately reflect the market value of the property.

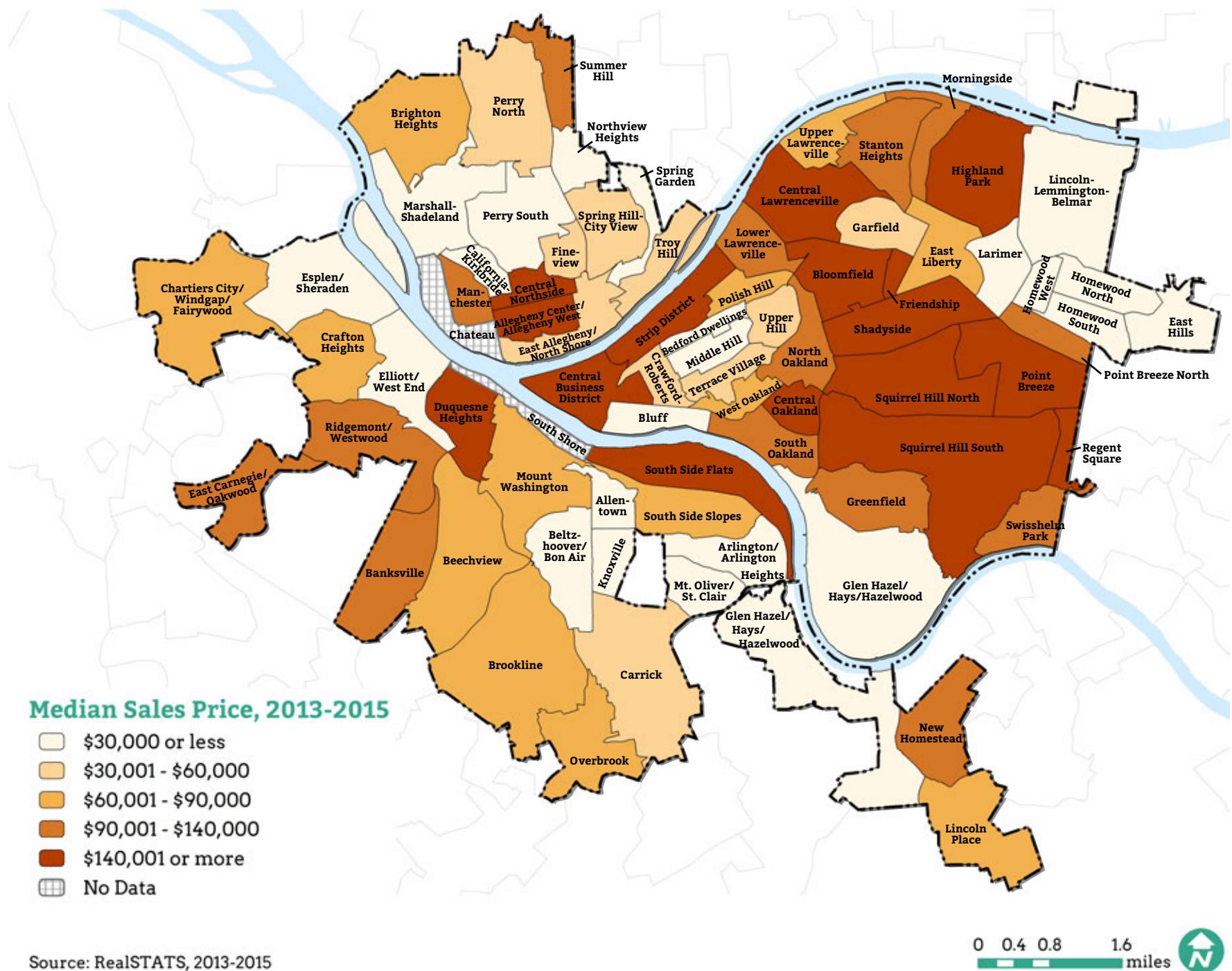
2. In addition to excluding neighborhoods with fewer than 10 total sales during the study period, neighborhoods with five or fewer sales to corporate entities were excluded from this calculation because of the difficulty posed by calculating a reliable median sales price.

3. Investors were defined as buyers who listed a mailing address other than the property address.

4. In addition to excluding neighborhoods with fewer than 10 total sales during the study period, neighborhoods with five or fewer sales to investors or occupants were excluded from this calculation because of the difficulty posed by calculating a reliable median sales price.

Defining Affordability

Median Sales Price, 2013-2015



Rapidly resold homes sell for more

With corporate and investor buyers often comes rapid resale activity,¹ which can affect overall housing prices. Several Pittsburgh neighborhoods, particularly in the East End, have seen large numbers of rapid resales in the past three years. Citywide, 24% of all sales were categorized as rapid resales between 2013 and 2015.

In Homewood South, over half of all sales were homes that had changed hands within three years; these homes sold for two and a half times more than non-rapidly resold homes (\$38,500 compared to \$11,000), the largest disparity in the city. The difference in median price between rapid resales and other home sales was more than double in five additional neighborhoods, likely due to the premium placed on a renovated unit.

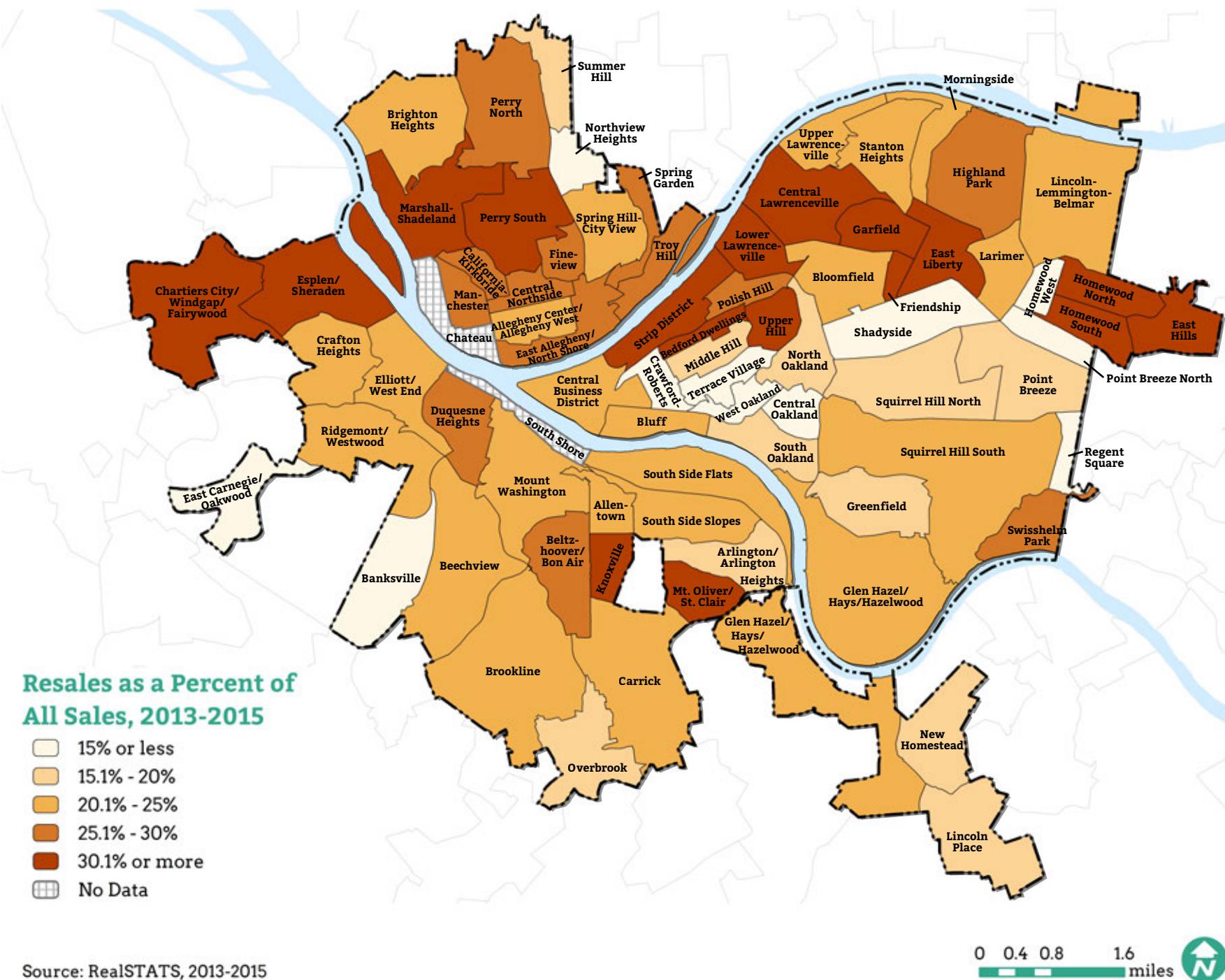
Although it is difficult to obtain information on the condition of the home or any physical investments made between sales, knowing where rapid resales happen frequently is an important insight into local housing markets. Neighborhoods with a high number of rapid resales indicate an active market and appreciating housing stock. While some rapid resale activities may result in threatened affordability and market instability, others may increase levels of healthy neighborhood investment. Potential policies or programs that involve housing rehab may have a higher chance of success in these neighborhoods.

1. A “rapid resale” was defined as one for which the unit had a previously recorded sale within the prior three years.

Largest Price Differences Between Resold and Non-resold, 2013-2015

Neighborhood	Median Sales Price		Price Difference
	Resold Homes	Non-Resold Homes	
Homewood South	\$38,500	\$11,000	250%
Lower Lawrenceville	\$245,526	\$90,000	173%
East Liberty	\$197,000	\$75,000	163%
Upper Lawrenceville	\$154,950	\$65,000	138%
Larimer	\$40,250	\$19,250	109%
Duquesne Heights	\$263,050	\$128,950	104%
Central Lawrenceville	\$241,950	\$126,750	91%
Squirrel Hill South	\$395,000	\$264,500	49%
Polish Hill	\$70,000	\$50,250	39%
Bloomfield	\$179,500	\$135,500	32%

Rapid Resales as a Percentage of All Sales from 2013 to 2015



Affordability Analysis

Affordability is an issue for many households across the city. Comparing median household incomes to rents and home prices for each neighborhood reveals which places in Pittsburgh are more or less affordable.

Methodology

The definition of rental affordability is a gross rent that does not exceed 30% of household income. For example, rent and utilities of \$15,000 per year (or \$1,250 per month) require an income of at least \$50,000 per year to be affordable ($\$50,000 * 30\% = \$15,000$). Likewise, if a household has an income of \$72,000 per year (or \$6,000 per month), the maximum gross rent that is affordable to that household is \$2,000 per month ($\$6,000 * 30\% = \$2,000$).

The definition for the affordability of homeownership is similar to the one for renting, although the monthly "cost" of homeownership is less straightforward to determine than monthly rent. The maximum home price that is affordable for a new home buyer was based on the following assumptions:

- » The mortgage is a 30-year fixed-rate loan at a 3.85% interest rate¹
- » The buyer made a 3% down payment on the sales price²
- » Private mortgage insurance (PMI) is 0.8% of the amount mortgaged

1. The annual average rate for a presumed 2015 purchase year, according to Freddie Mac

2. The down payment required by Fannie Mae and Freddie Mac for their affordable mortgage products

An average income goes farther in some neighborhoods over others

The most expensive neighborhood to rent an apartment in Pittsburgh is the Strip District (median gross rent of \$1,695 per month), followed by Squirrel Hill North (\$1,364/month) and Downtown (\$1,251/month). To live in the median-priced apartment in those neighborhoods and not pay more than 30% of household income on rent, a household would have to earn \$67,800, \$54,500, and \$50,000 per year, respectively. For reference, the median household income (MHI) citywide was \$40,009 in 2014.

- » Homeowner's insurance is equivalent to the value of the home divided by 1,000 and then multiplied by \$3.50³
- » Homeowners pay the same amount for utilities as a percentage of housing costs as the median renter in the city, which is 14%
- » Principal, interest, taxes, and insurance (PITI) plus estimated utilities equals no more than 30% of gross monthly income, a threshold of financial health commonly used by banks

It is important to note that this analysis *does not include* additional monthly housing costs such as maintenance, homeowner association fees, etc. It also does not take into account the condition of homes and any additional investment beyond the purchase price that might be necessary to make the home livable. There are also more factors than monthly mortgage payments that contribute to a household's ability to achieve homeownership such as credit score, employment history, and the ability to save for a down payment that are not taken into account here.

3. An estimation method used by the Federal Reserve Bureau

The least expensive neighborhoods in the city to rent a median-priced apartment are Bedford Dwellings (\$225/month), Northview Heights (\$278/month), Fineview (\$342/month), and Terrace Village (\$353/month). These four neighborhoods contain the highest percentages of public housing units in the city (57%, 90%, 34%, and 64% of all units, respectively) which most likely contributes to their low median rents.

The next most inexpensive rents are found in Arlington/Arlington Heights (\$453/month), Spring Hill-City View (\$454/month), and Glen Hazel/Hays/Hazelwood (\$472/month). These neighborhoods require yearly household incomes of \$18,100, \$18,200, and \$18,900 in order to afford median rents.

The majority of Pittsburgh's neighborhoods (about 77%) require between \$20,000 and \$40,009 annual income to afford the median rent.

The most expensive neighborhoods to purchase a home in Pittsburgh are Squirrel Hill North (\$475,000 median sales price from 2013-2015), Point Breeze (\$353,800), and the Strip District (\$298,900). To purchase a median-priced home in those neighborhoods and not pay more than 30% of household income on housing costs, a household would have to earn \$141,800, \$105,600, and \$89,200 per year, respectively, all more than double the citywide MHI of \$40,009.

The least expensive neighborhoods in the city to buy a median-priced home are Bedford Dwellings (\$2,400), Homewood North (\$8,000), Homewood West (\$12,300), and Homewood South (\$12,900). These neighborhoods require yearly household incomes of \$716, \$2,400, \$3,700, and \$3,800, respectively, in order to afford the median sales price.

Again, these prices merely reflect the median sales transaction over a three-year period and not the condition of the homes in question.¹

Home prices are more extreme (both high and low) than rents

Although most neighborhoods in the city fall near the middle of the affordability spectrum for rental units, most are at either the high or low end of the spectrum for owner-occupied units. An income of \$20,000 or less can afford the median priced home in exactly half of all neighborhoods, compared to 13.5% for rentals. Likewise, a household needs more than \$50,000 per year to afford to purchase a home in 16% of neighborhoods, compared to just 4.1% for rentals.

In other words, from a *monthly* cost perspective, in some neighborhoods it is more cost-effective to rent, while in other neighborhoods it is more cost-effective to own.

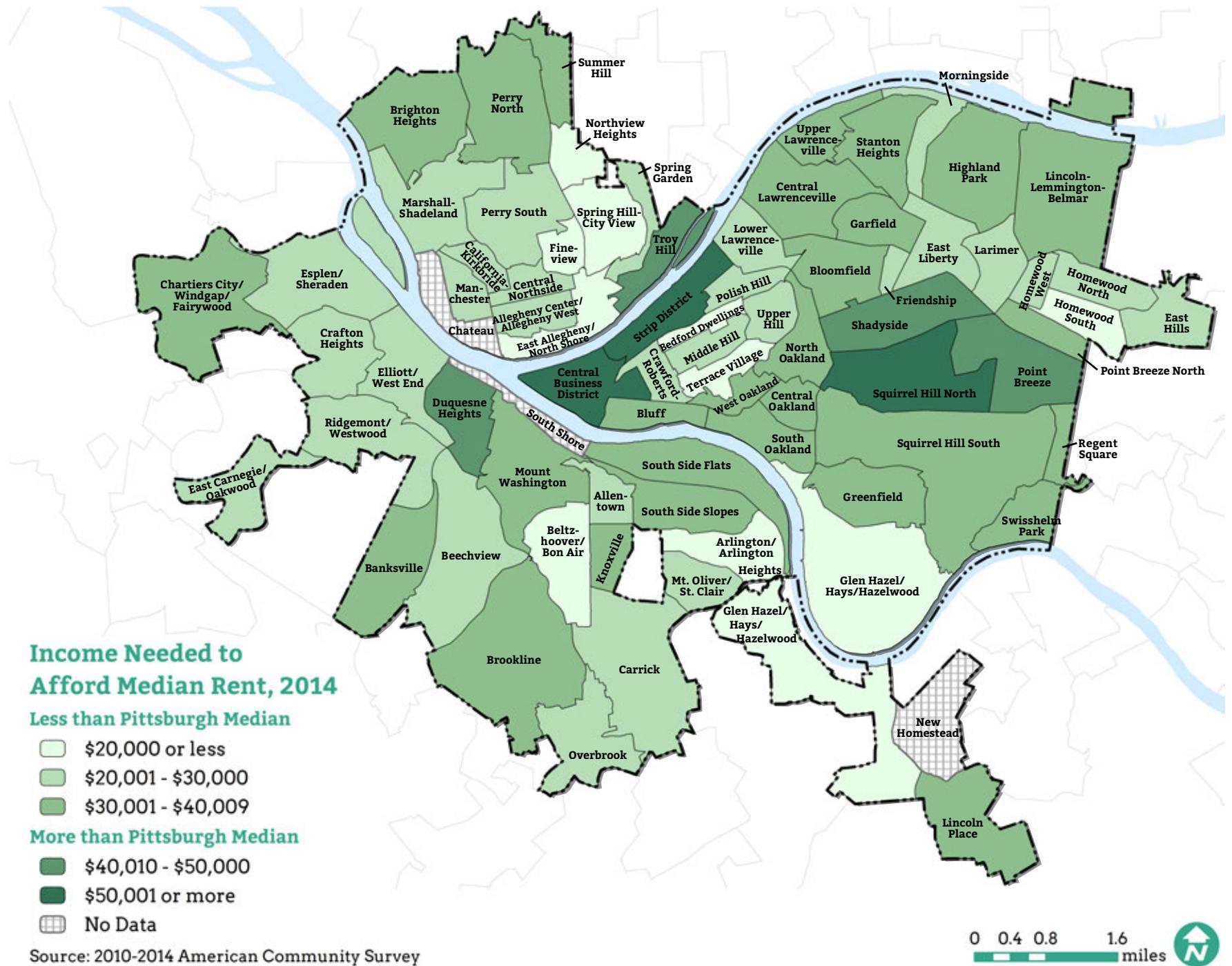
Of course, purchasing a home seems so affordable in many neighborhoods because the median sales price was very low (e.g. the median price was below \$15,000 in almost 40% of all neighborhoods). In reality, this class of homes is highly unlikely to be livable, and may range anywhere from outdated to dangerous.

However, the fact that these are indeed the median sales prices in many neighborhoods reveals important information about the entire local housing stock, even the neighboring houses that are still in good condition. Very low median housing prices indicate older housing stock that needs more rehabilitation, while higher sales prices indicate a higher proportion of well-maintained homes. Factoring in renovation costs and ongoing maintenance costs eliminates much, if not all, of the perceived affordability in these under-priced homes.

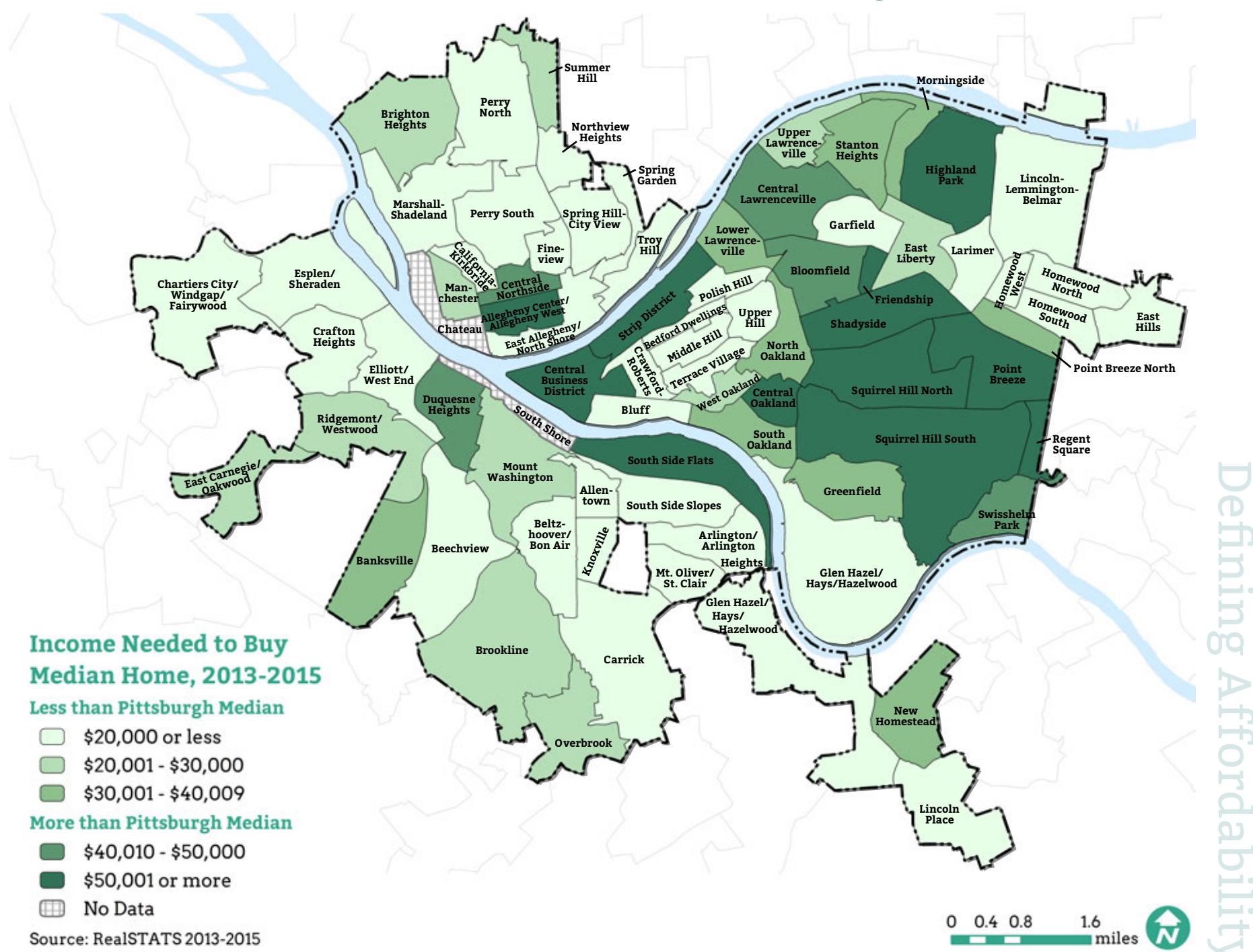
1. Two neighborhoods had no recorded valid sales between 2013 and 2015.

Defining Affordability

What Does It Take to Afford the Median Gross Rent in Each Neighborhood?



What Does It Take to Afford the Median Sales Price in Each Neighborhood?



Defining Affordability

Income Required to Afford Median-priced Home, 2013-2015

Neighborhood	Median Sales Price	Income Required	Neighborhood	Median Sales Price	Income Required	Neighborhood	Median Sales Price	Income Required
Squirrel Hill North	\$474,950	\$141,778	Ridgemont/Westwood	\$98,250	\$29,329	Northview Heights	\$24,000	\$7,164
Point Breeze	\$353,800	\$105,613	Brighton Heights	\$90,000	\$26,866	Bluff	\$23,000	\$6,866
Strip District	\$298,900	\$89,225	East Liberty	\$88,500	\$26,418	Esplen/Sheraden	\$22,500	\$6,717
Allegheny Center/ Allegheny West	\$296,250	\$88,434	Brookline	\$86,000	\$25,672	Perry South	\$22,500	\$6,717
Regent Square	\$287,000	\$85,673	West Oakland	\$80,000	\$23,881	Arlington/ Arlington Heights	\$21,000	\$6,269
Squirrel Hill South	\$273,500	\$81,643	Mount Washington	\$73,100	\$21,821	Larimer	\$20,000	\$5,970
Shadyside	\$246,900	\$73,703	Overbrook	\$69,950	\$20,881	Middle Hill	\$20,000	\$5,970
Central Business District	\$243,750	\$72,762	Upper Lawrenceville	\$67,350	\$20,105	Knoxville	\$19,300	\$5,761
Highland Park	\$232,900	\$69,523	Crafton Heights	\$65,000	\$19,403	East Hills	\$19,000	\$5,672
Friendship	\$215,000	\$64,180	South Side Slopes	\$65,000	\$19,403	Allentown	\$18,000	\$5,373
South Side Flats	\$188,238	\$56,191	Lincoln Place	\$64,000	\$19,105	Elliott/West End	\$18,000	\$5,373
Central Oakland	\$180,000	\$53,732	Beechview	\$63,150	\$18,851	Beltzhoover/ Bon Air	\$17,500	\$5,224
Central Northside	\$162,489	\$48,505	Chartiers City/ Windgap/ Fairywood	\$63,000	\$18,806	California- Kirkbride	\$17,250	\$5,149
Central Lawrenceville	\$155,000	\$46,269	Polish Hill	\$61,000	\$18,209	Mt. Oliver/St. Clair	\$17,250	\$5,149
Duquesne Heights	\$146,950	\$43,866	Perry North	\$59,950	\$17,896	Lincoln- Lemington- Belmar	\$15,000	\$4,478
Bloomfield	\$143,750	\$42,911	Crawford-Roberts	\$55,000	\$16,418	Homewood South	\$12,859	\$3,839
Swisshelm Park	\$137,375	\$41,008	Carrick	\$50,500	\$15,075	Homewood West	\$12,273	\$3,664
Greenfield	\$130,000	\$38,807	Terrace Village	\$50,000	\$14,926	Homewood North	\$8,000	\$2,388
Point Breeze North	\$129,000	\$38,508	Garfield	\$40,880	\$12,203	Bedford Dwellings	\$2,400	\$716
Morningside	\$127,500	\$38,060	East Allegheny/ North Shore	\$40,000	\$11,940			
North Oakland	\$127,000	\$37,911	Fineview	\$40,000	\$11,940			
Banksville	\$125,000	\$37,314	Upper Hill	\$35,220	\$10,514			
Lower Lawrenceville	\$125,000	\$37,314	Spring Hill-City View	\$35,000	\$10,448			
New Homestead	\$120,000	\$35,821	Troy Hill	\$35,000	\$10,448			
South Oakland	\$115,000	\$34,329	Glen Hazel/Hays/ Hazelwood	\$30,000	\$8,955			
Stanton Heights	\$111,500	\$33,284	Marshall- Shadeland	\$30,000	\$8,955			
Summer Hill	\$100,000	\$29,851	Spring Garden	\$26,500	\$7,911			
Manchester	\$99,900	\$29,821						
Pittsburgh	\$99,000	\$29,553						
East Carnegie/ Oakwood	\$98,500	\$29,403						

There are slightly more affordable renter-occupied units than owner-occupied units

Another way to frame housing affordability is from the perspective of inventory, or the existing housing stock at the local level. The question then becomes, if a household earning Pittsburgh's MHI wants to relocate in the city, how much of the existing housing stock is affordable to them in each neighborhood?

Altogether, at least 80% of the existing rental units are affordable to the median-earning Pittsburgh household in almost half of the city's neighborhoods. Conversely, there are only six neighborhoods in which less than half of the rental inventory is affordable.

In the following maps, the lightest shaded areas are neighborhoods with the least amount of housing stock affordable with the city's MHI, according to the 30% of income definition of affordability. In other words, the typical household in these neighborhoods will have more trouble finding housing they can afford. The darkest shaded areas represent neighborhoods with the largest amount of housing that's affordable.

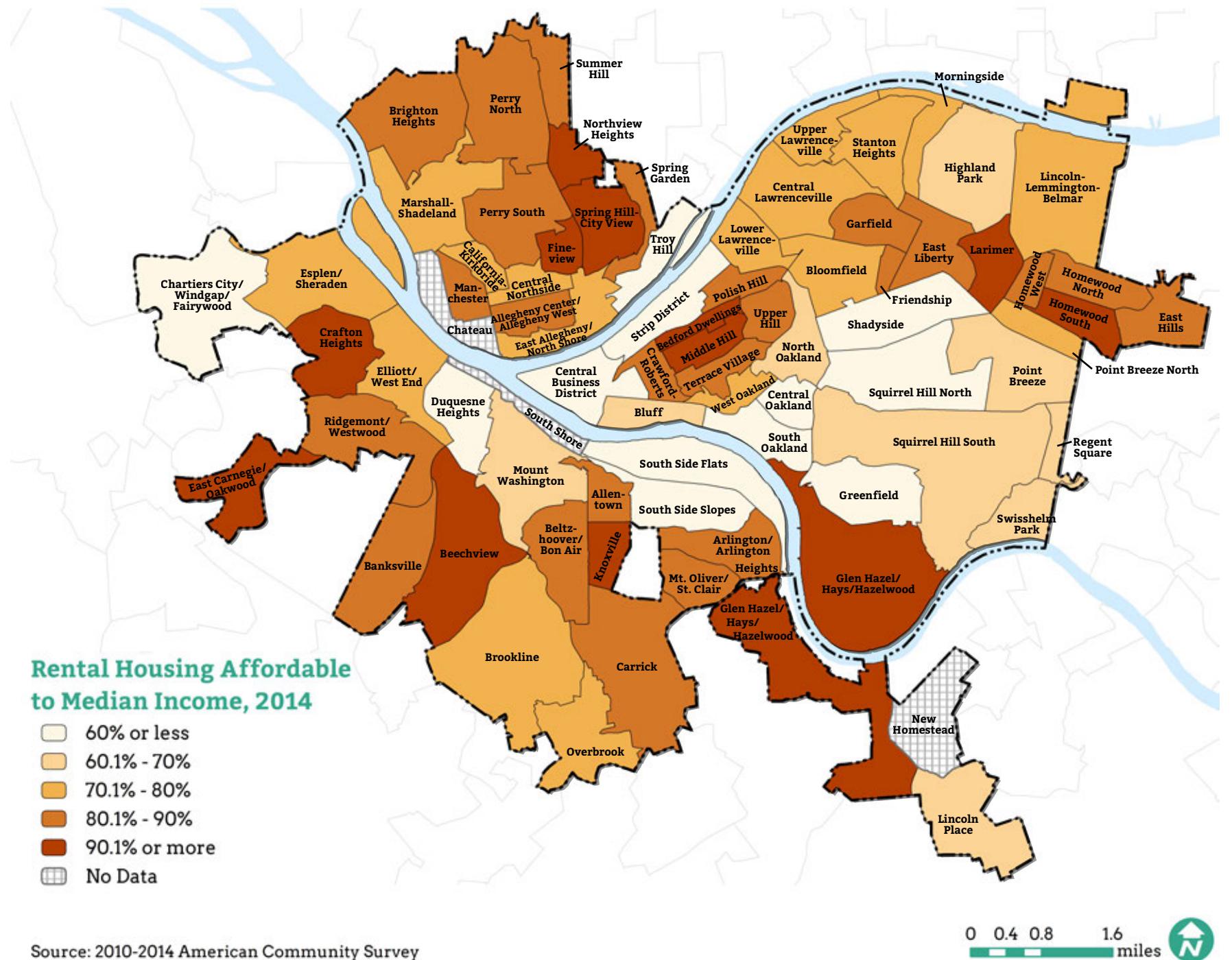
At least 80% of the existing owner-occupied units are affordable to the median-earning Pittsburgh household in just under half of the city's neighborhoods, virtually the same as for renter-occupied units. There are also fifteen neighborhoods in which less than half of the owner-occupied housing inventory is affordable.

Overall, a Pittsburgh household earning a typical income will have more choices when looking for an affordable place to rent than home to buy, although the margin is slim.

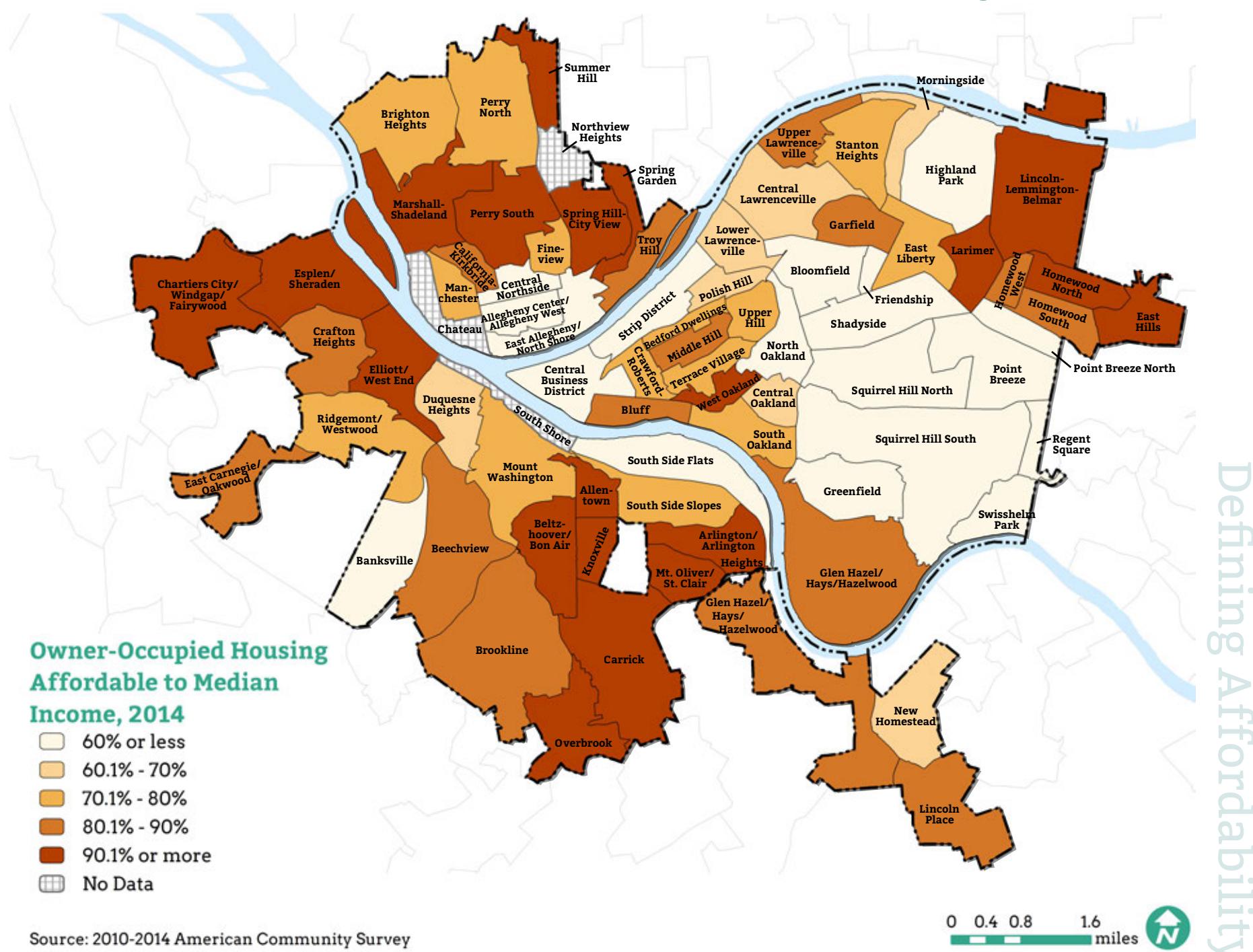
Again, the condition of housing units is not factored into this analysis.

Defining Affordability

How Many Rental Units Are Affordable to a Typical Pittsburgh Household?



How Many Owner-Occupied Units Are Affordable to a Typical Pittsburgh Household?



Affordable Market-Rate Housing

Some neighborhoods plainly lack affordable housing stock

From a holistic view, the question of affordability in Pittsburgh is complex. Renter-occupied units affordable to the city's MHI (\$40,009) are more plentiful than homes for sale, although not by much. In addition, very few neighborhoods are completely unattainable for renters at this income.

Nevertheless, there is a much larger number of neighborhoods with bargains available in the sales market compared to the rental market. And yet there are also many neighborhoods where homeownership is well beyond the reach of a median income earner.

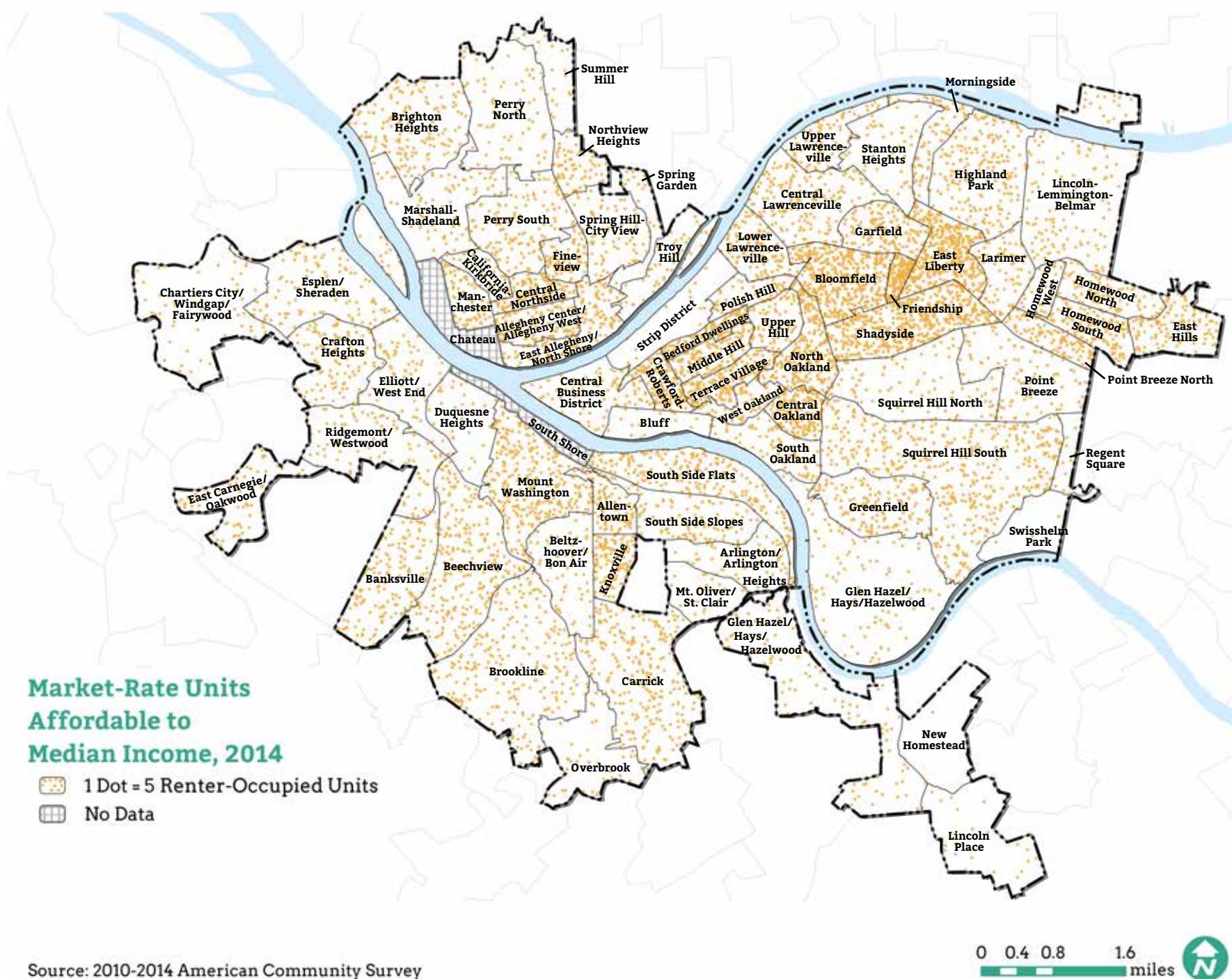
In short, there are trade-offs to both sides of the equation. However, given that rents have been increasing faster than incomes, more and more households are renting, and that recent and planned rental developments in the city are priced high out of the range of even a moderate-income household, as described in the next chapter, this balance is perilous at best.

For the time being, some neighborhoods stand out as centers of affordable housing based on sheer volume alone. The East End neighborhoods between East Liberty and Oakland have a large stock of affordable rental housing given their area. The Hilltop neighborhoods, Beechview, and Brookline, as well as a few others like Stanton Heights, Greenfield, and Brighton Heights, have relatively high volumes of affordable owner-occupied housing. While some neighborhoods may have many opportunities for affordable rental options, there may be few affordable options for renters looking to buy in the same neighborhood. For example, there are many affordable rental units in Shadyside, Friendship, and East Liberty, but relatively few affordable owner units. For communities aiming to expand community investment through increased homeownership, this lack of options for homeownership may be problematic.

What's most striking are the neighborhoods with relatively few affordable housing options given their size. Neighborhoods such as Swisshlem Park, the Strip District, Regent Square, Bluff, and Glen Hazel/Hays/Hazelwood may present opportunities for increasing the citywide stock of affordable housing, and for deconcentrating it away from historically affordable areas.

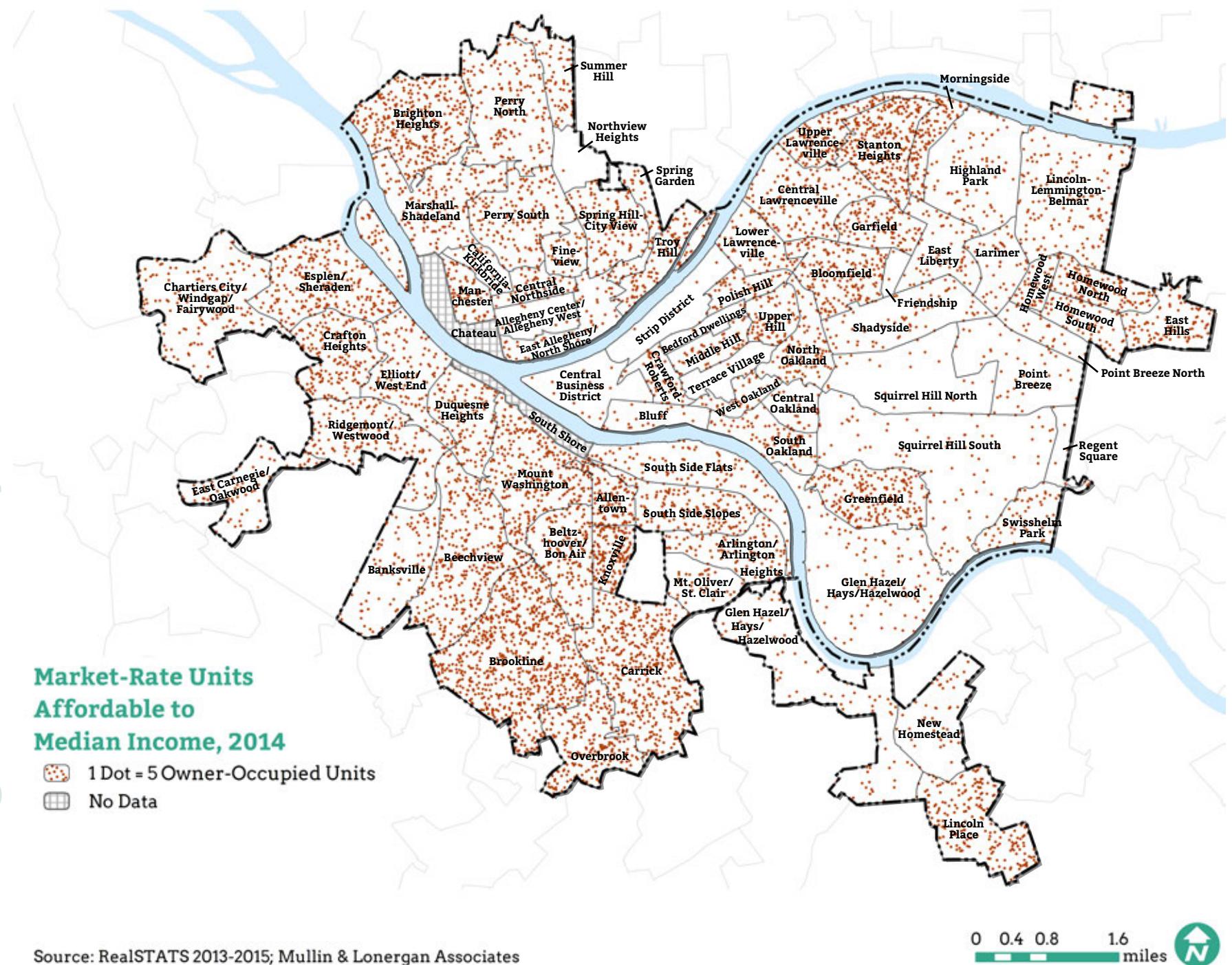
Defining Affordability

Number of Market-Rate Rental Units Affordable to the City's Median Income in 2014

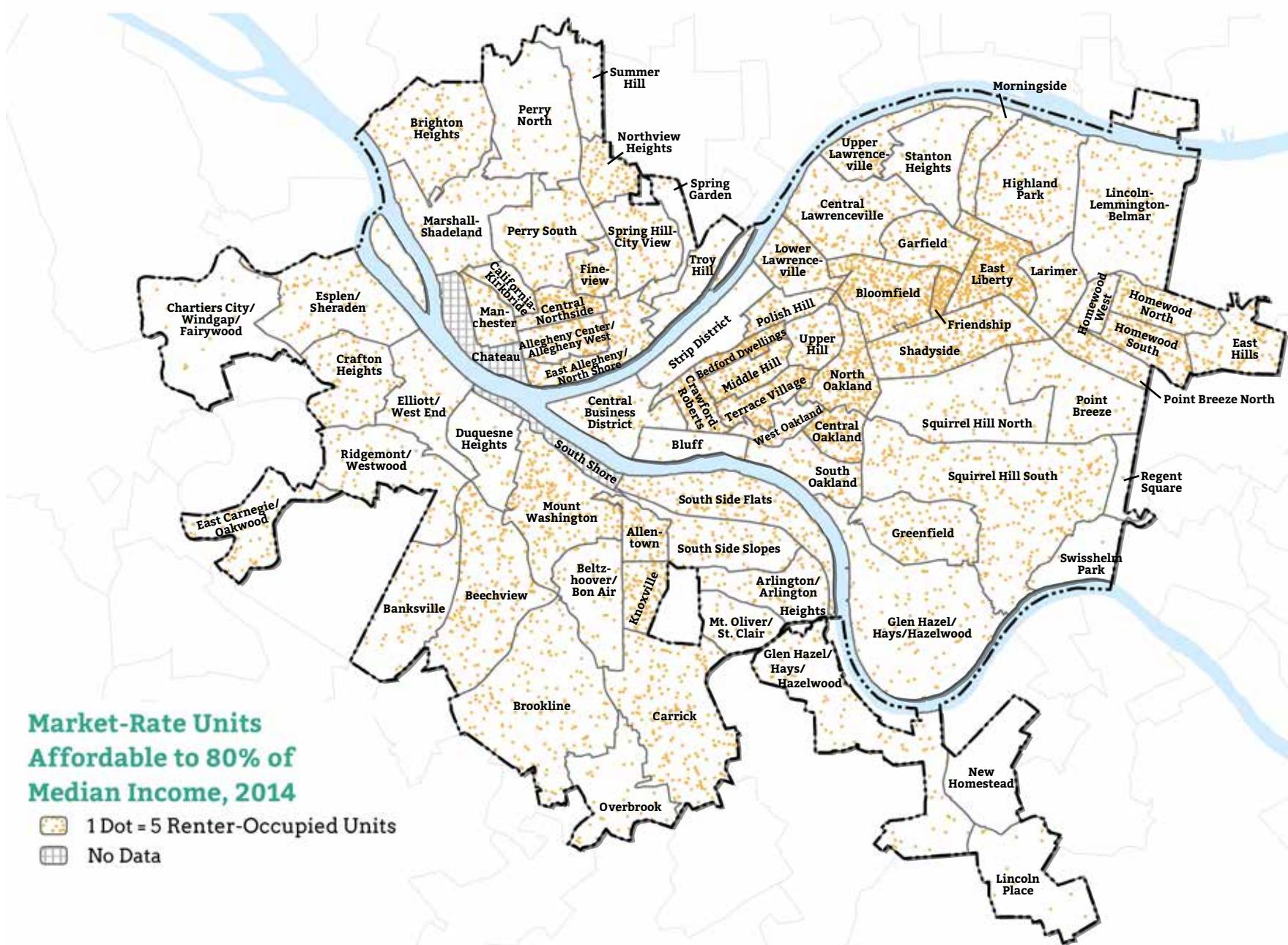


Defining Affordability

Number of Market-Rate Owner Units Affordable to the City's Median Income in 2014



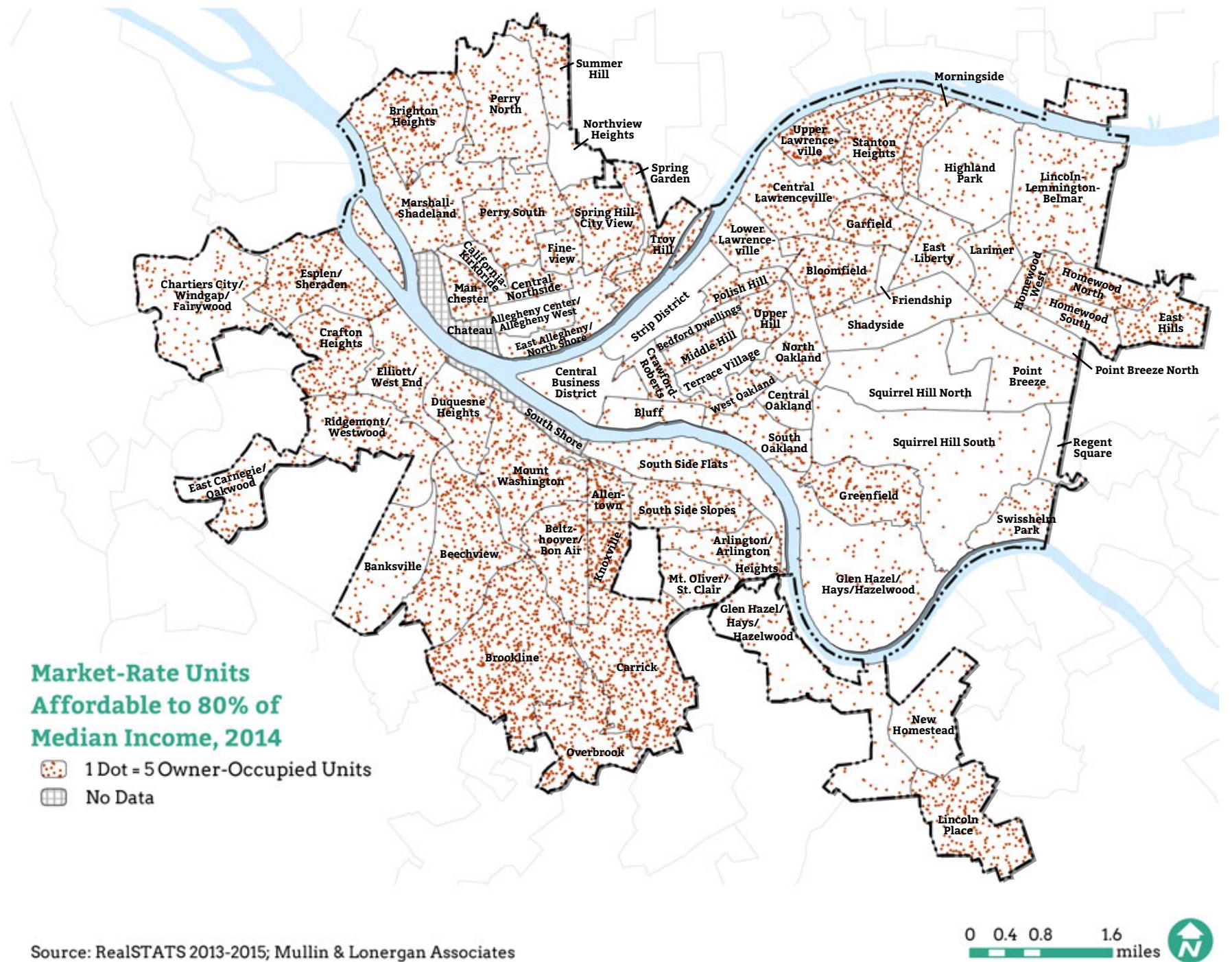
Number of Market-Rate Rental Units Affordable to 80% of the City's Median Income



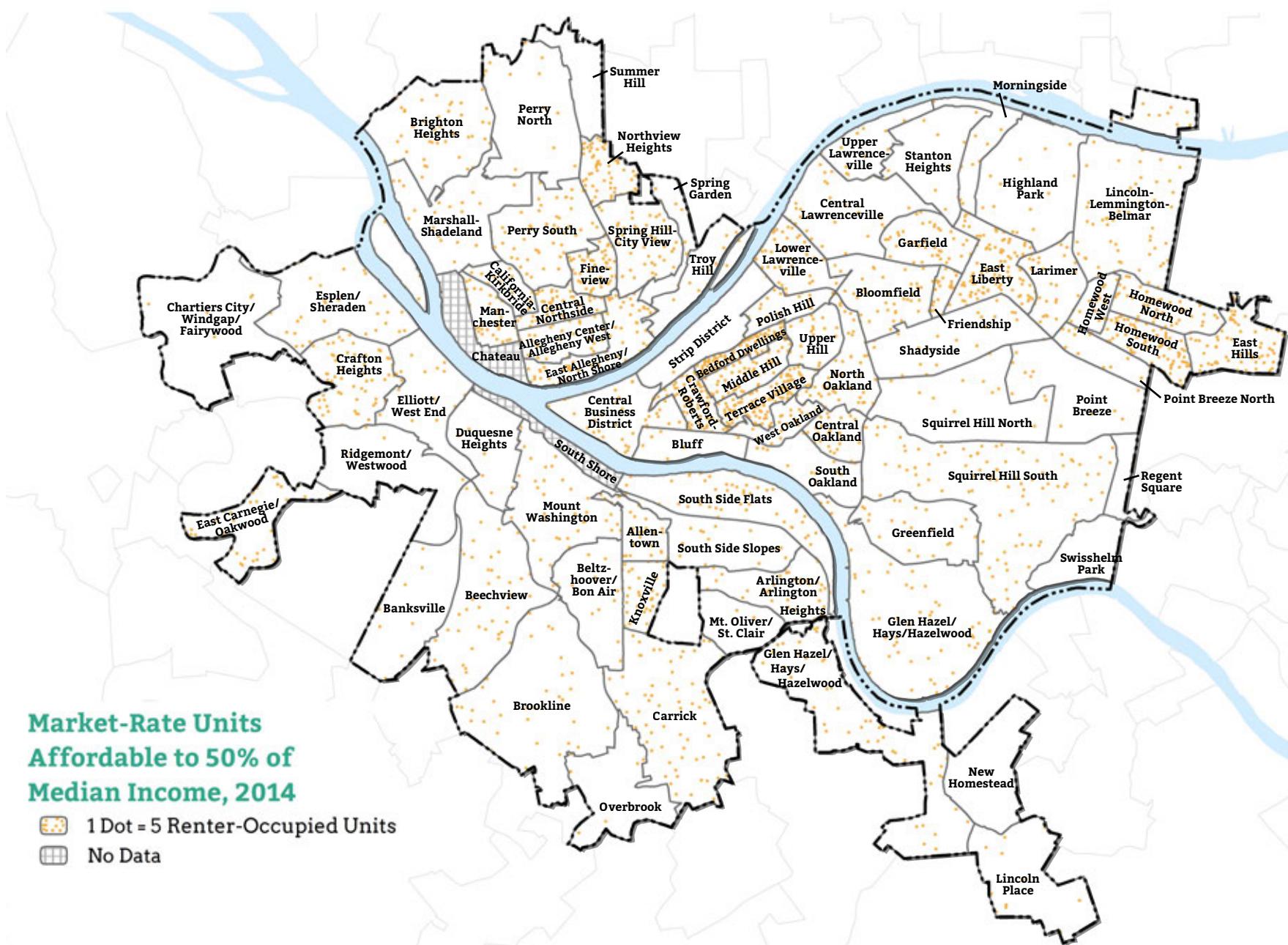
Defining Affordability

Defining Affordability

Number of Market-Rate Owner Units Affordable to 80% of the City's Median Income



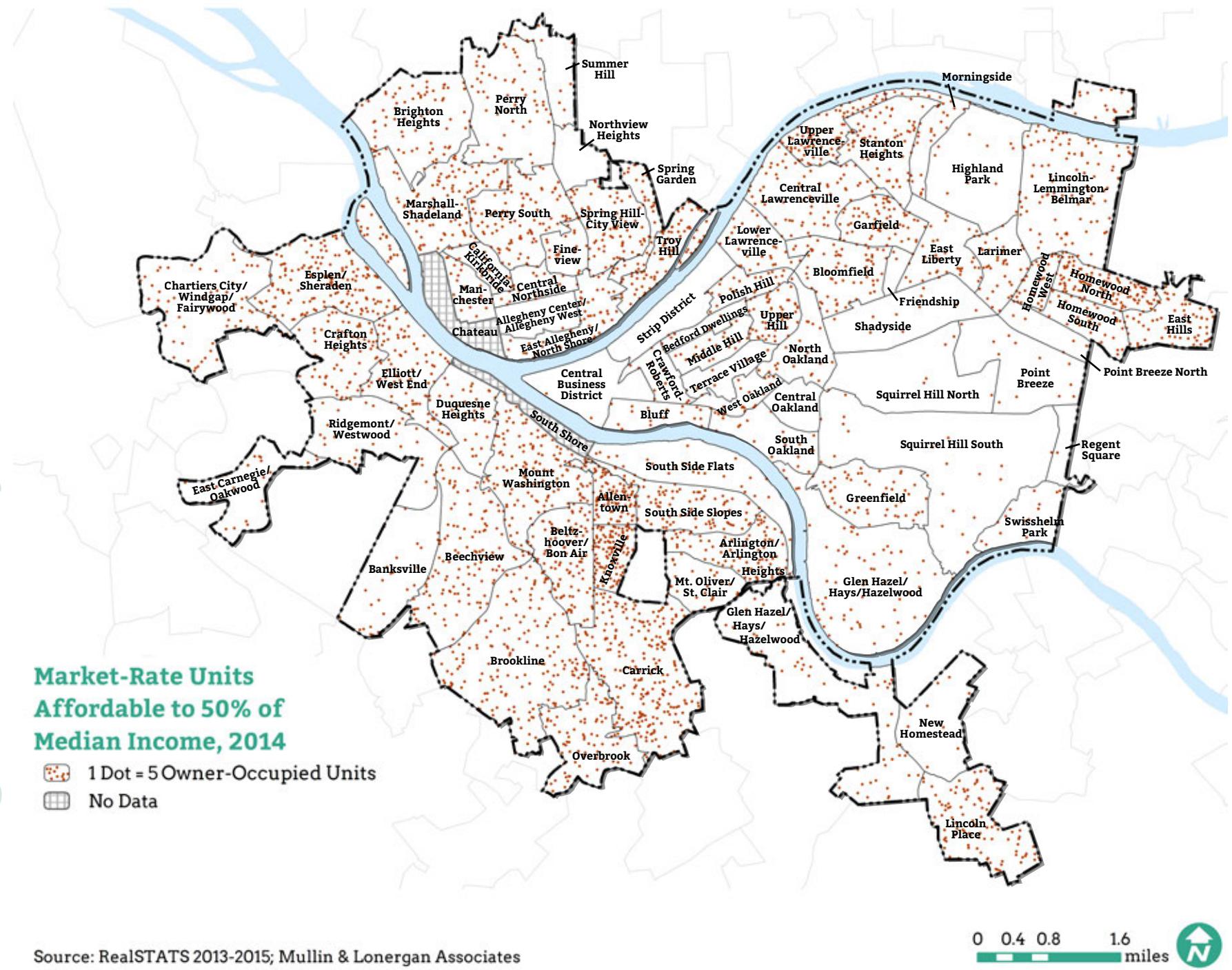
Number of Market-Rate Rental Units Affordable to 50% of the City's Median Income



Defining Affordability

Defining Affordability

Number of Market-Rate Owner Units Affordable to 50% of the City's Median Income



4

Housing Market Characteristics

Housing Market Characteristics

Housing prices are a component of affordability, and prices themselves are not set arbitrarily. Many national, statewide, and local trends and pressures influence how high rents climb, or what monthly mortgage payments will be.

Population growth, homeownership rates, and vacancy rates all influence Pittsburgh's housing market. Examining how these have changed over time can suggest what might happen in the future.

Building Permits

Squirrel Hill, Central Lawrenceville, South Side Flats, and Shadyside had the highest numbers of permits issued

Data on building permits issued by the City of Pittsburgh give insight into the overall investment in Pittsburgh's residential areas.¹ Residential building permits are issued for projects ranging from large projects like the construction of a new one- or two-family house to projects as small as a single window replacement. Citywide, 8,773 permits were issued for \$336,511,718 of work in residential areas between 2013 and 2015. In general, more permits were issued and the median cost of work performed was higher in neighborhoods with higher than average incomes.

The greatest numbers of permits were issued in neighborhoods with relatively large homes and higher-than-average household incomes. Six neighborhoods had over 300 permits issued in the three-year study period: Squirrel Hill South (514), Squirrel Hill North (486), Central Lawrenceville (384), Shadyside (361), Point Breeze (307), and Highland Park (302). The median cost of work performed in each of these neighborhoods ranged from \$7,650 in Point Breeze to \$10,000 in Squirrel Hill North and Squirrel Hill South. Citywide, the median cost of work was \$5,990.

1. Building permit data from the City of Pittsburgh do not indicate whether a permit was issued to a residential or non-residential project, so this analysis includes permits for all uses within residentially zoned districts.

Methodology

The Urban Redevelopment Authority maintains a list of recent and prospective rental developments. A telephone survey of for-profit developers on this list provided data on the sizes, rents, and numbers of new market-rate apartments planned for and recently constructed in the city. The survey includes projects from a variety of developers and neighborhoods. Although not every developer responded, the data presented in this analysis is a reasonably representative sample.

Data about bedroom size could only be determined for approximately 11.5% of the recently-built and prospective units. Rent data were obtained for a smaller subset of that 11.5%.

The analysis of income-restricted housing involved the creation of a custom subsidized housing inventory. This was accomplished by collecting and combining information from several sources:

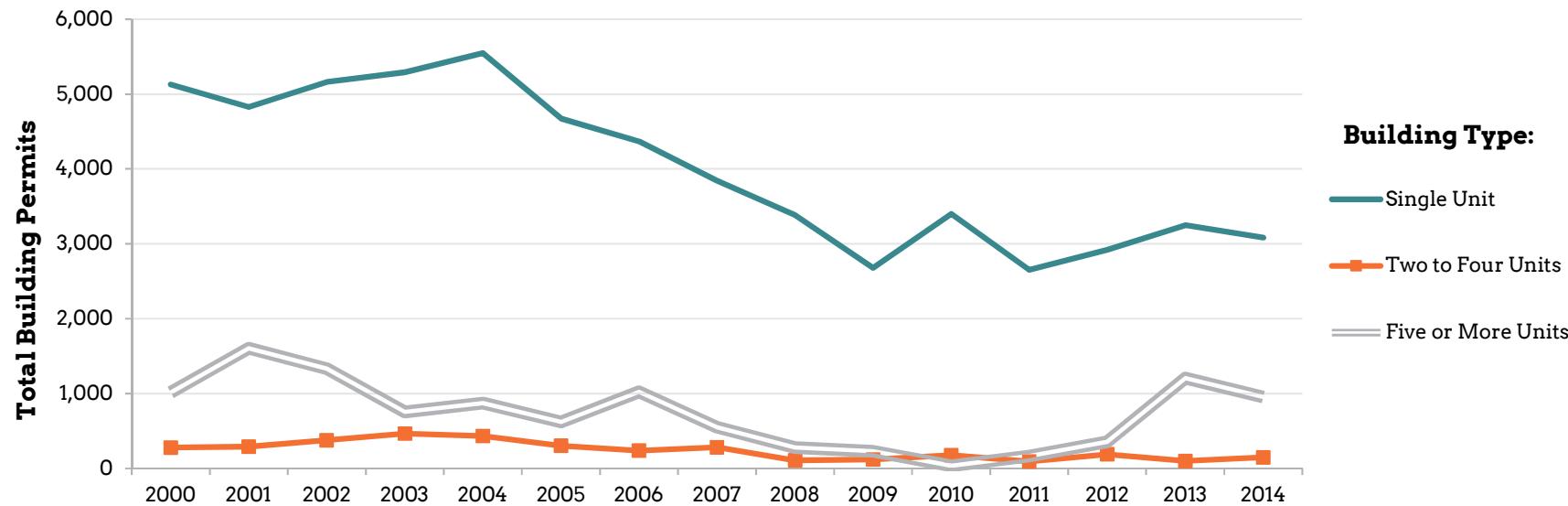
- » The National Housing Preservation Database collects and stores income-restricted housing inventory data nationwide. This consists of both income-restricted multi-family rental projects and homeownership projects
- » Supplemental data on multi-family rental projects was obtained from HUD
- » Data from the Housing Authority of the City of Pittsburgh was provided for the purposes of mapping and describing a complete inventory

Five neighborhoods had permits issued for over \$20 million of work: Squirrel Hill South, Larimer, North Oakland, Shadyside, and Mount Washington. In each of these five neighborhoods, one or more large residential projects accounted for much of the total cost: Phase 1 of the Choice Neighborhoods Initiative in Larimer, the conversion of the former Schenley High School to apartments in North Oakland, the conversion of the former Mount Washington School in Mount Washington, and several projects in Shadyside and Squirrel Hill South.

By contrast, five neighborhoods had permits issued for less than \$125,000 of work: Chateau (\$2,000), Spring Garden (\$94,653), Bedford Dwellings (\$105,171), Homewood West (\$114,941), and California-Kirkbride (\$122,754). The median cost in each of these neighborhoods was under \$4,000.

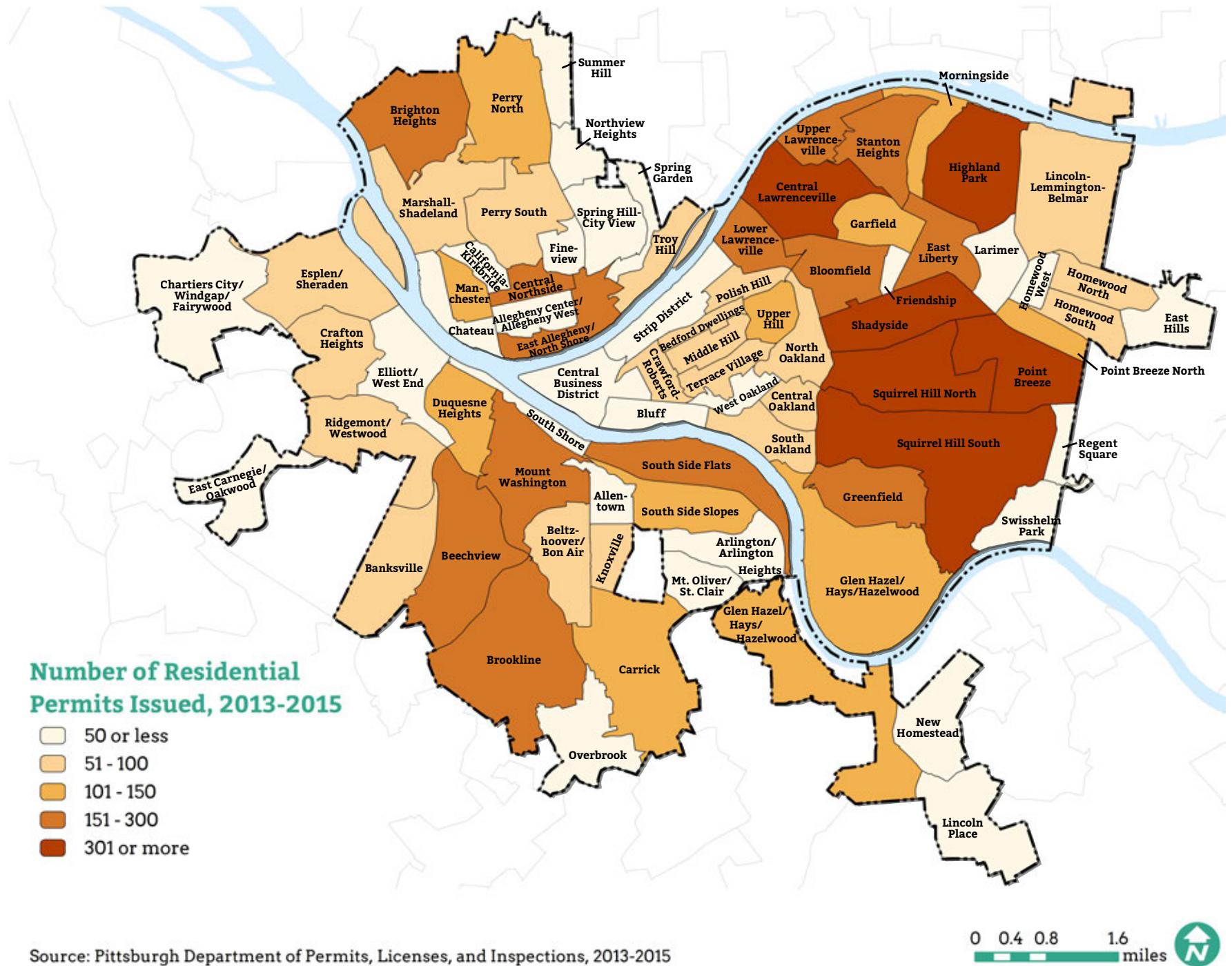
The following graph uses data from the ACS to examine permits by building type. The following map shows data obtained directly from the City of Pittsburgh's Department of Permits, Licenses, and Inspections (PLI). Unlike the ACS, Data from PLI is neighborhood-specific. However, permit data prior to 2013 is unavailable.

Building Permits Issued by Building Type, 2000-2014



Housing Market Characteristics

Number of Building Permits Issued between 2013 and 2015



Recent Market Rate Rental Development

Multi-family rental construction has picked up after a steady drop since 2001. Pittsburgh saw 2,158 new rental units added to the market between 2012 and 2015.¹ In 2015, developers presented proposals for 2,117 new rental units to the Planning Commission. Most of the proposed new units would be located in Downtown or Oakland, but a large number will also be located in the rapidly-developing area at the convergence of East Liberty, Friendship, and Shadyside. At least one estimate by Integra Realty Resources predicts another 5,000 units to be built beyond 2018.²

Most new rental units are small....

A majority of recently built apartments surveyed (just over half) are one-bedroom units, another third are two-bedroom, very few developments included three-bedroom units, and no developments surveyed offered apartments with more than three bedrooms. This holds true for the new units proposed by developers to the City of Pittsburgh Planning Commission in 2015, as well. A majority of proposed units would be one- or two-bedroom apartments, a small number would be three-bedroom units, and no presentations described plans for units with more than three bedrooms.

1; 2 Source: Viewpoint 2016 Commercial Real Estate Trends Report. Integra Realty Resources 2016.

Size of Recently Constructed Apartments, 2015

Units	Percent of Total	Number in Sample
Micro*	1.6%	26
Studio	10.9%	177
1-bedroom	52.6%	855
2-bedroom	31.8%	516
3-bedroom	3.1%	50

*Several new developments feature "micro" apartments, though square footage does not seem to vary significantly from traditional studio apartments.

Source: Developer survey by Mullin & Lonergan Associates

...and very few are affordably priced

New market-rate rental development appears to serve households earning well above Pittsburgh's median household income (MHI), which was \$40,009 in 2014. A household earning the MHI could not afford any of the average rents in the new developments surveyed. Because around half of all Pittsburgh households are comprised of only one person, accounting for household size shows increases in median household income. Two- and three-person households had median incomes of \$53,027 and \$54,702 in 2014, respectively, according to the American Community Survey.

Two- or three-person households with Pittsburgh's median incomes could afford a studio apartment in a new development. Any apartment larger than that, however, would place them in the category of cost-burdened or severely-cost burdened households. A two-bedroom apartment, for example, would cost a two-person household with the median income 49% of their pre-tax income.

These calculations demonstrate that Pittsburgh households earning the MHI generally cannot afford the rents being charged in new developments. Instead, new developments serve Pittsburgh's higher-income households. One-bedroom apartments are affordable to households in the highest and second highest income quintiles. Two-bedroom apartments are affordable to households earning \$86,510 or more, or those in the highest income quintile. In order to afford a three-bedroom apartment, a household must earn over two and a half times the citywide median household income.

Cost of Recently Constructed Apartments, 2015

Unit Size	Average Rent	Minimum Household Income Required	% of Median Income Required
Micro/Studio	\$1,251	\$50,033	125%
1-bedroom	\$1,599	\$63,960	160%
2-bedroom	\$2,163	\$86,510	216%
3-bedroom	\$2,545	\$101,800	254%

Sources: ACS 2014; Federal Poverty Guidelines 2014; Developer survey and calculations by Mullin & Lonergan Associates

Absorption Rates

New rental units are being absorbed into the market at or above developers' expectations

An absorption rate is an indicator of how long it will take to exhaust the existing supply of rental units at the current rate of lease-ups. A high absorption rate means that renters are quickly leasing homes as they become available. Conversely, a low absorption rate indicates a stagnant market, where a unit may sit on the market for an extended period of time before it is rented.

Research by Integra Realty Resources (IRR) from 2016 shows that absorption rates for new multi-family construction projects in Pittsburgh have been in the range of 11 to 22 units per month, with the average absorption rate at approximately 17 units per month. This rate has generally met or exceeded developer expectations. According to IRR, absorption rates are expected to decrease throughout 2016, as many of the new construction projects throughout the city are completed and unit leasing will slow down.

Income-Restricted Housing Inventory

Income-restricted units comprise about 10% of Pittsburgh's housing inventory

There are 200 income-restricted rental housing developments in Pittsburgh, containing 15,809 units. Of the 77 neighborhoods groups referenced in the Needs Assessment, 60 contain at least one type of income-restricted rental housing development.

The income required to be eligible to live in these developments varies depending on the funding sources used. While mixed-income developments contain a certain number of market-rate rental units, most of the units in this inventory have affordability restrictions. Supply does not meet demand: while there are 15,809 income-restricted units, there are 71,425 households earning at or below 80% MHI, a common threshold used to qualify for income-restricted housing.

Income-restricted housing units are concentrated in certain areas of Pittsburgh, namely the Hill District, East Liberty, Homewood, Central Northside, and Northview Heights.

This section evaluates the extent to which demand for affordable housing in Pittsburgh is met by the existing income-restricted housing inventory. The term "income-restricted housing" means any housing for which income restrictions apply for potential tenants. This includes, but is not limited to, traditional public housing, Low Income Housing Tax Credit (LIHTC) units, Project-Based Section 8 developments, HUD Section 811 and 202 developments, and HUD Rental Assistance Demonstration (RAD) units.

The effort to expand the supply of affordable housing in Pittsburgh has resulted in a significant income-restricted housing inventory. This inventory was created through a variety of local, state, and federal programs and funding sources. Each program may differ in its regulations, affordability thresholds, eligibility criteria, and affordability periods.

Housing Authority of the City of Pittsburgh

The Housing Authority of the City of Pittsburgh (HACP) is involved in a total of 4,260 housing units under the HUD Low Income Public Housing Program (LIPH). Of these units, the HACP owns and operates 3,056 units spread over 20 developments and 22 neighborhoods in Pittsburgh. This number includes 289 units at Addison Terrace/Bentley Drive that have been vacant since December 2014 and are approved for demolition.

The remaining 1,204 units are privately managed. These units comprise 10 developments ranging from 25 to 180 units per development. These units are exclusively mixed-financed redeveloped properties.

Of the HACP's inventory, there are a total of 1,839 mixed finance units. These developments involve subsidy from multiple sources, some of which have affordability requirements that expire and some of which do not. Of the 1,839 units that involve mixed financing, 1,204 involve both LIHTC affordability periods (which expires) and LIPH support (which does not expire). Another 297 units have tax credit financing only, and 338 units are market rate.

For several mixed-finance developments, including the North Aiken Apartments, Silver Lake Commons, and Fairmont Apartments, the HACP owns the land while the ground lease is held by an owner entity. This means that while the buildings are not owned or operated by the HACP, the units in them have LIPH Annual Contribution Contract subsidies and will, therefore, remain income-restricted indefinitely.

The HACP also has project-based Housing Choice Vouchers (HCV) at a number of projects where the voucher subsidy stays with the unit, providing unit-based subsidy for the household occupying it. Project-based HCV units have a 15-year commitment with an option for another 15 years. There are 379 project-based HCV units in eight developments. With the exception of the Legacy Apartments development in the Hill District, all of the project-based HCV commitments were made within the last four years, meaning they will be income-restricted for at least 11 more years and likely for an additional 15 more after that.

Importantly, this figure does *not* include the 5,270 tenant-based Housing Choice Vouchers (Section 8 vouchers) that households use to secure housing on the private market. It also does not include the 350 tenant-based Housing Choice Vouchers issued by the Allegheny County Housing Authority and used within the city.

Ongoing HACP Initiatives

East Liberty Gardens was purchased by the HACP in January of 2016 in preparation for redevelopment as part of the Larimer East Liberty Choice Neighborhoods Initiative Implementation. The agreement for East Liberty Gardens includes 125 units, although due to fire, there are only 124 standing units on site at this time. All of these units will be removed, along with 28 public housing units at Auburn/Hamilton-Larimer. They will be replaced, one for one, in the new development.

The most recent plans call for 155 replacement housing units for families up to 50% of the area median income (as required under HUD Choice Neighborhoods Initiative), 74 LIHTC units for families up to 60% of area median income, and 105 market rate units, for a total of 334 units. Phase I, with 28, 28, and 29 units, respectively, will be completed in 2016. Phase 2 with a projected 69, 30, and 39 units, respectively, will be completed in 2018. This phase will be completed on the current site of East Liberty Gardens. The final phase will be completed by 2020.

The HACP continues to pursue various mechanisms to expand income-restricted housing and to redevelop obsolete public housing. Pending a tax credit award, later this year HACP will begin to vacate about 90 units of public housing at Allegheny Dwellings to make way for a new LIHTC/PBV/market rate development both on and off site.

Additional phases of Addison Terrace replacement projects are also currently in the works. Addison Terrace Phase II will create 90 total units, of which approximately 64 will be project-based vouchers. The project is scheduled to begin construction in the second quarter of 2016. Addison Terrace Phase III will add at least 50 mixed-income units in the Middle Hill. Construction is expected to begin in 2016 as well.

Other Income-Restricted Housing Inventory

Pennsylvania Housing Finance Agency (PHFA) is involved with income-restricted housing development throughout the state, including Pittsburgh. One of the most common types of income-restricted housing development is LIHTC financing. Most PHFA LIHTC projects placed in service after 2001 have 30-year affordability restrictions, although at the end of the first 15 years there is often a sale or refinancing. This activity is generally subject to continued use as income-restricted housing through a deed restriction.

Developments by Subsidy Type:

- » Section 202 (income-restricted supportive housing for the elderly): 5
- » FHA (mortgage insurance and stabilization): 32
- » Low Income Housing Tax Credit (income-restricted rental housing): 52
- » Section 515 (income-restricted rural rental housing): 2
- » HOME (income restricted housing construction subsidy): 19
- » LIPH (traditional public housing subsidy): 30

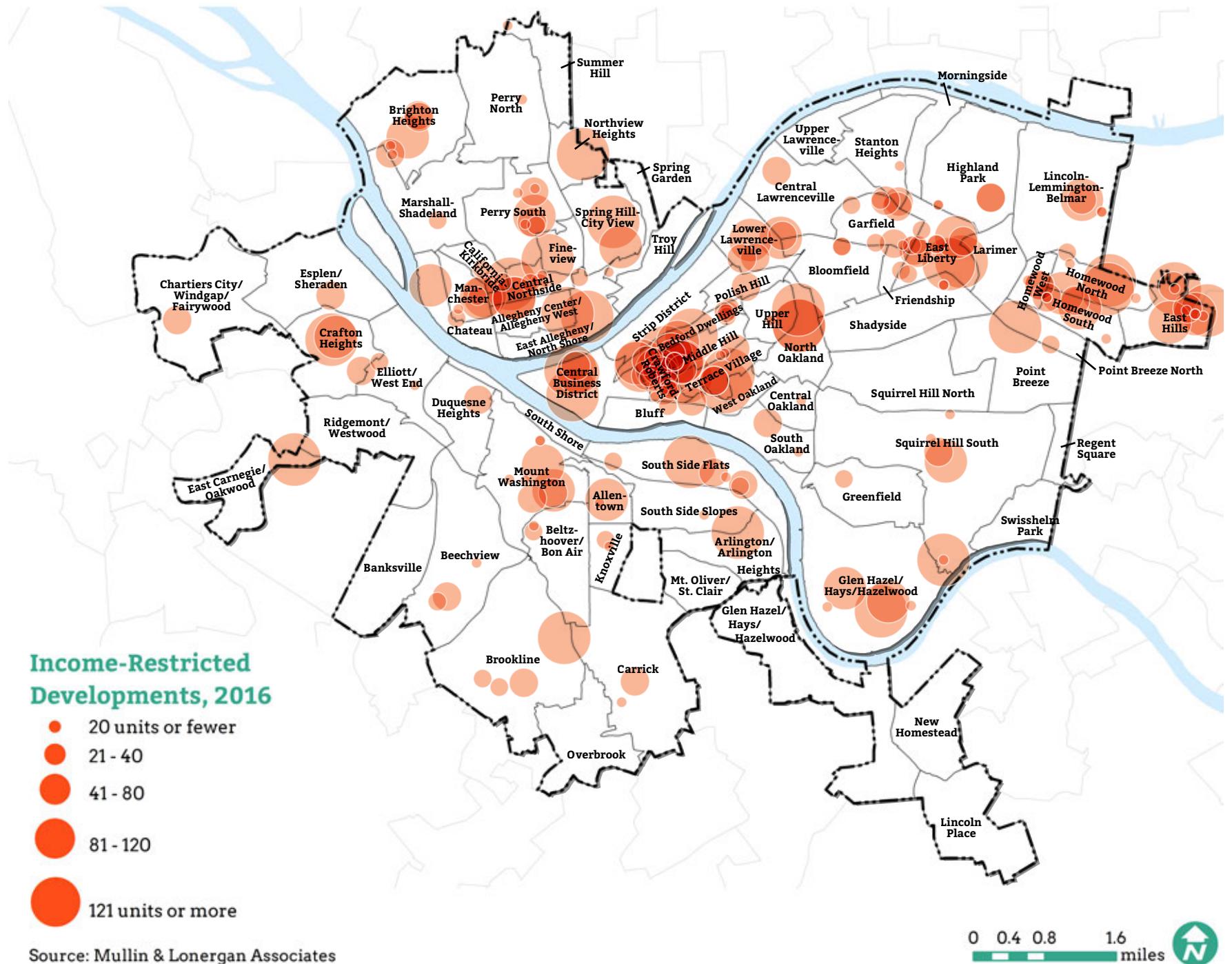
Developments by Number of Subsidies:

- » One subsidy source only: 137 developments
- » Two subsidy sources: 49 developments
- » Three subsidy sources: 6 developments

Data is unavailable for the remainder of developments in the inventory.

Housing Market Characteristics

Developments with Income-Restricted Units in 2016



Recently Expired and At-Risk Income-Restricted Housing Units

Income restrictions for 1,729 units are at risk of ending by 2020

While some subsidized housing maintains income restrictions indefinitely, other subsidized housing has income restrictions only for a set period of time. Following this period, which varies depending on the funding source that subsidized the development, the income restrictions may expire if no action is taken. Once a unit's income restriction period ends, the owner may opt to be released from the income restrictions and increase the rent to market-rate levels. This can potentially mean a rent spike and involuntary displacement for existing tenants unable to pay the increased rents.

Based on data from HUD and the National Housing Preservation Database, a total of 1,850 income-restricted units in 37 developments were set to expire. Of these 37 developments, 25 were owned by non-profits, 8 were owned by for-profit corporations, and 4 were owned by multiple types of entities. Of the 37 developments where affordability periods were set to expire, 12 developments (containing 1,160 units) requested renewal of their Section 8 subsidy status. Data is not available for the remainder of the developments. While the end of a development's official affordability period does not necessarily mean that rents in the respective units will rise, it can no longer be guaranteed to remain affordable to households at a certain income.

Strategically extending the restriction periods for existing income-restricted housing developments is critical for maintaining the long-term affordability of the units. Because funding is limited and often extremely competitive, it is also generally more effective to preserve existing affordable units rather than constructing new projects.

Inventory set to expire before 2020 can be considered "at risk" as the income restriction periods on them will end soon. A total of 1,729 units among 37 separate developments will have their affordability periods end between 2016 and 2020. Of these 37 developments, 16 are owned by non-profits, 8 are owned by for-profits, and 1 is owned by multiple entities (data is unavailable for the remainder).

Geography of At-Risk Income-Restricted Housing Units

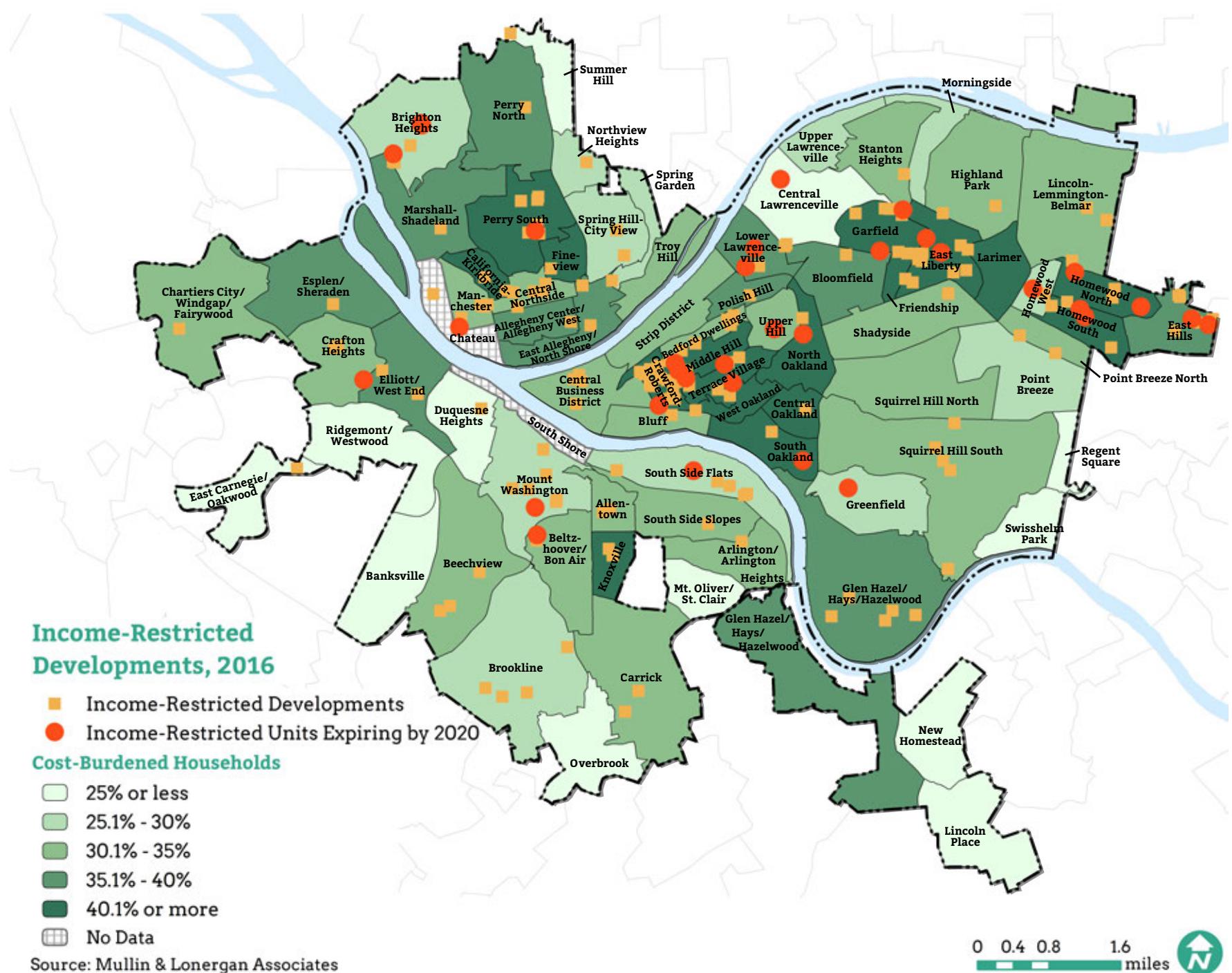
At-risk units are clustered in the Hill District, East Liberty, parts of the Northside, and Homewood neighborhoods of Pittsburgh.

The geographic distribution of at-risk affordable units follows the general dispersion of affordable housing developments. In the four census tracts that comprise Homewood, 8 out of 20 income-restricted housing developments will expire by 2020. In East Liberty, 4 of 11 income-restricted housing developments will expire by 2020. The proportion is lower in the five tracts that comprise the Hill District: 7 income-restricted housing developments are set to expire out of the 31 developments in the neighborhood.

These same neighborhoods have very high rates of cost burden, meaning that the existing population is already struggling to afford housing in the neighborhood.

Income-Restricted Units Set to Expire by 2020

Housing Market Characteristics



5

Housing Need

Housing Need

The Housing Needs Assessment focuses on two common techniques for investigating housing need – affordable housing gaps and cost burden.

An affordability gap analysis compares household incomes to housing units using a common definition of “affordability.” Understanding the level of affordability that’s missing from the current housing supply is a critical component to understanding housing need. This method is unique in that it incorporates competition, taking into account how the choices of higher income households affect lower income ones.

Cost burden is a measure of households that pay more than they can reasonably afford for their housing. If a household pays more than 30% of its income on housing costs, it is considered to be cost-burdened. This method grants insight into how much money different types of households are paying to live in a particular place.

Income Bands

The Department of Housing and Urban Development (HUD) commonly uses a series of income thresholds to manage its various programs. For convenience and consistency, many municipalities, housing researchers, and advocates also use these thresholds when evaluating housing need and assistance.

Pittsburgh Income Bands, 2014

% of MHI	Annual Income Threshold	Number of Households	Share of Households
0% - 30%	\$12,003	22,723	17.17%
0% - 50%	\$20,005	38,794	29.31%
0% - 80%	\$32,007	57,592	43.51%
0% - 100%	\$40,009	69,681	52.64%

Methodology

It is important to understand how an affordable housing gap is calculated as income thresholds increase. For the lowest income category (30% of the MHI or below), the gap is comprised of households who are cost-burdened and pay more for housing than is affordable to them.

Stepping up the income threshold to the next highest level (50% of MHI or below) may define some of those previous “gap” households as living in units that, while unaffordable to them, are technically affordable at the higher 50% of MHI level. For instance, a household earning 25% of MHI living in a unit affordable at 45% of MHI would count toward the gap in the first category, but not the next.

It is worth noting that the homes and apartments counted in this chapter as “affordable” may or may not actually be in an inhabitable condition.

Additional detail about the methodology for the affordable housing gaps analysis can be found in the Appendix.

For the most part, the Housing Needs Assessment adopts these thresholds in order to consistently explore different degrees of housing need. In the Pittsburgh context, over 40% of the city’s population fall into the lowest three income bands. These bands generally have the highest need and are the most frequently served by housing assistance programs and agencies.

Affordable Housing Gap

An affordable housing gap is the difference between the number of households earning a specific income and the housing units that are both affordable and available to them.

Housing is affordable if a household can pay for it with 30% or less of their income. Housing is available to a specific group if it is vacant and priced affordably, or if it is currently occupied by a household at or below the defined income threshold. "Available" does not necessarily mean the unit is actively listed for rent or for sale.

A gap between the supply of and demand for affordable housing represents households in the city who have not found housing within their price range and are paying more than they can reasonably afford.

About these Results

Some renters may explicitly choose to live in units that cost less than 30% of their income. This effectively removes a unit from those that are defined as "available" even if they are affordable to a household making less, increasing the gap for lower income categories.

It is important to note that the affordability of owner-occupied units is calculated based on the home's value, i.e. roughly what a new buyer of that home would pay for it, and not the current homeowner's real world costs. So if, for example, a homeowner retires and experiences a drop in income but is already mortgage-free, their income relative to their home's value may appear unaffordable even if they can afford the ongoing monthly costs. In addition, the "cost" of purchasing a home does not take into account any potential financial benefits, such as a mortgage interest tax deduction.

As a result of the unknowns in the data that are unavoidable, these gap calculations are only approximates. The gap is likely impacted by seniors and other households who have paid off their mortgages, students, and other demographic groups whose current housing costs are not strongly correlated to their current incomes. This is important to consider when interpreting the results of the analysis.

There are only 34 units of affordable and available housing per 100 extremely low-income households

There is a citywide deficit of nearly 14,900 units that are affordable and available to households earning 30% of the MHI and below. To put this in perspective, there are only about 34 units of affordable housing per 100 households available at this income threshold. This means that 66 of these 100 households are cost-burdened, paying more for housing than they can reasonably afford.

As explained in detail in “About the Data” (Chapter 1, page 4), some of these results may be impacted by the self-reported nature of the census data used and possible misunderstanding by survey respondents. For example, persons receiving Section 8 Housing Choice vouchers may report their rent as the full amount rather than what they actually pay.

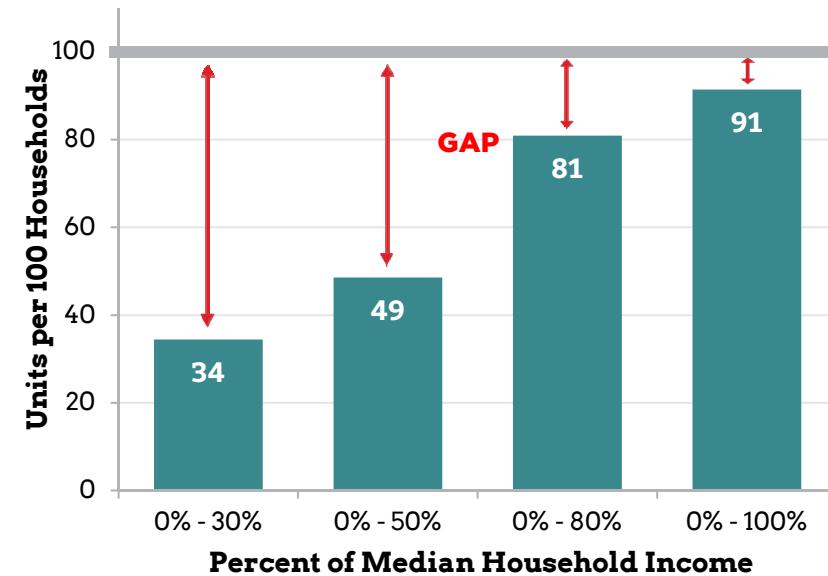
As household incomes increase to the 50% of MHI level, more housing choices become available and the gap shrinks to 51 units per 100 households. The same effect is true along the entire income spectrum, up to 100% of the MHI.

The conclusion that the city’s lowest earning households have the most trouble paying for housing is not surprising. Even households earning up to the city’s MHI, however, still face a shortage of about 9 affordable and available units per 100 households. Pittsburgh’s housing stock may be affordable in the big picture, but clearly not for everyone. Pittsburgh’s affordable housing gap between renter households and renter-occupied units follows a similar trend to the overall citywide gap.

Overall Affordable Housing Gap, 2014

% of Median Household Income	Households	Affordable & Available Units	Gap
0% - 30% (\$12,003)	22,723	7,827	-14,896
0% - 50% (\$20,005)	38,794	18,837	-19,957
0% - 80% (\$32,007)	57,592	46,587	-11,005
0% - 100% (\$40,009)	69,681	63,683	-5,998

Overall Affordable Housing Gap, 2014



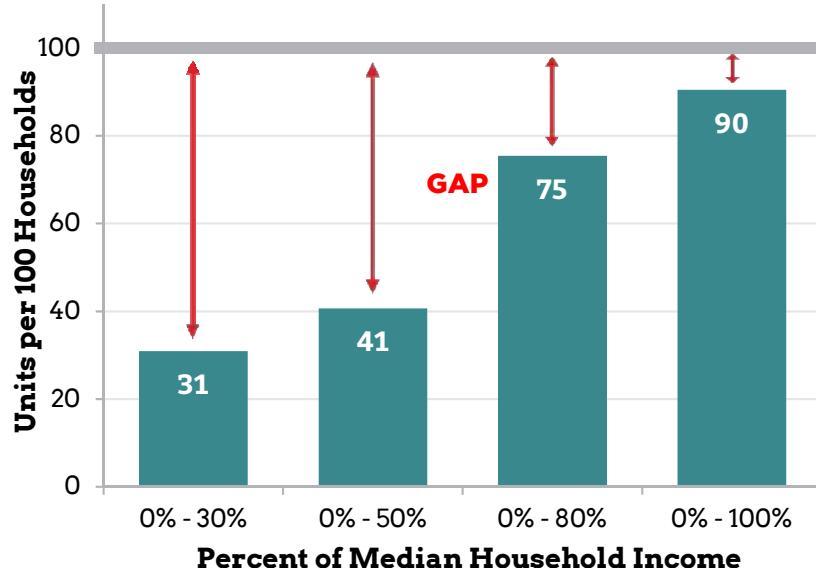
There are only 31 units affordable and available for every 100 extremely low-income renters

Renter households earning up to 30% of the MHI face serious challenges for finding affordable housing. There are only 31 units affordable and available for every 100 of these households. The gap is slightly smaller at 50% of MHI, and continues to shrink as income climbs. Once again, renters earning the city's MHI still face a shortage of affordable units that are available to them.

Affordable Housing Gap for Renters, 2014

% of Median Household Income	Renter Households	Affordable & Available Units	Gap
0% - 30% (\$12,003)	18,321	5,672	-12,649
0% - 50% (\$20,005)	29,062	11,821	-17,241
0% - 80% (\$32,007)	39,402	29,714	-9,687
0% - 100% (\$40,009)	45,350	41,033	-4,317

Affordable Housing Gap for Renters, 2014



There are only 46 affordable units and available for every 100 extremely low-income homeowners

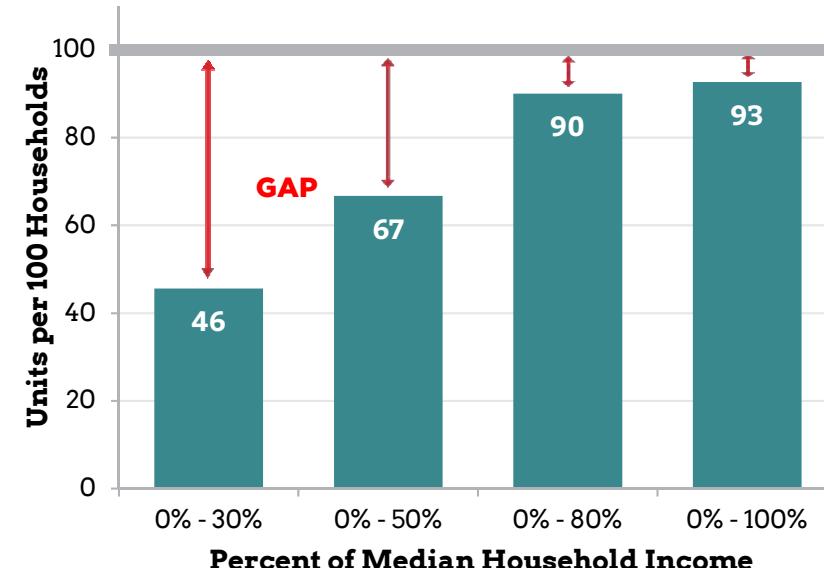
The affordable housing gap for homeowners follows a similar trend to the overall citywide gap. However, while there are only 41 homes for every 100 *renters* earning 50% or less of the MHI, there are 67 homes for every 100 *homeowners*. In other words, compared to renters, half as many owners earning up to 50% of MHI can't purchase housing that's affordable to them.

This is a unique result for Pittsburgh, and indicates that homeowners have better affordable housing options than renters. However, a household must achieve the conditions necessary to purchase a home in the first place in order to take advantage of this situation.

Affordable Housing Gap for Homeowners, 2014

% of Median Household Income	Homeowner Households	Affordable & Available Units	Gap
0% - 30% (\$12,003)	4,403	2,008	-2,394
0% - 50% (\$20,005)	9,732	6,488	-3,244
0% - 80% (\$32,007)	18,190	16,375	-1,815
0% - 100% (\$40,009)	24,331	22,554	-1,777

Affordable Housing Gap for Homeowners, 2014



Cost Burden

In addition to cost burden, which signifies paying more than 30% of household income on housing costs, this Housing Needs Assessment uses a secondary threshold called “severe cost burden” for households that spend half of their income or more on housing. Households experiencing severe cost burden may have trouble paying for even basic necessities such as food, transportation, or health care.

This analysis will explain:

- » The level of cost burden throughout the city at different household income bands
- » The differences in rates of cost burden between homeowners and renters
- » How cost burden affects different household types, such as the elderly and large families

Citywide Cost Burden

In 2012, around one-third of households in Pittsburgh were spending 30% or more of their income on housing costs...

Cost burden is a substantial problem throughout Pittsburgh. Household incomes have remained stagnant over the past decade when compared to inflation. At the same time, housing costs have risen, meaning that many households must spend more of their income on housing even though they are not earning much more overall.

In 2012, around one-third of households in Pittsburgh were spending 30% or more of their income on housing costs. The majority of those (90.2%) earned less than 80% of the median family income (HAMFI). In general, the less a household earns, the more likely that household will be cost-burdened.

Relative to the number of households within each income band, extremely low-income households (30% or less of HAMFI) were the most cost-burdened. Very low-income (30% to 50% of HAMFI) households experienced cost burden at only a moderately lower rate.

Methodology

Most of the data for the cost burden analysis came from HUD’s Comprehensive Housing Affordability Strategy (CHAS) dataset, a custom tabulation of data from the US Census Bureau that is largely not available through standard Census products. Since the ultimate source of CHAS data is the American Community Survey, the data is collected in the same way and shares many of the same characteristics.

For income comparisons, CHAS uses the HUD Area Median Family Income (HAMFI) rather than the median household income (MHI) used elsewhere in the Housing Needs Assessment. HAMFI is generated using a series of adjustments for household size, recent income trends, and other factors, and is generally higher than the simple median because it is meant to represent a four-person household. For example, HAMFI for the Pittsburgh metro area in 2012 was \$64,900, compared to an MHI of \$50,920 for the urban area.

For this reason and to avoid confusion, dollar values are not shown for the income bands in this section.

...while another 12,100 households were spending 50% or more

Cost burden is also more acute among the lowest earning households. There were 12,100 more severely cost-burdened extremely low-income households than very low-income ones, despite both the total extremely low-income population being only 9,200 households greater.

The finding that extremely low-income households typically experience cost burden to the greatest degree holds true throughout this analysis.

Change in Housing Costs, 2000-2014

	2000†	2014	Change
Median Household Income	\$39,104	\$40,009	2.3%
Median Housing Value	\$82,074	\$91,500	11.5%
Median Gross Rent	\$687	\$794	15.5%

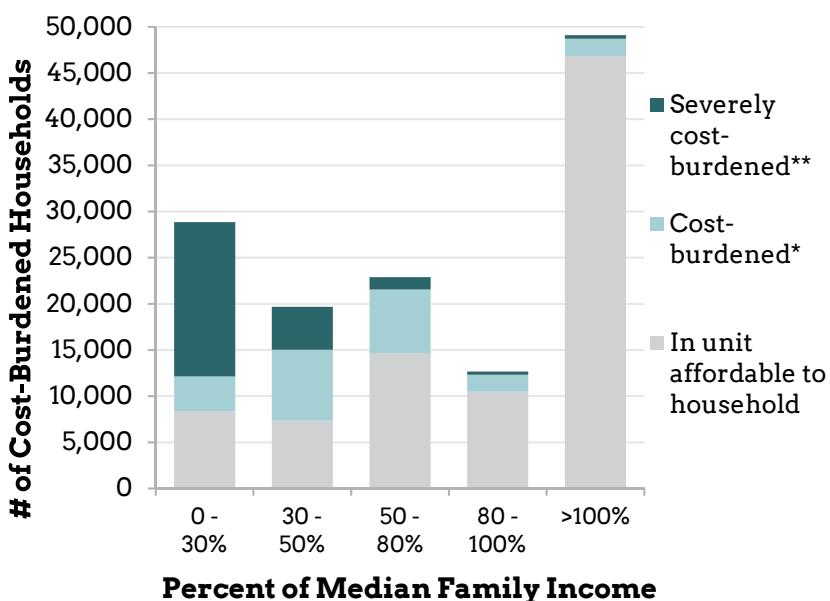
†Expressed in 2014 dollars.

Cost Burden, 2014

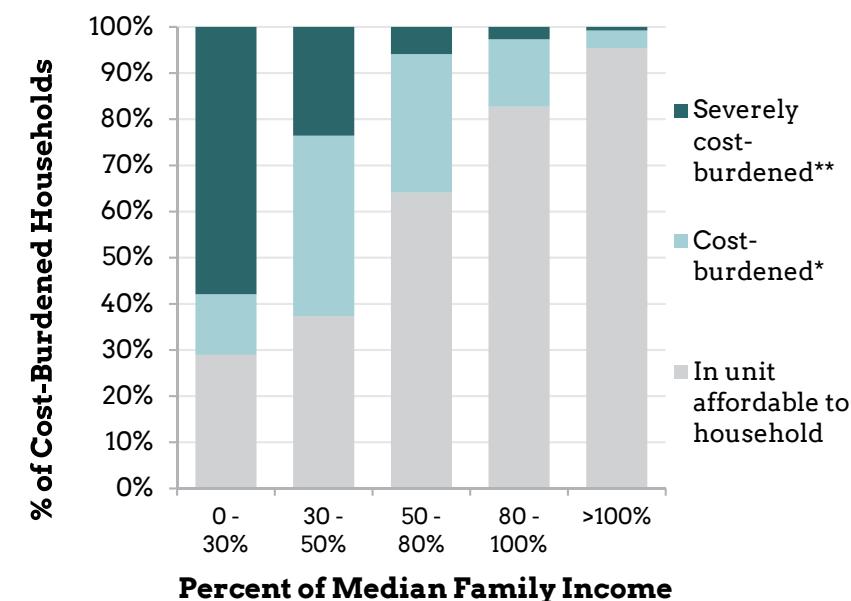
% of Median Family Income	Total Households	In Affordable Units	Cost-burdened*	Severely cost-burdened**	% Cost-burdened***
0 - 30% (\$0 - \$19,470)	28,845	8,350	3,790	16,705	71.05%
30 - 50% (\$19,471 - \$32,450)	19,680	7,355	7,690	4,635	62.63%
50 - 80% (\$32,451 - \$51,920)	22,900	14,670	6,885	1,345	35.94%
80 - 100% (\$51,921 - \$64,900)	12,670	10,480	1,850	340	17.28%
>100% of HAMFI (\$64,901+)	49,095	46,850	1,865	380	4.57%
Total	133,190	87,705	22,080	23,405	34.15%

Source - CHAS 2008-2012

Cost Burdened Households, 2012



Cost Burdened Households, 2012



* housing costs are 30% - 50% of household income / ** housing costs are >50% of household income / *** housing costs are >30% of household income

Homeowner Cost Burden

Homeownership in Pittsburgh is largely affordable to households earning at or above the citywide median income.

However, homeownership is not as easily affordable for those earning the city's lowest incomes. Therefore, households in lower income bands are generally less likely to be homeowners than those in a higher band.

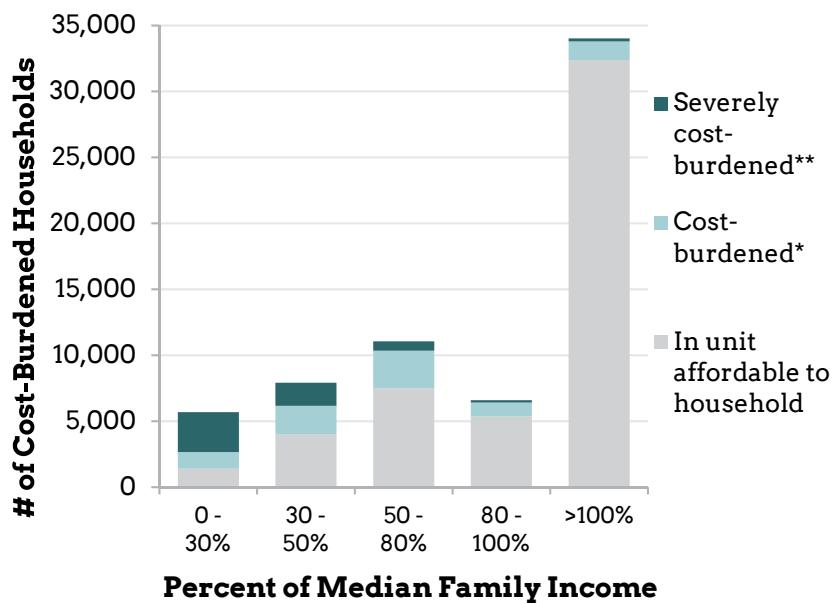
Homeowner Cost Burden, 2012

% of Median Family Income	Homeowner Households	In Affordable Units	Cost-burdened*	Severely cost-burdened**	% Cost-burdened***
0 - 30% (\$0 - \$19,470)	5,690	1,395	1,275	3,020	75.48%
30 - 50% (\$19,471 - \$32,450)	7,915	4,020	2,155	1,740	49.21%
50 - 80% (\$32,451 - \$51,920)	11,060	7,495	2,850	715	32.23%
80 - 100% (\$51,921 - \$64,900)	6,600	5,355	1,055	190	18.86%
>100% of HAMFI (\$64,901+)	34,025	32,380	1,415	230	4.83%
Total	65,290	50,645	8,750	5,895	22.43%

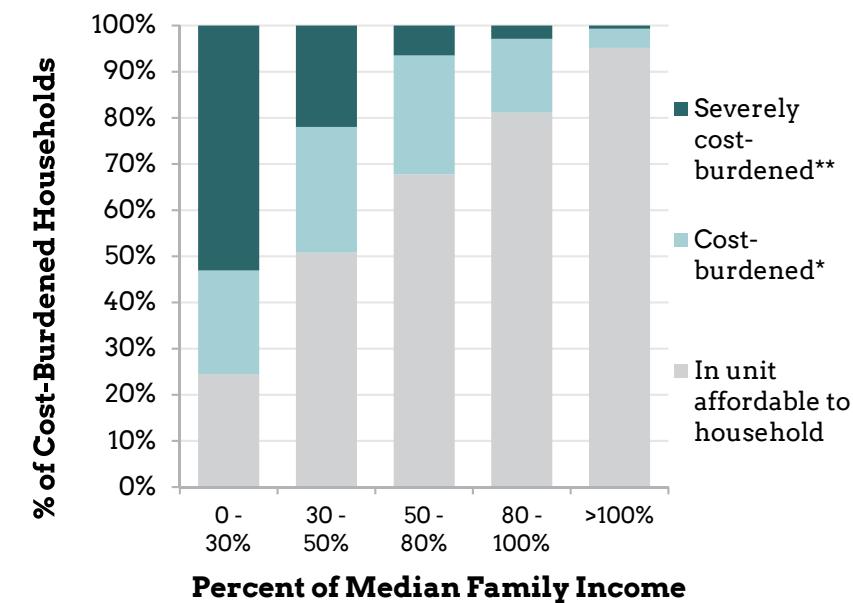
Source - CHAS 2008-2012

When comparing relative cost burden, though, there are far more extremely low-income homeowners who are cost-burdened than moderate-income ones. Extremely low-income households have both the highest level and severity of cost burden among all homeowners in the city.

Cost Burdened Homeowner Households, 2012



Cost Burdened Homeowner Households, 2012



* housing costs are 30% - 50% of household income / ** housing costs are >50% of household income / *** housing costs are >30% of household income

Renter Cost Burden

Unlike homeowners, most renter households earn less than 80% of HAMFI.

Even so, extremely low-income households once again have the highest rate of severe cost burden.

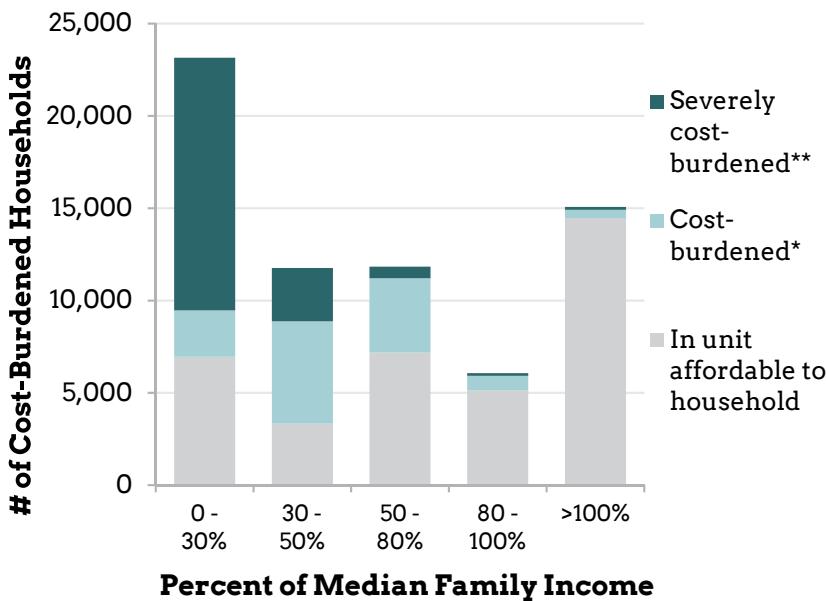
These figures represent all renter households in the city, including those residing in any type of subsidized housing and those receiving rental assistance directly. As such, these levels of cost burden may in reality be lower than they appear. Housing Choice Voucher holders, in particular, may be represented in the data while, in fact, their voucher keeps them from being cost-burdened.

Renter Cost Burden, 2012

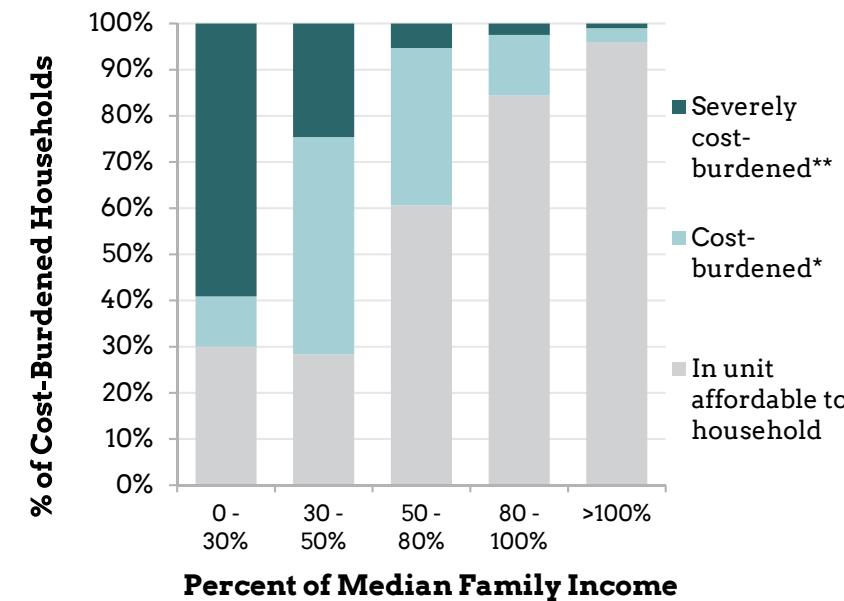
% of Median Family Income	Renter Households	In Affordable Units	Cost-burdened*	Severely cost-burdened**	% Cost-burdened***
0 - 30% (\$0 - \$19,470)	23,155	6,955	2,515	13,685	69.96%
30 - 50% (\$19,471 - \$32,450)	11,765	3,335	5,535	2,895	71.65%
50 - 80% (\$32,451 - \$51,920)	11,840	7,175	4,035	630	39.40%
80 - 100% (\$51,921 - \$64,900)	6,070	5,125	795	150	15.57%
>100% of HAMFI (\$64,901+)	15,070	14,470	450	150	3.98%
Total	67,900	37,060	13,330	17,510	45.42%

Source - CHAS 2008-2012

Cost Burdened Renter Households, 2012



Cost Burdened Renter Households, 2012



* housing costs are 30% - 50% of household income / ** housing costs are >50% of household income / *** housing costs are >30% of household income

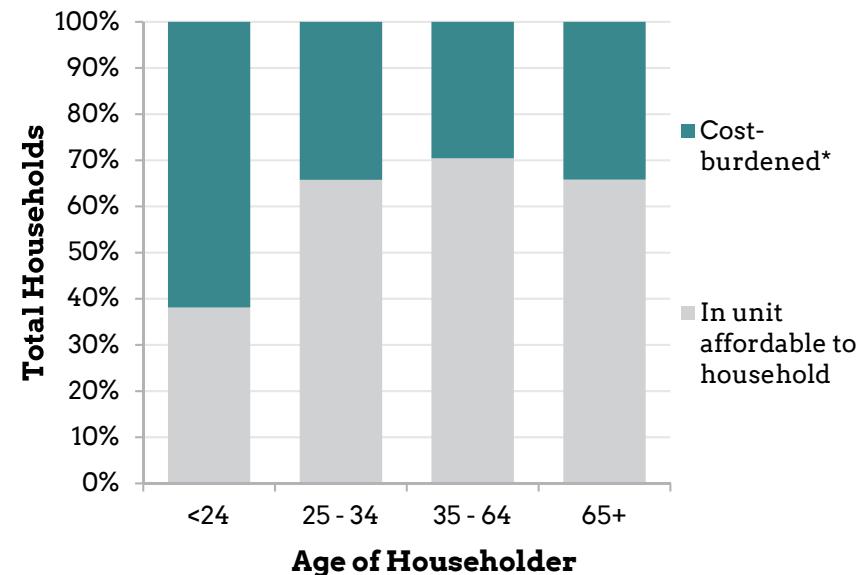
Housing Need

Age and Cost Burden

The age of a householder is strongly related to his or her earning power.

Financial hardship early in life can have long-lasting impacts, as it can delay other financial milestones such as getting married, buying a home, or starting a family. Incomes typically start low for young workers, increase as they become more established in a career, and plateau or decrease during retirement. This model is true for Pittsburgh's households, and influences the patterns of age and householder cost burden in the city.

Cost Burden by Age, 2012



Cost Burden by Age, 2012

Age of Householder	Total Households	In Affordable Units	Cost-burdened*	% Cost-burdened*
<24	11,843	4,514	7,329	61.88%
25 - 34	29,538	19,430	10,108	34.22%
35 - 64	61,949	43,631	18,318	29.57%
65+	29,049	19,112	9,937	34.21%

Source - ACS 2008-2012

* housing costs are 30% - 50% of household income / ** housing costs are >50% of household income / *** housing costs are >30% of household income

Household Size and Cost Burden

Single-person households are the largest group of cost burdened households, by far

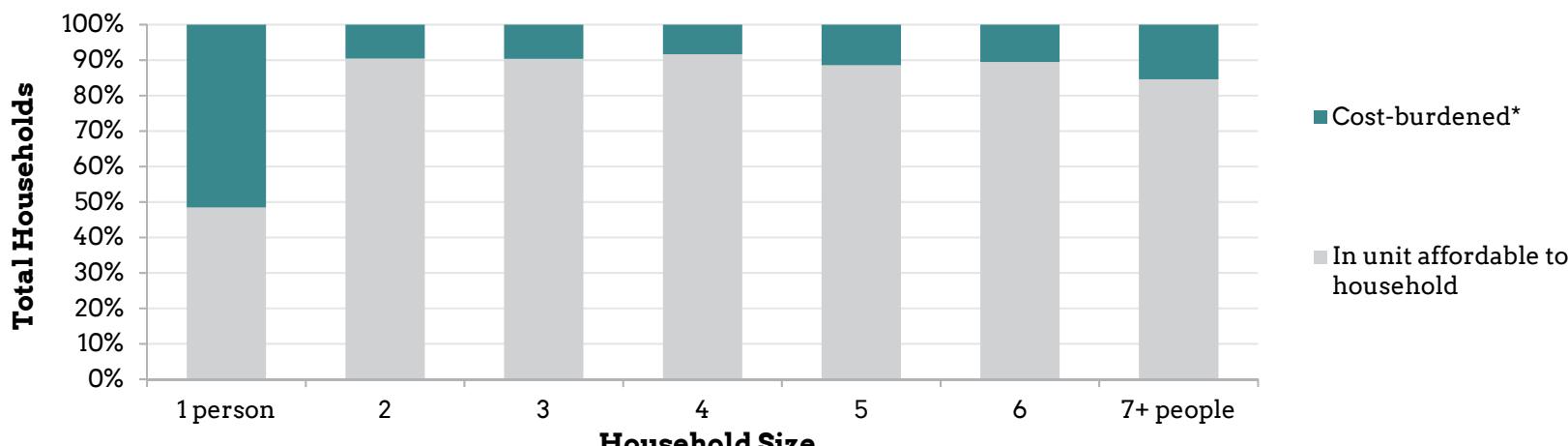
Like householder age, household size is related to cost burden. One-person households were the largest category in the city with more than twice the number of two-person households, the next largest category. But one-person households were the most cost-burdened by a much larger margin – more than three times the rate as the next most cost-burdened group (seven-person households). Two-person households, on the other hand, were the second most common type but among the least cost-burdened.

Household Size and Cost Burden, 2014

Household Size	Total Households	In Affordable Units	Cost-burdened*	% Cost-burdened*
1 person	72,008	34,860	37,148	51.59%
2 people	34,894	31,555	3,339	9.57%
3 people	12,805	11,570	1,235	9.65%
4 people	7,997	7,329	668	8.35%
5 people	3,072	2,721	351	11.41%
6 people	952	851	100	10.53%
7 or more people	651	551	100	15.38%

Source - PUMS 2010-2014

Household Size and Cost Burden, 2014



The increment between one- and two-person households clearly makes a big difference in housing affordability. Many two-person households benefit from having two incomes instead of only one, but do not necessarily need homes that are twice as big and twice as costly as a lone individual's. However, two-person households can be any combination of two individuals, including a single parent with one child, an elderly person and a caretaker, and other households that might not have two incomes.

Intuitively, larger households seem more at risk of being cost burdened – they require larger homes than smaller families and are likely to contain members without a contributing income. However, although large households are more cost-burdened than mid-sized ones, the large number of one-person households facing cost burden in Pittsburgh indicates that these are in fact the households with the greatest needs.

One-person households are likely to be either very young or elderly households. Both of these age groups tend to have below-average incomes, and both are expected to become a larger proportion of Pittsburgh's population over time.

Geography of Cost Burden

Cost burden is highest in the North Side, the Hill District, Oakland, and East End

Cost burden is a basic comparison of income and housing costs. Therefore, mapping areas where cost burden is greatest shows places where incomes are generally the least sufficient to afford housing, either because incomes are low or costs are high.

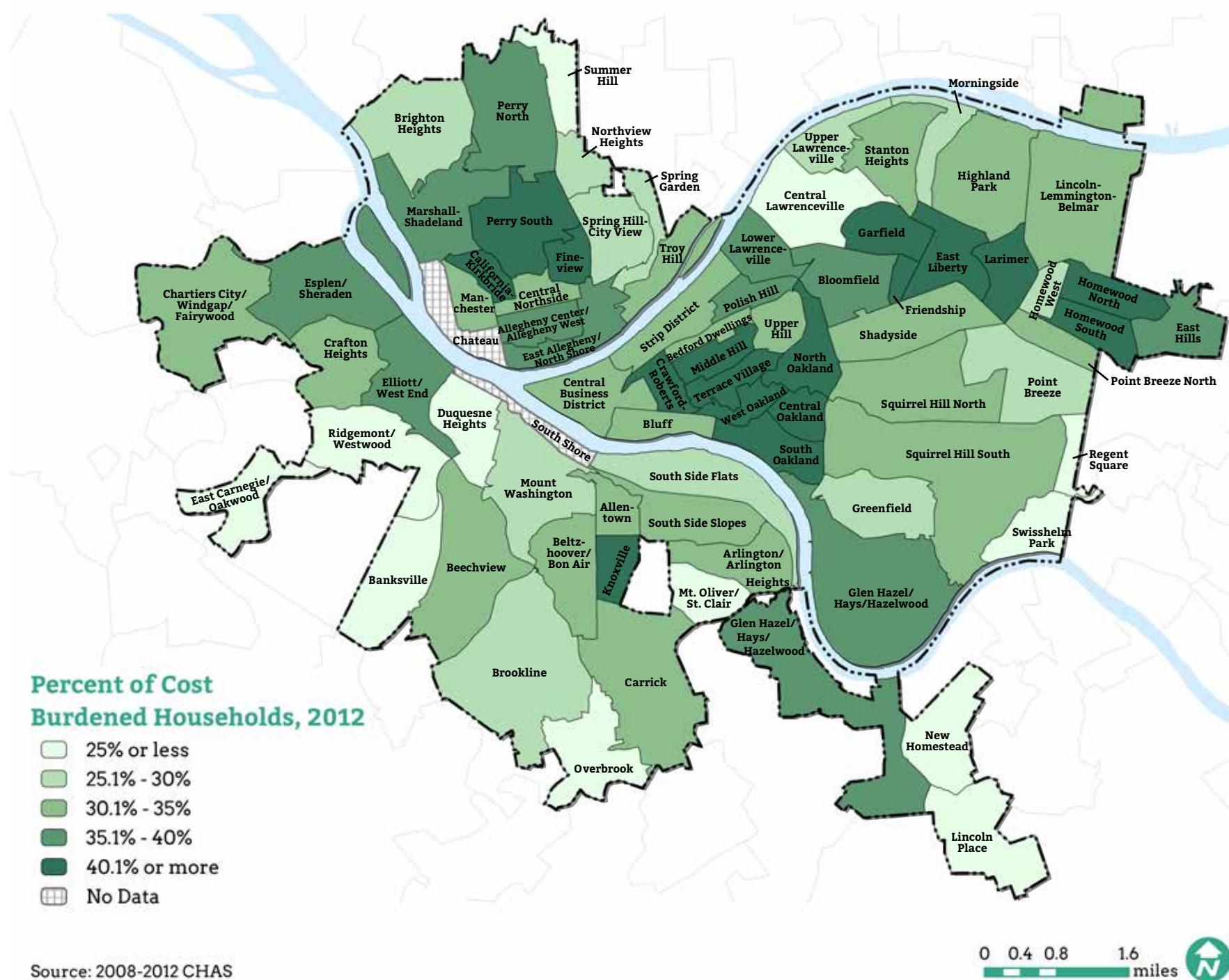
Cost burden appears to be most prevalent in three clusters of neighborhoods in the city – around Perry South in the North Side, the Hill District/Oakland area, and the neighborhoods between Garfield and Homewood in the East End.

These are all low-income neighborhoods, with median household incomes less than the citywide median of \$40,009. In fact, the high cost burden neighborhoods in these three clusters have among the lowest median incomes in the city, within the lower third of the overall range.

In addition, many of the neighborhoods that contain large shares of the city's cost-burdened households also have large student populations. For instance, the neighborhoods of Bloomfield, Oakland, Shadyside, and Squirrel Hill together house 25% of the city's cost-burdened households. This implies that student householders comprise a significant portion of Pittsburgh's cost-burdened households, even though low-income neighborhoods might have the greatest concentrations of cost burden.

A complete breakdown of cost burden by neighborhood can be found in the Appendix.

Cost Burden in 2012



6

Displacement Risk

Displacement Risk

Rapidly rising rents and sales prices can lower the overall affordability of a neighborhood, effectively pricing out lower-income households. Generally, the populations most vulnerable to displacement are those who are already struggling to pay for housing.

Assessing the relationship between changes in the housing market and residential displacement is a critical part of the Housing Needs Assessment. However, the risk for involuntary displacement is more nuanced than a simple function of housing prices. While rising rents are a large component of displacement, other factors, such as existing neighborhood conditions and demographics, are also important to consider.

Resident Vulnerability Index

A Resident Vulnerability Index is a calculation of neighborhood-level risk of involuntary displacement, or being forced to move from one's home. Each index is comprised of multiple variables with values between 1 and 100, with 100 being the greatest risk and 1 being the least. Each variable represents a different component of the housing market associated with vulnerability to displacement. While a single variable in an index does not explain much on its own, the combination of multiple variables into a combined index provides a more accurate and objective picture.

These indices are somewhat similar to the Displacement Risk Ratio calculated for Pittsburgh by The Reinvestment Fund in 2015. However, several key differences distinguish the two methods. Firstly, a Resident Vulnerability Index combines between four and six different variables, as opposed to simply analyzing sales prices and incomes over time. Combining more factors more accurately reflects real conditions in complex markets.

The Resident Vulnerability Index also uses data that is available citywide and at the neighborhood level, whereas reliance on only sales prices can result in a lack of information in many of Pittsburgh's neighborhoods with low sales volumes. These differences greatly increase the explanatory power of the index; it can be used to make policy decisions about which neighborhood residents will be the most vulnerable to displacement in the future.

It is important to note that these indices are not intended to be used as a measure of gentrification or current displacement. Rather, the index models which neighborhoods would be most vulnerable to potential increases in housing prices. As the results show, vulnerability to displacement is not necessarily highest in Pittsburgh's most rapidly changing housing markets. This is because vulnerability is based in part on the economic circumstances of actual residents, not just the changes in the local housing market.

Many Pittsburgh residents are vulnerable to displacement due to their poor economic circumstances, such as already paying too much for housing or being unemployed. This creates vulnerability even in stable or stagnant neighborhoods. The calculations show where affordable housing needs may be most acute, if not always the most visible.

Variables

The 13 variables in the Resident Vulnerability Index model either constrained housing choice, housing market volatility, or economic instability of the existing population. There is a significant degree of overlap in these categories. The variables used are:

Housing Choice Constraints

- » Change in rental vacancy rates
- » Frequency of mortgage denials
- » Frequency of foreclosures

Housing Market Volatility

- » Change in median rent
- » Proportion of population living in a different house 1 year ago
- » Proportion of rapid resale homes
- » Increase in proportion of high-income households
- » Proportion of income-restricted units per low-income renter households (inverse)
- » Proportion of renters

Economic Instability

- » Unemployment rate
- » Renter cost burden
- » Overcrowding
- » Proportion of population receiving public assistance

The variables in each of these three categories were scaled from 1 to 100, summed, and scaled again. This resulted in three indices that each describe a different aspect of vulnerability.

A more detailed breakdown of the variables used, the sources of data, and an explanation of how they relate to displacement is presented in the Appendix.

Results

Every neighborhood in Pittsburgh contains residents who are at risk of being displaced due to rising housing costs. However, residents in certain neighborhoods are at a higher risk than others.

Not every neighborhood is vulnerable in the same way. For instance, residents in the Hill District tend to be more economically unstable due to high unemployment and high receipt of public assistance (cash payments as defined by the Census Bureau). However, the Hill District has relatively low housing market volatility due to the number of public housing units in the neighborhoods and the effects that come with that type of housing stock – steady rents, lack of owner-occupied units limiting the number of rapid resales, and income restrictions that prevent residents earning above a certain amount from moving in.

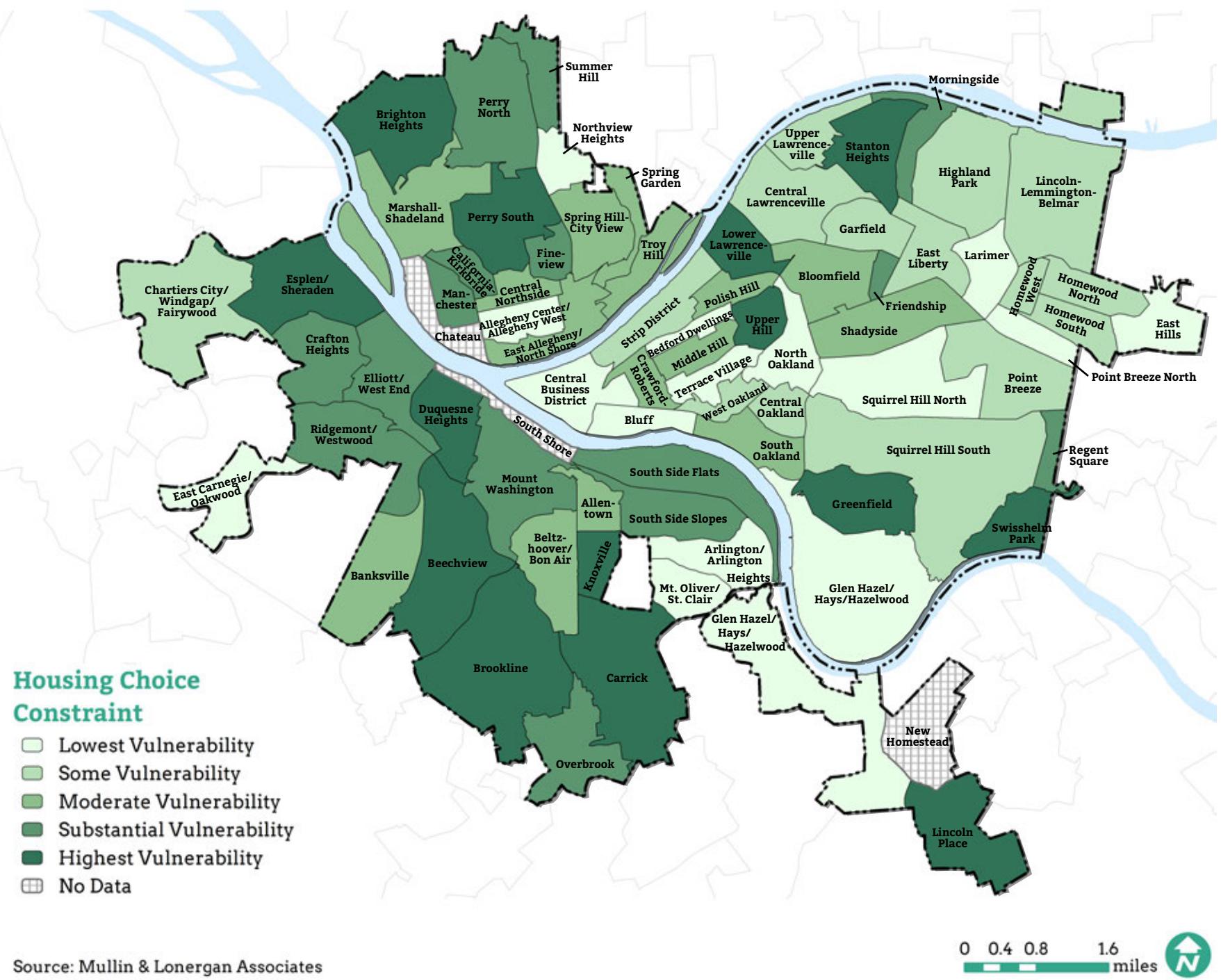
In nearby Shadyside and Bloomfield, as other examples, residents are much more economically stable but the housing market is much more volatile because of resident turnover and rising rents. Some neighborhoods such as Knoxville, Lincoln-Lemington-Belmar, Upper Hill, Central Northside, and Lower Lawrenceville are vulnerable in all three categories of factors. These types of neighborhoods might require multiple types of interventions to defend against involuntary displacement.

There are several outliers in the analysis. While the Strip District scored high on the index, this is largely an anomaly. As the Strip District was almost exclusively commercial or industrial in 2000, there are very few long-standing residents. Since the vast majority of recent new housing in the neighborhood has been high-end, the data on changes in income and rent are skewed. Scores for the four neighborhoods that comprise Oakland should also be treated cautiously, as the large numbers of students living in this area have a significant impact on the data. While student households are often low-income and vulnerable to displacement, they have very different needs compared to the general population.

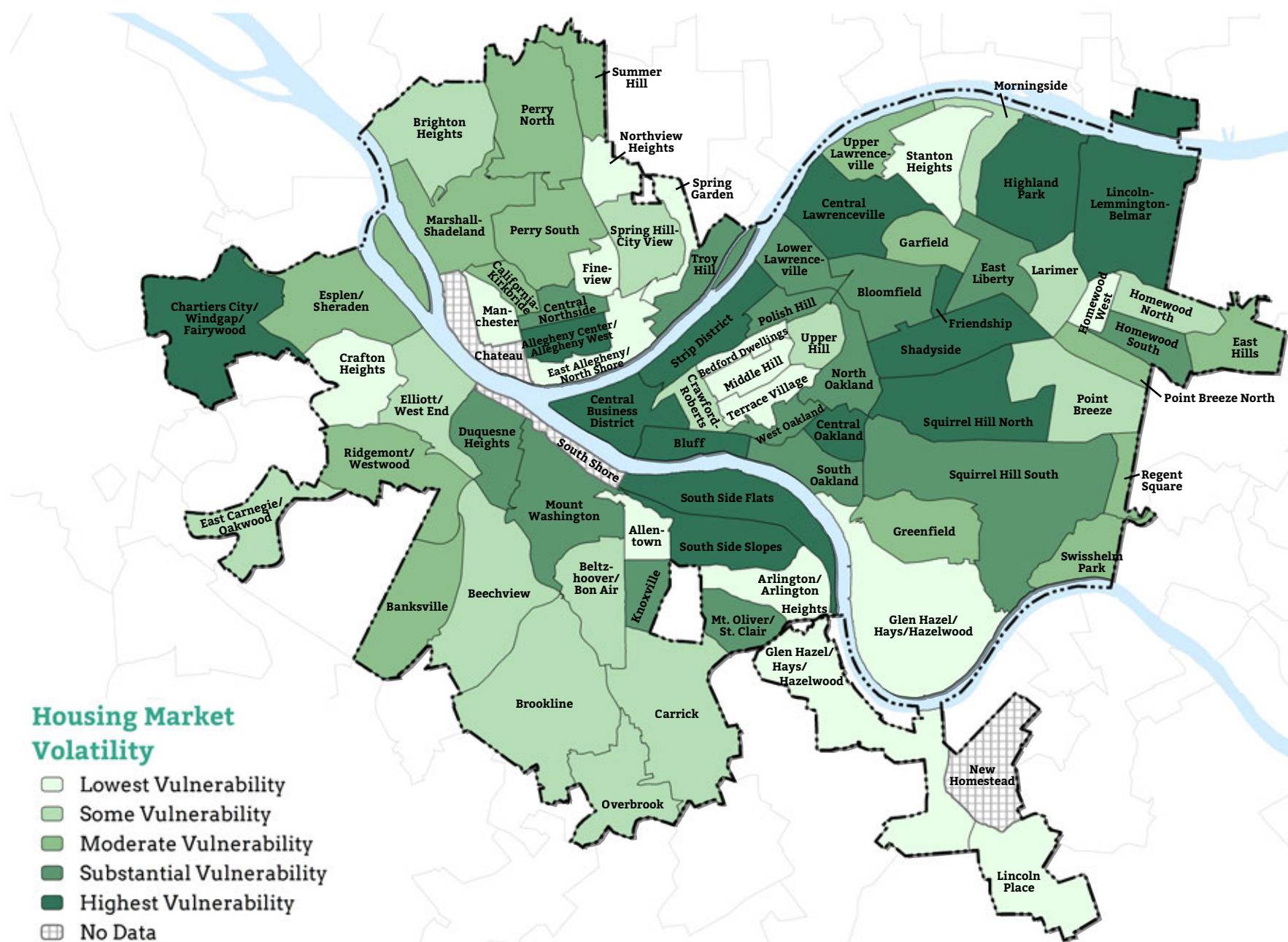
The full table of Index scores, broken down by variable at the neighborhood level, is presented on the following pages.

Displacement Risk

Residents' Vulnerability to Displacement due to Housing Choice Constraint

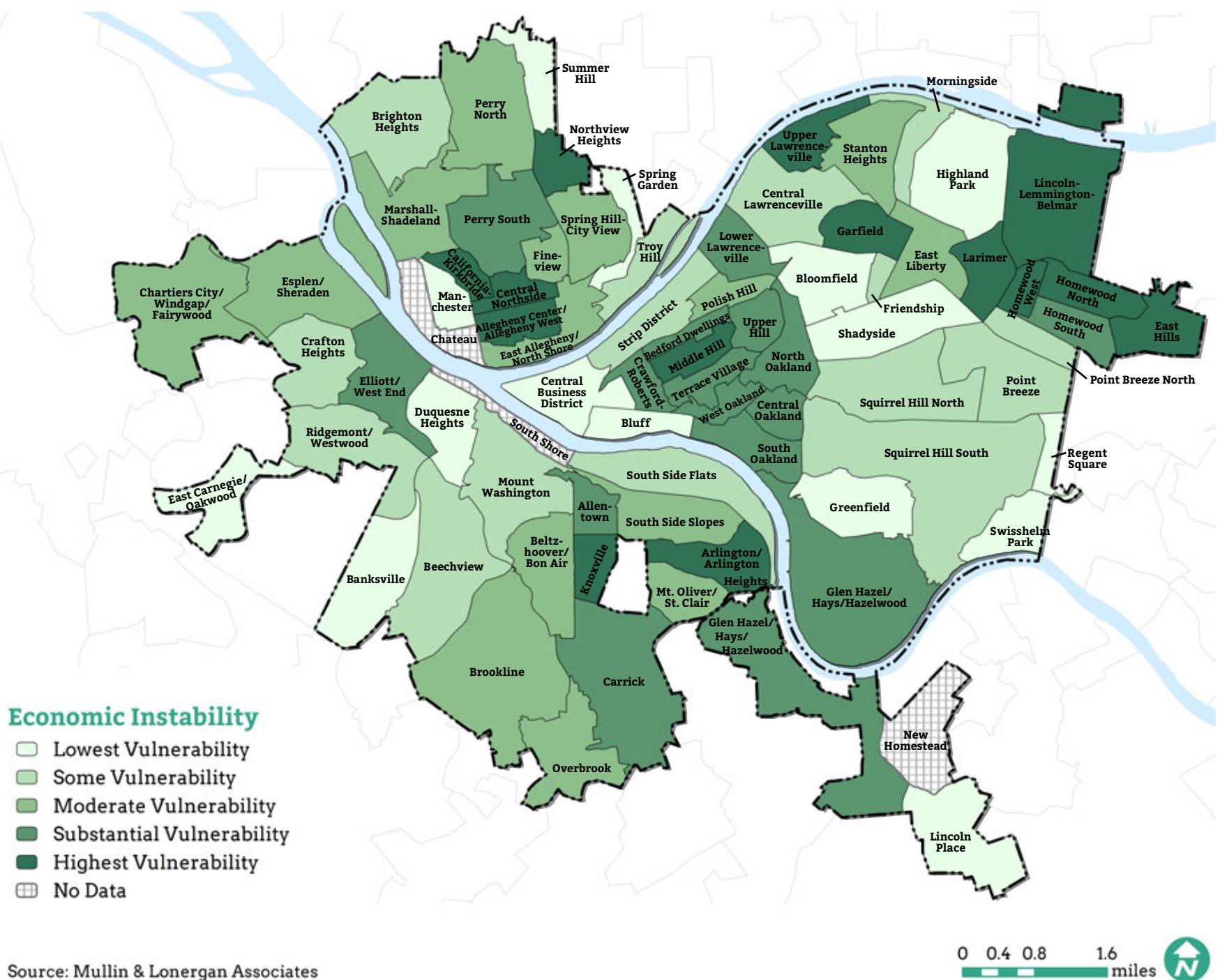


Residents' Vulnerability to Displacement due to Housing Market Volatility



Displacement Risk

Residents' Vulnerability to Displacement due to Economic Instability



Resident Vulnerability to Housing Choice Constraint

Neighborhood	Index Score	Neighborhood	Index Score	Neighborhood	Index Score
Carrick	100.0	Middle Hill	51.8	Mt. Oliver/St. Clair	35.8
Lincoln Place	90.2	Spring Garden	51.7	Point Breeze North	35.5
Upper Hill	88.7	Beltzhoover/Bon Air	50.6	East Carnegie/Oakwood	34.6
Esplen/Sheraden	85.8	Bloomfield	50.0	Glen Hazel/Hays/Hazelwood	34.5
Brookline	84.2	East Allegheny/North Shore	49.5	Central Business District	33.9
Brighton Heights	76.8	Spring Hill-City View	49.3	East Hills	31.0
Duquesne Heights	75.9	Marshall-Shadeland	49.1	North Oakland	27.2
Stanton Heights	74.3	South Oakland	49.0	Northview Heights	22.9
Beechview	73.4	Banksville	48.2	Bedford Dwellings	20.8
Knoxville	71.4	Troy Hill	48.0	Bluff	16.4
Greenfield	70.7	Shadyside	47.5	Larimer	8.3
Swisshelm Park	70.3	Polish Hill	46.4	Terrace Village	2.3
Perry South	69.4	Lincoln-Lemington-Belmar	46.2	Allegheny Center/Allegheny West	1.0
Lower Lawrenceville	66.4	Squirrel Hill South	44.8		
Ridgemont/Westwood	66.4	Highland Park	44.1		
South Side Flats	65.8	Homewood South	43.8		
Mount Washington	64.3	East Liberty	43.6		
Perry North	63.5	West Oakland	43.3		
South Side Slopes	63.3	Central Lawrenceville	42.5		
Summer Hill	62.3	Homewood North	42.5		
California-Kirkbride	62.0	Strip District	42.2		
Crafton Heights	61.3	Point Breeze	41.0		
Fineview	60.0	Chartiers City/Wind-gap/Fairywood	40.5		
Manchester	59.9	Upper Lawrenceville	40.1		
Morningside	58.6	Homewood West	39.5		
Overbrook	57.2	Garfield	39.2		
Friendship	57.0	Central Oakland	37.6		
Elliott/West End	56.3	Arlington/Arlington Heights	37.1		
Regent Square	55.8	Squirrel Hill North	37.1		
Central Northside	53.8				
Crawford-Roberts	52.6				
Allentown	52.6				

Displacement Risk

Resident Vulnerability to Housing Market Volatility

Neighborhood	Index Score	Neighborhood	Index Score	Neighborhood	Index Score
Strip District	100.0	Greenfield	49.4	East Allegheny/North Shore	30.2
Central Business District	94.6	Banksville	47.4	Lincoln Place	30.0
Bluff	77.1	Upper Lawrenceville	47.2	Glen Hazel/Hays/Hazelwood	28.2
Central Oakland	74.8	Marshall-Shadeland	46.6	Bedford Dwellings	28.1
Friendship	73.2	Esplen/Sheraden	46.1	Stanton Heights	27.1
Shadyside	71.7	Regent Square	45.5	Fineview	26.3
South Side Flats	71.2	Ridgemont/Westwood	44.8	Manchester	24.8
Squirrel Hill North	69.4	Summer Hill	44.1	Terrace Village	24.5
Chartiers City/Wind-gap/Fairywood	65.2	Perry South	43.0	Arlington/Arlington Heights	23.4
Allegheny Center/Allegheny West	62.4	East Hills	42.6	Middle Hill	20.3
Central Lawrenceville	61.9	Swisshelm Park	42.5	Allentown	17.1
Highland Park	61.0	Garfield	42.5	Homewood West	6.3
South Side Slopes	60.4	California-Kirkbride	42.0	Northview Heights	1.0
Lincoln-Lemmington-Belmar	58.7	Point Breeze North	41.7		
Mt. Oliver/St. Clair	58.5	Perry North	41.4		
North Oakland	58.4	Point Breeze	41.2		
Bloomfield	57.8	Brighton Heights	40.4		
South Oakland	57.6	Upper Hill	39.4		
East Liberty	57.3	Beechview	37.7		
Lower Lawrenceville	56.9	East Carnegie/Oakwood	37.5		
Troy Hill	55.3	Morningside	35.8		
Homewood South	54.3	Crawford-Roberts	35.6		
Central Northside	53.4	Elliott/West End	35.5		
Polish Hill	53.3	Overbrook	35.1		
Mount Washington	52.4	Homewood North	34.7		
Duquesne Heights	52.1	Carrick	34.4		
West Oakland	51.2	Larimer	34.4		
Knoxville	50.7	Beltzhoover/Bon Air	33.0		
Squirrel Hill South	49.9	Brookline	31.7		
		Spring Hill-City View	31.5		
		Crafton Heights	31.1		
		Spring Garden	30.9		

Resident Vulnerability to Economic Instability

Neighborhood	Index Score	Neighborhood	Index Score	Neighborhood	Index Score
Northview Heights	100.0	Perry North	45.9	Manchester	20.3
Larimer	94.6	Beltzhoover/Bon Air	44.6	Shadyside	20.0
Garfield	85.7	East Liberty	44.5	Bloomfield	19.8
Homewood North	79.0	Esplen/Sheraden	43.2	Bluff	17.3
Lincoln-Lemmington-Belmar	76.8	Fineview	42.6	Regent Square	16.6
Arlington/Arlington Heights	75.5	Marshall-Shadeland	39.4	Central Business District	16.5
Knoxville	71.1	East Allegheny/North Shore	39.0	Greenfield	16.3
Allegheny Center/Allegheny West	70.1	Chartiers City/Wind-gap/Fairywood	37.9	Spring Garden	16.1
East Hills	70.0	Spring Hill-City View	37.4	East Carnegie/Oakwood	15.8
California-Kirkbride	69.0	Mt. Oliver/St. Clair	36.4	Duquesne Heights	13.5
Middle Hill	68.0	Brookline	36.0	Swisshelm Park	12.0
Homewood West	66.1	Polish Hill	36.0	Highland Park	10.3
Central Northside	65.1	Stanton Heights	35.7	Lincoln Place	8.7
Upper Lawrenceville	63.4	Overbrook	32.3	Banksville	8.6
Bedford Dwellings	61.0	South Side Slopes	32.2	Summer Hill	1.0
Perry South	60.1	Point Breeze North	31.4		
Upper Hill	59.8	Troy Hill	30.3		
Elliott/West End	59.5	South Side Flats	30.1		
West Oakland	59.2	Ridgemont/Westwood	29.7		
Homewood South	57.2	Strip District	28.7		
Carrick	54.9	Brighton Heights	28.2		
Glen Hazel/Hays/Hazelwood	54.6	Mount Washington	27.4		
Crawford-Roberts	53.5	Central Lawrenceville	27.3		
Lower Lawrenceville	52.9	Crafton Heights	27.1		
Terrace Village	52.7	Morningside	26.7		
Allentown	52.2	Friendship	25.7		
North Oakland	50.2	Squirrel Hill North	25.6		
South Oakland	49.9	Beechview	25.6		
Central Oakland	46.3	Squirrel Hill South	25.4		
		Point Breeze	25.0		

Displacement Risk



Appendix

Appendix

Affordable Housing Gap Analysis Methodology

The affordable housing gap analysis determines whether the supply of housing units priced affordably for different income levels is sufficient for the number of households with incomes at those levels. It considers only units that are both affordable and available to the target households.

Data

Data for the affordable housing gap analysis came primarily from the Public Use Microdata Sample (PUMS), a subset of the US Census Bureau's American Community Survey (ACS). The PUMS files are a set of non-tabulated (non-aggregated) records that provide details on actual individual survey responses. Each observation is either for one person or one household, with slight differences in the data provided between the two.

The affordable housing gap analysis uses the 2010-2014 ACS 5-year PUMS at the household level, meaning that observations came from surveys administered to households during these five years.

The geographic unit for PUMS data is the Public Use Microdata Areas (PUMA), an area designed to contain approximately 100,000 individuals or housing units in order to protect the confidentiality of the survey. These PUMAs were redrawn in 2011 based on data from the 2010 decennial Census. As a result, the geographic boundaries of the PUMAs changed during the 2010-2014 sampling period. The City of Pittsburgh is comprised of two PUMAs.

Data in the PUMS is coded using a PUMS Data Dictionary. Key variables necessary for the affordable housing gap analysis are:

- » **PUMA00**: Public use microdata area code (PUMA) based on 2000 Census definition for data years prior to 2012
- » **PUMA10**: Public use microdata area code (PUMA) based on 2010 Census definition for data year 2012
- » **RNTP**: Monthly rent
- » **TEN**: Tenure
- » **VACS**: Vacancy status
- » **VALP**: Property value
- » **GRNTP**: Gross rent (monthly amount)
- » **HINCP**: Household income (past 12 months)

Utility Adjustment

Housing affordability is measured using total housing costs, which includes expenses such as utilities and taxes. Contract rent (also called cash rent) is the amount of money specified in a renter's lease and does not include utilities. Gross rent represents the total monetary amount paid by a renter, which includes both contract rent and utility costs.

Some households in the survey reported only their contract rent, making an adjustment to incorporate utility costs necessary. Vacant units that were for sale or for rent also do not include utility costs because they were vacant and utilities were not being used at the time of the survey.

To estimate utility costs for the vacant units and the households that reported contract rent only, the median percentage difference between contract rent and gross rent for every household in the city that reported gross rent was computed and found to be approximately 14.62%. This means that, in the case that utility costs for a housing unit had to be estimated, its contract rent was increased by 14.62%.

Households that reported their gross rent in the PUMS survey did not need to have their rent adjusted for utility costs.

Applying Income Thresholds

In order to describe the full range of affordability, housing costs were compared to household income at three distinct income thresholds:

- » Household income \leq 30% of median household income (MHI)
- » Household income \leq 50% of MHI
- » Household income \leq 80% of MHI
- » Household income \leq 100% of MHI

Affordability for Renter Households

The maximum affordable cost of housing is 30% of a given household income. For renter-occupied units, gross rent as previously described (or contract rent adjusted for utility costs, where appropriate, were used to determine affordability.

The breakdown of monthly maximum affordable rent by income was calculated using the following thresholds:

- » Maximum gross rent \leq 30% of $(0.3 \times \text{MHI})/12$
- » Maximum gross rent \leq 30% of $(0.5 \times \text{MHI})/12$
- » Maximum gross rent \leq 30% of $(0.8 \times \text{MHI})/12$
- » Maximum gross rent \leq 30% of $(\text{MHI})/12$

Affordability for Homeowner Households

The PUMS data has a variable for selected monthly owner costs (SMOC) and selected monthly owner costs as a percentage of income during the last 12 months (OCPIP). Because this analysis concerned the affordability of homeownership for potential home buyers and not current homeowners, however, these cost variables are not appropriate measures of affordability. Instead, median home value was used as a reasonable proxy for purchase price.

The maximum affordable home value for a home buyer at each MHI threshold was derived using a special calculation, described in Chapter 3 of the Housing Needs Assessment.

The breakdown of maximum affordable home value by income was calculated using the following thresholds:

- » Maximum home value at which owner costs \leq 30% of $(0.3 \times \text{MFI})/12$
- » Maximum home value at which owner costs \leq 30% of $(0.5 \times \text{MFI})/12$
- » Maximum home value at which owner costs \leq 30% of $(0.8 \times \text{MFI})/12$
- » Maximum home value at which owner costs \leq 30% of $(\text{MFI})/12$

Affordability and Availability

For the two PUMAs in Pittsburgh, the number of units that were affordable to households at various income thresholds was counted. A unit was considered affordable if the gross rent or adjusted housing value was equal to or below 30% of the designated income cutoff.

A unit was counted as *affordable and available* to an income threshold if the housing unit satisfied one of two additional conditions:

- » The unit was either listed as “vacant—for rent” (for available rental units) or “vacant—for sale” (for units available to purchase)
- » The unit was already occupied by a household with a reported income at or below the income threshold in question

The first condition allows for affordable vacant units to be counted as available. Vacancies other than those classified as “vacant—for rent” or “vacant—for sale” in the PUMS data dictionary, such as seasonal units, were not considered in this analysis.

The second condition indicates that a household that requires housing priced at that level has been able to obtain it, which makes that housing unit *affordable and available* to a household at that corresponding income threshold.

Units that are affordable for a household within a given income threshold but are occupied by a household above that threshold are affordable, but *not available*.

The end result of the calculations were a series of binary flags (0 or 1) indicating whether or not a housing unit is affordable at various income thresholds, whether this housing unit is both affordable and available at various income thresholds, and the number of households between each of the income thresholds by tenure.

These were then aggregated into summations of the *affordable units*, the *affordable and available units*, and the number of households (grouped by tenure) for each specified income threshold within the PUMAs.

Gap Calculations

The “gap” for the city’s PUMAs by income threshold and tenure was finally calculated by subtracting the number of affordable and available units from the number of households for each income threshold and tenure. A negative number indicates a deficit of units, as there are more households below that income threshold than units affordable and available to them. A positive number indicates a housing surplus.

These figures were drawn from the raw numbers within the PUMS sample, which represents an estimated 5% of the population.

Conclusion of the Affordable Housing Gap Analysis

The final result of the affordable housing gap analysis is the number of units that are affordable and available at a given income threshold, commonly represented as a number of units per 100 households. This requires a simple ratio of the number affordable and available units to the number of households, multiplied by 100.

Cost Burden by Neighborhood

Neighborhood	Households	Median HH Income	Cost-Burdened HHs	Cost-Burdened HHs
Allegheny Center/Allegheny West	685	\$28,125	259	37.8%
Allentown	1,075	\$29,509	359	33.4%
Arlington/Arlington Heights	805	\$33,542	258	32.0%
Banksville	1,940	\$56,959	370	19.1%
Bedford Dwellings	675	\$11,274	229	33.9%
Beechview	3,550	\$42,919	1,070	30.1%
Beltzhoover/Bon Air	1,245	\$30,602	405	32.5%
Bloomfield	4,760	\$40,445	1,682	35.3%
Bluff	290	\$42,576	101	34.8%
Brighton Heights	3,530	\$50,406	953	27.0%
Brookline	5,890	\$48,981	1,617	27.5%
California-Kirkbride	315	\$19,306	204	64.8%
Carrick	1,745	\$37,557	1,384	79.3%
Central Business District	4,330	\$63,938	570	13.2%
Central Lawrenceville	2,200	\$45,282	549	25.0%
Central Northside	1,380	\$42,146	458	33.2%
Central Oakland	1,900	\$19,208	1,414	74.4%
Chartiers City/Windgap/Fairywood	1,140	\$57,796	363	31.8%
Chateau	N/A	N/A	N/A	0.0%
Crafton Heights	1,555	\$38,423	515	33.1%
Crawford-Roberts	1,260	\$17,261	735	58.3%
Duquesne Heights	1,225	\$64,609	264	21.6%
East Allegheny/North Shore	1,410	\$24,983	560	39.7%
East Carnegie/Oakwood	775	\$43,011	155	20.0%
East Hills	1,315	\$16,185	525	39.9%
East Liberty	3,045	\$27,949	1,483	48.7%
Elliott/West End	1,015	\$31,875	363	35.8%
Esplen/Sheraden	2,255	\$41,083	798	35.4%
Fineview	645	\$19,541	404	62.6%
Friendship	995	\$31,836	480	48.2%
Garfield	1,605	\$24,776	877	54.6%

Appendix

Cost Burden by Neighborhood (continued)

Neighborhood	Households	Median HH Income	Cost-Burdened HHs	Cost-Burdened HHs
Glen Hazel/Hays/Hazelwood	2,250	\$26,607	809	36.0%
Greenfield	3,385	\$54,245	848	25.1%
Highland Park	2,935	\$51,048	994	33.9%
Homewood North	1,435	\$24,034	629	43.8%
Homewood South	1,095	\$19,035	487	44.5%
Homewood West	450	\$22,850	115	25.6%
Knoxville	1,450	\$28,897	620	42.8%
Larimer	685	\$20,781	288	42.0%
Lincoln Place	1,445	\$49,194	240	16.6%
Lincoln-Lemington-Belmar	1,920	\$52,987	661	34.4%
Lower Lawrenceville	1,160	\$37,446	430	37.1%
Manchester	910	\$35,893	300	33.0%
Marshall-Shadeland	1,915	\$32,888	739	38.6%
Middle Hill	970	\$17,931	425	43.8%
Morningside	1,550	\$48,080	464	29.9%
Mount Washington	4,510	\$46,567	1,315	29.2%
Mt. Oliver/St. Clair	410	\$39,784	98	23.9%
New Homestead	375	\$66,250	55	14.7%
North Oakland	3,075	\$20,774	1,564	50.9%
Northview Heights	495	\$11,716	129	26.1%
Overbrook	1,675	\$47,624	383	22.9%
Perry North	1,605	\$43,875	618	38.5%
Perry South	1,785	\$26,768	764	42.8%
Point Breeze	2,330	\$91,965	602	25.8%
Point Breeze North	1,035	\$50,417	360	34.8%
Polish Hill	710	\$38,889	259	36.5%
Regent Square	420	\$77,054	70	16.7%
Ridgemont/Westwood	1,620	\$50,143	405	25.0%
Shadyside	8,015	\$47,783	2,475	30.9%
South Oakland	1,105	\$30,444	510	46.2%
South Shore	N/A	N/A	N/A	N/A

Cost Burden by Neighborhood (continued)

Neighborhood	Households	Median HH Income	Cost-Burdened HHs	Cost-Burdened HHs
South Side Flats	3,535	\$49,752	1,015	28.7%
South Side Slopes	2,020	\$38,691	609	30.1%
Spring Garden	440	\$32,447	114	25.9%
Spring Hill-City View	1,115	\$25,313	309	27.7%
Squirrel Hill North	3,505	\$94,395	1,158	33.0%
Squirrel Hill South	6,820	\$59,196	2,210	32.4%
Stanton Heights	2,040	\$49,268	629	30.8%
Strip District	375	\$73,214	117	31.2%
Summer Hill	520	\$56,691	119	22.9%
Swisshelm Park	580	\$58,409	114	19.7%
Terrace Village	1,040	\$11,922	432	41.5%
Troy Hill	1,275	\$37,731	430	33.7%
Upper Hill	895	\$28,487	289	32.3%
Upper Lawrenceville	1,090	\$38,302	325	29.8%
West Oakland	655	\$20,577	338	51.6%
Total	133,190	\$40,009	45,485	34.2%

Resident Vulnerability Index Methodology

The Resident Vulnerability Index was calculated using 13 different variables. Each variable was normalized by either inputting it into a percentage change over time or normalizing it by either a population or the number of housing units in each neighborhood. This normalization meant that scores would not be weighted towards larger neighborhoods.

Next, these variables were indexed on a scale of 1 to 100, with 1 being the minimum and 100 being the maximum. To index a variable, the highest value among Pittsburgh's neighborhood's was set as the maximum, and the lowest value was set as the minimum. The remaining neighborhoods were then reassigned numeric scores from 1 to 100 based on where their scores fell between the minimum and maximum values. These calculations were performed for all 13 variables.

The unique variables were grouped into three categories (Housing Choice Constraint, Housing Market Volatility, and Economic Instability), added up, and indexed again, resulting in three composite indices. Using this methodology allows for a clear comparison between very different types of data, showing correlations where they otherwise may go unnoticed.

The breakdown of variables used, their data source, and the reasons why they were used to model resident vulnerability is presented in the tables and maps on the following pages.

Resident Vulnerability Index Variables

Code	Variable	Data Source	Rationale/Comments
A	Percent Unemployed	ACS	Communities with high unemployment are vulnerable to rent increases. Unemployed residents often have difficulty finding or keeping housing due to insufficient income, making them a high-risk population.
B	Percent Cost Burdened Renters	ACS	Renters spending more than 30% of their income on housing is a proxy for constrained housing choice. This group is vulnerable to displacement from rising housing costs, as they already have trouble paying rent at current rates while meeting other basic needs. The 30% cutoff was chosen in order to align with federal definitions of cost burden.
C	Percent Overcrowded	ACS	Overcrowding indicates constrained housing choice, often due to low incomes, as larger units would be preferable. A definition of >1 person per room will be used in order to align with federal definitions.
D	Percent Receiving Public Assistance	ACS	Persons receiving public assistance are more likely to be displaced by rising housing costs and other factors.
E	Percent Renter-occupied	ACS	Renters face significantly higher risk of displacement than other groups.
F	Mortgage Denials per 1,000 Residents	HMDA	This variable will attempt to capture displacement risk for homeowners. Mortgage denials indicate financial instability, limited access to credit, and a higher probability that households will have trouble staying in neighborhoods.
G	Percent who Lived in Different House 1 Year Ago	ACS	Areas with transient populations may indicate current displacement, as well as market instability. Areas with a large amount of household turnover can indicate market volatility, the presence of landlords highly responsive to rents, and a rapidly changing housing market.
H	Change in Median Contract Rent, 2000-2014	ACS	The primary indicator of rising housing costs for renters, which correlates with displacement.
I	Change in Rental Vacancy Rate, 2000-2014	ACS	Lower rental vacancy indicates fewer choices and a tighter market, increasing risk of displacement. This variable may be omitted due to concerns regarding communities with low rental unit shares.
J	Change in Percent of Households Over \$50k, 2000-2014	ACS	Increased proportions of higher-income residents moving into an area can constrain neighborhood housing choice for existing lower-income residents at the neighborhood level.
K	Inverse Percent of Public Housing Units Per ELI Renters	HACP, HUD, Affordable Housing Task Force	Several neighborhoods in Pittsburgh have extremely high concentrations of public or assisted housing units. These census tracts would have large numbers of low-income residents, but these residents may not necessarily be at risk for displacement if they are in public housing. This variable would model where there is unmet need for housing based on the number of unassisted extremely low-income households.
L	Foreclosures per 1,000 Persons	HMDA	This variable will attempt to capture displacement risk for homeowners.
M	Percent Rapid Resales	RealStats, URA	This is designed to address speculation and rapid resale. Rapid resale can make markets more susceptible to speculation, increasing the risk of displacement for existing residents.

Appendix

Resident Vulnerability Index Scores

Neighborhood	A	B	C	D	E	F	G	H	I	J	K	L	M
Allegheny Center/Allegheny West	10.9	59.0	90.1	75.9	86.6	17.1	50.0	40.6	13.4	41.7	100.0	1.0	47.0
Allentown	49.8	71.2	1.0	61.3	44.6	40.6	10.6	39.9	44.9	30.8	49.0	42.7	44.5
Arlington/Arlington Heights	22.8	49.8	100.0	79.2	39.7	28.9	23.5	39.9	50.0	46.7	54.5	20.2	35.9
Banksville	6.0	18.3	13.4	17.4	46.3	47.7	21.8	50.3	50.0	81.0	100.0	22.2	18.2
Bedford Dwellings	85.8	25.0	1.0	97.2	92.7	5.9	21.6	16.6	61.7	1.0	43.6	1.0	79.8
Beechview	21.5	49.0	3.5	30.9	37.0	78.0	21.9	32.9	54.9	55.4	96.2	34.2	42.9
Beltzhoover/Bon Air	33.2	82.1	1.0	44.5	23.3	42.9	18.6	26.8	48.7	52.0	100.0	32.9	50.2
Bloomfield	12.9	45.8	6.4	22.7	61.6	53.6	35.6	56.1	51.3	55.3	100.0	18.4	42.6
Bluff	24.9	53.9	1.0	1.0	52.6	7.5	85.9	80.5	51.9	52.0	100.0	1.0	42.5
Brighton Heights	14.8	55.3	7.6	35.1	26.3	74.9	10.7	45.1	42.6	67.9	100.0	56.1	44.8
Brookline	18.6	66.0	14.0	36.9	21.5	80.2	19.0	49.4	59.3	67.8	65.4	47.9	43.6
California-Kirkbride	64.2	70.3	1.0	97.0	68.5	31.6	28.0	32.5	100.0	18.9	100.0	14.2	52.1
Carrick	32.7	77.9	29.9	50.6	32.4	63.5	14.6	43.2	53.6	46.9	93.9	100.0	44.4
Central Business District	19.7	41.9	15.9	1.0	76.5	32.8	73.6	92.4	56.0	82.3	100.0	4.3	45.2
Central Lawrenceville	15.1	39.2	10.9	44.9	47.2	46.2	28.4	60.4	42.8	64.0	100.0	20.4	64.3
Central Northside	17.5	62.7	74.0	67.0	52.0	87.8	22.4	46.1	37.9	60.9	100.0	4.8	55.3
Central Oakland	13.0	100.0	1.0	51.7	89.6	4.2	100.0	81.6	73.7	19.8	100.0	22.3	15.1
Chartiers City/Windgap/Fairywood	15.4	27.7	57.9	40.2	32.2	46.9	30.3	80.2	57.5	71.3	100.0	1.0	60.8
Crafton Heights	12.9	41.2	1.0	54.5	31.2	71.4	20.5	13.3	51.5	54.2	100.0	21.5	45.6
Crawford-Roberts	44.9	63.3	1.0	77.9	72.8	32.0	22.2	49.4	69.9	17.8	100.0	26.3	17.0
Duquesne Heights	13.4	27.4	1.0	27.9	23.8	78.2	17.9	53.2	79.9	84.0	100.0	13.8	53.7
East Allegheny/North Shore	28.5	47.1	20.8	48.1	66.9	30.0	25.5	1.0	42.4	43.9	70.1	49.9	54.4
East Carnegie/Oakwood	9.8	22.6	20.8	23.2	44.0	28.6	24.9	31.8	51.5	63.4	100.0	14.3	21.4
East Hills	78.2	71.2	1.0	85.2	55.1	44.4	13.3	42.9	27.8	24.6	100.0	15.7	65.9
East Liberty	20.9	57.6	23.3	58.8	84.4	40.4	28.3	44.9	60.1	32.8	97.2	10.8	61.6
Elliott/West End	26.0	55.1	55.5	68.1	38.5	36.8	17.8	40.5	45.3	42.0	100.0	53.1	40.3
Esplen/Sheraden	33.1	65.6	1.0	57.2	32.0	61.3	22.2	45.9	65.6	54.6	100.0	63.3	58.4
Fineview	43.1	63.2	1.0	47.7	60.2	60.1	13.9	44.2	64.4	38.2	37.2	17.7	55.7
Friendship	10.2	56.0	38.1	1.0	89.9	36.7	58.8	45.7	80.2	48.1	100.0	19.6	58.5
Garfield	38.7	77.5	93.4	72.0	55.6	52.9	13.6	54.7	28.8	30.0	79.4	21.4	68.2
Glen Hazel/Hays/Hazelwood	25.4	73.3	22.0	69.6	42.8	29.7	19.8	35.8	43.2	37.7	76.2	21.3	43.0
Greenfield	12.5	33.6	10.9	20.8	31.5	80.7	25.6	57.6	55.5	74.7	100.0	25.9	34.5
Highland Park	9.2	32.2	5.1	13.5	50.9	39.5	43.3	41.2	52.8	77.8	100.0	19.9	48.4

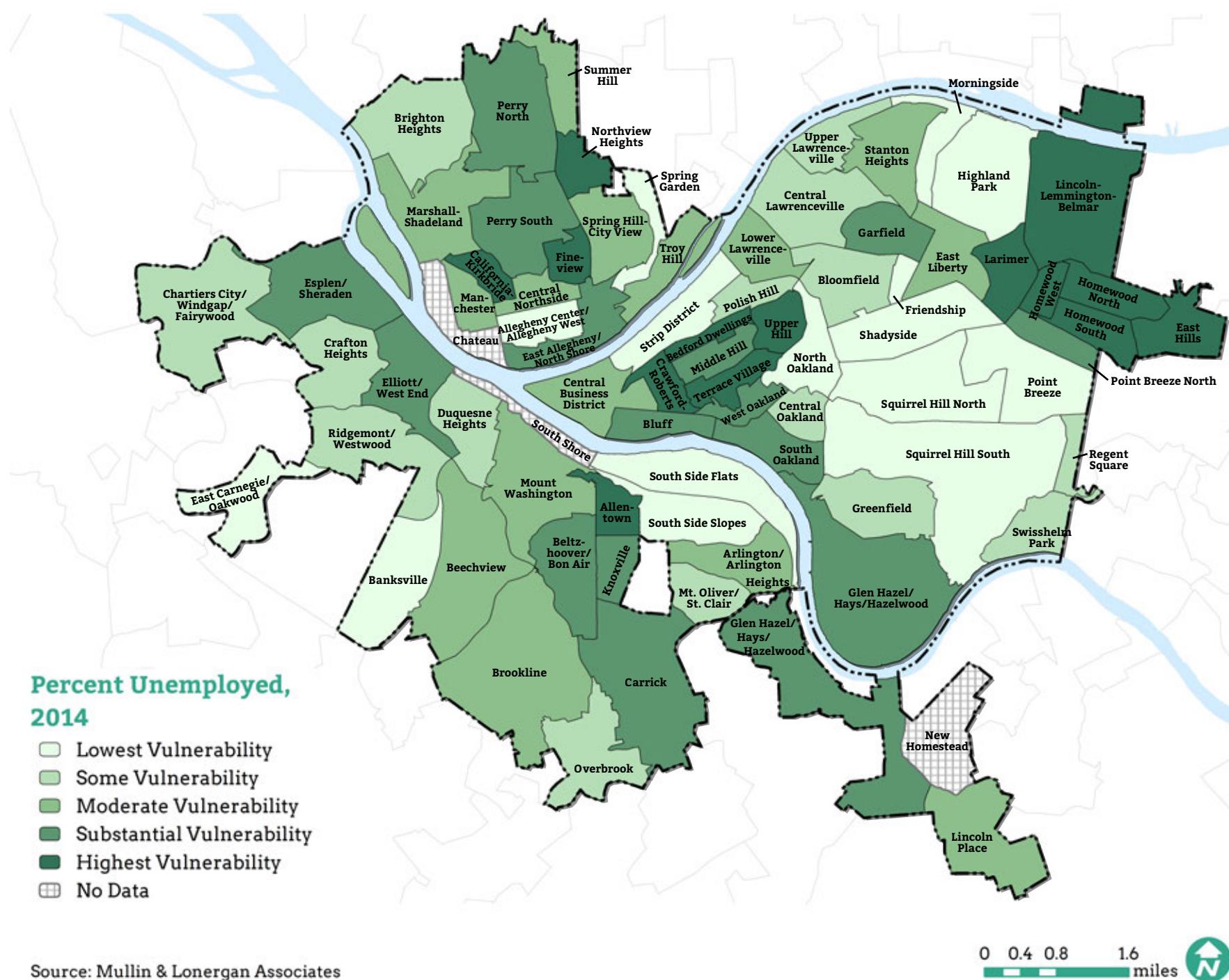
Resident Vulnerability Index Scores (continued)

Neighborhood	A	B	C	D	E	F	G	H	I	J	K	L	M
Homewood North	50.3	89.7	48.0	73.9	39.4	37.6	26.5	37.3	47.0	26.1	82.1	24.7	65.0
Homewood South	54.1	67.9	12.1	63.7	62.2	33.1	20.6	29.3	49.8	27.6	100.0	28.8	100.0
Homewood West	42.9	80.9	1.0	99.3	46.4	45.7	1.0	24.8	43.5	19.7	67.3	14.5	25.5
Knoxville	28.7	81.1	62.9	66.0	46.4	42.2	30.2	45.1	70.7	42.7	100.0	50.5	63.8
Larimer	78.1	75.3	60.4	94.1	65.1	30.0	22.1	32.6	1.0	15.2	100.0	14.2	40.4
Lincoln Place	22.8	11.9	1.0	19.8	4.2	82.6	23.1	30.4	92.9	65.9	100.0	23.1	37.5
Lincoln-Lemington-Belmar	41.1	93.1	85.2	36.2	38.1	28.8	29.8	86.3	60.8	60.4	100.0	26.5	39.2
Lower Lawrenceville	22.6	37.7	45.6	79.3	61.1	67.2	25.9	50.0	51.7	53.7	100.0	35.3	57.6
Manchester	17.7	42.9	1.0	28.0	41.5	87.4	25.4	38.2	35.6	47.3	36.2	18.8	55.9
Marshall-Shadeland	24.7	1.6	48.0	71.2	34.3	55.6	47.4	34.3	25.4	39.6	100.0	40.6	59.3
Middle Hill	39.9	64.7	45.6	79.4	70.6	51.1	29.0	22.8	42.1	23.0	47.9	33.4	36.6
Morningside	9.1	63.8	10.9	24.4	28.3	70.8	13.8	29.3	41.3	66.3	100.0	27.3	42.3
Mount Washington	17.5	39.0	8.4	45.5	51.8	70.8	29.9	47.2	44.7	63.2	100.0	34.7	41.5
Mt. Oliver/St. Clair	12.5	48.0	1.0	75.2	39.8	17.9	20.4	50.9	25.3	56.2	100.0	53.5	85.9
North Oakland	11.1	57.3	93.4	15.5	38.3	11.3	56.3	100.0	68.3	29.7	100.0	1.0	28.9
Northview Heights	100.0	43.5	80.2	100.0	100.0	1.4	31.1	26.4	70.1	8.0	1.0	1.0	1.0
Overbrook	14.4	59.2	30.7	20.4	11.2	82.0	22.5	40.8	30.3	66.8	100.0	24.4	36.5
Perry North	28.1	84.3	12.1	40.1	25.1	48.7	22.4	38.6	45.8	59.7	100.0	54.0	52.3
Perry South	37.0	70.8	28.2	70.5	41.2	55.3	20.2	42.5	52.7	32.4	100.0	51.7	66.9
Point Breeze	3.6	85.5	6.0	8.3	49.4	43.0	16.6	39.4	60.3	62.7	100.0	3.0	29.4
Point Breeze North	25.8	46.6	1.0	48.6	63.6	33.6	34.1	45.7	43.2	68.0	64.7	19.4	23.1
Polish Hill	14.5	45.3	23.3	52.4	46.2	73.7	35.2	52.4	34.3	52.4	100.0	8.5	50.3
Regent Square	13.4	56.8	1.0	7.4	22.8	59.9	27.8	40.3	62.5	94.7	100.0	11.8	25.8
Ridgemont/Westwood	12.9	49.6	18.3	36.3	25.4	44.5	19.1	52.7	71.6	68.3	100.0	38.0	43.6
Shadyside	9.1	52.2	15.9	11.4	70.0	43.6	59.0	72.7	68.3	67.5	100.0	6.7	26.9
South Oakland	25.3	82.0	38.1	31.2	55.6	25.3	62.5	63.6	91.6	42.2	90.7	4.6	35.9
South Side Flats	11.8	44.7	53.0	8.7	55.6	74.0	59.5	78.0	61.8	67.7	90.7	17.0	42.9
South Side Slopes	11.8	61.1	1.0	50.5	43.0	73.6	47.2	73.5	40.9	49.5	100.0	33.8	46.4
Spring Garden	12.0	28.6	1.0	35.5	22.4	47.7	5.7	34.0	35.6	48.4	100.0	43.2	53.5
Spring Hill-City View	23.5	46.8	1.0	68.4	33.6	51.2	12.3	33.6	47.9	40.2	100.0	23.0	46.4
Squirrel Hill North	10.1	68.4	24.1	2.4	32.4	33.9	40.1	90.4	62.3	94.4	100.0	2.9	31.4
Squirrel Hill South	7.2	57.7	26.5	13.0	35.9	40.5	34.3	57.2	70.0	57.1	95.9	3.1	45.1
Stanton Heights	21.3	52.5	23.3	37.6	8.1	100.0	7.4	43.2	39.8	69.3	79.7	29.1	44.3

Resident Vulnerability Index Scores (continued)

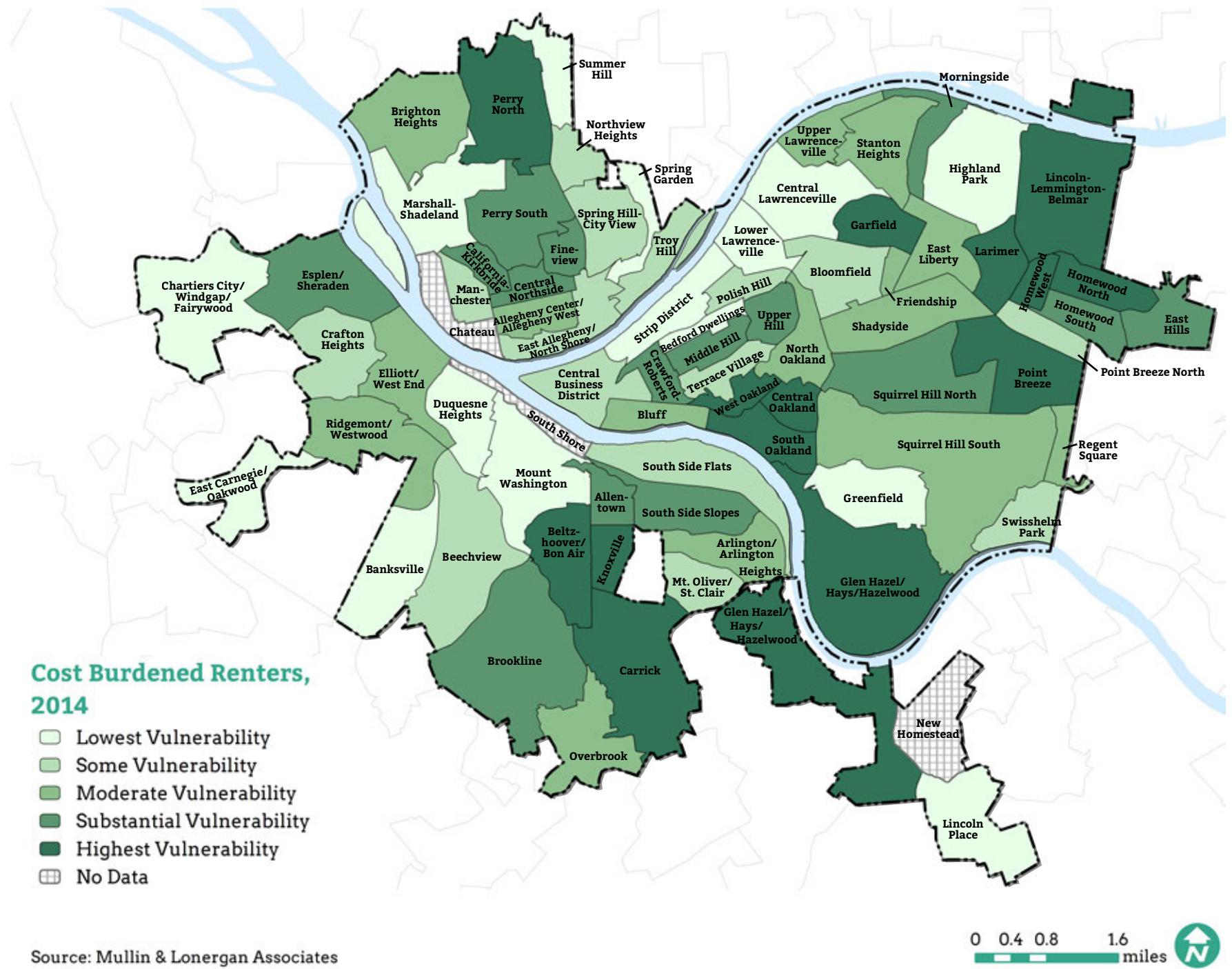
Neighborhood	A	B	C	D	E	F	G	H	I	J	K	L	M
Strip District	1.0	31.4	1.0	80.6	82.2	39.5	46.8	100.0	5.8	100.0	100.0	63.3	58.5
Summer Hill	17.7	1.0	1.0	13.1	20.7	73.5	25.2	49.2	53.3	82.4	100.0	19.7	29.3
Swisshelm Park	14.5	40.7	1.0	8.8	1.0	59.5	8.8	64.8	58.4	74.5	100.0	43.5	52.4
Terrace Village	60.1	49.4	12.1	63.1	97.4	1.0	58.9	28.9	31.8	4.6	52.6	1.0	1.0
Troy Hill	17.4	47.7	1.0	52.8	42.1	55.6	27.7	72.1	35.6	47.8	100.0	28.3	53.3
Upper Hill	52.1	68.5	1.0	83.8	41.6	92.0	13.5	34.8	40.5	39.5	100.0	63.3	62.3
Upper Lawrenceville	15.6	56.6	100.0	43.8	40.0	62.2	23.9	57.2	14.4	49.9	100.0	28.2	45.7
West Oakland	38.1	74.7	1.0	90.0	68.5	22.2	50.6	71.6	69.0	16.4	100.0	19.7	22.6

A: Percent Unemployed in 2014

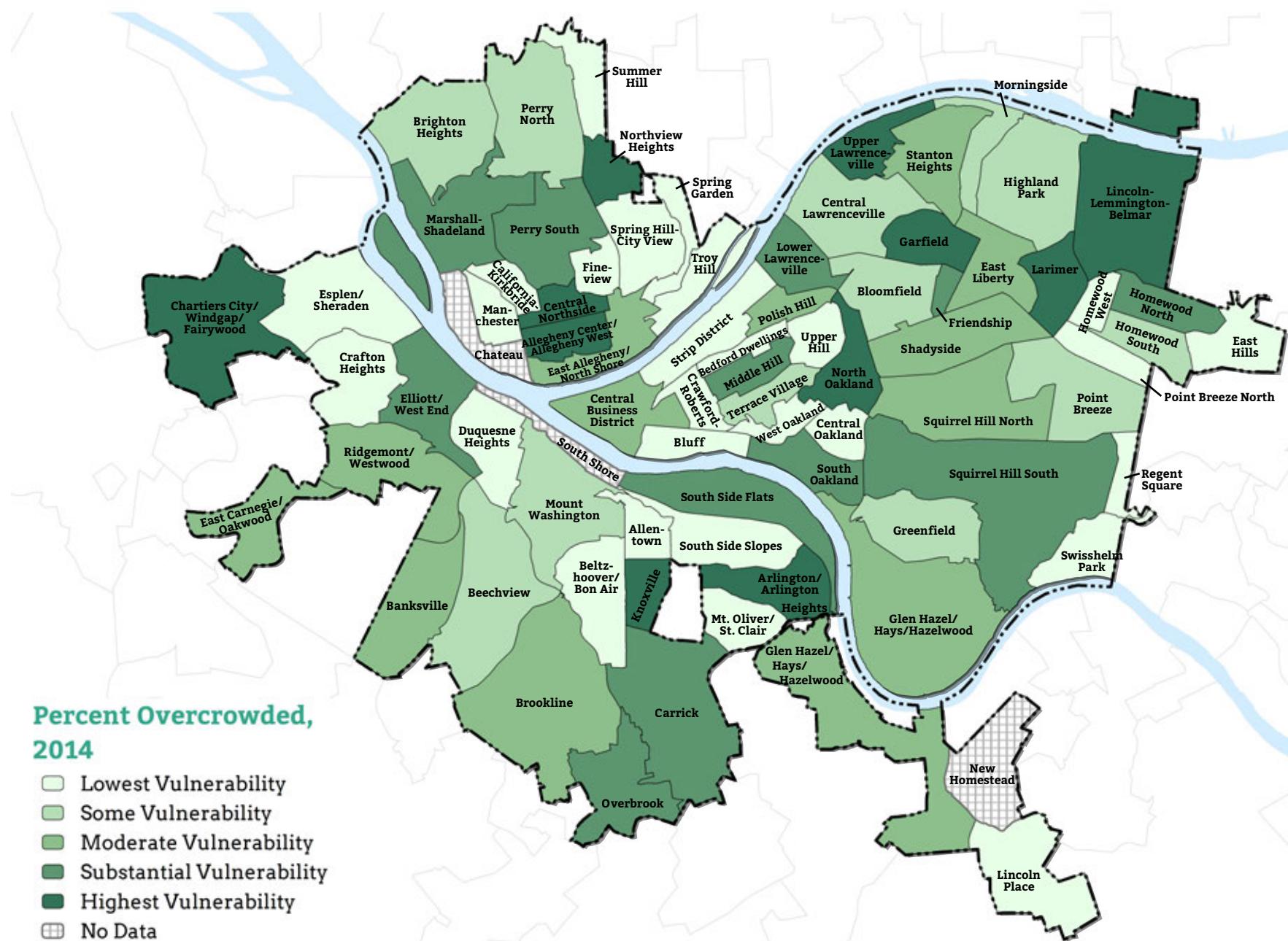


Appendix

B: Percent of Cost Burdened Renters in 2014



C: Percent Overcrowded in 2014



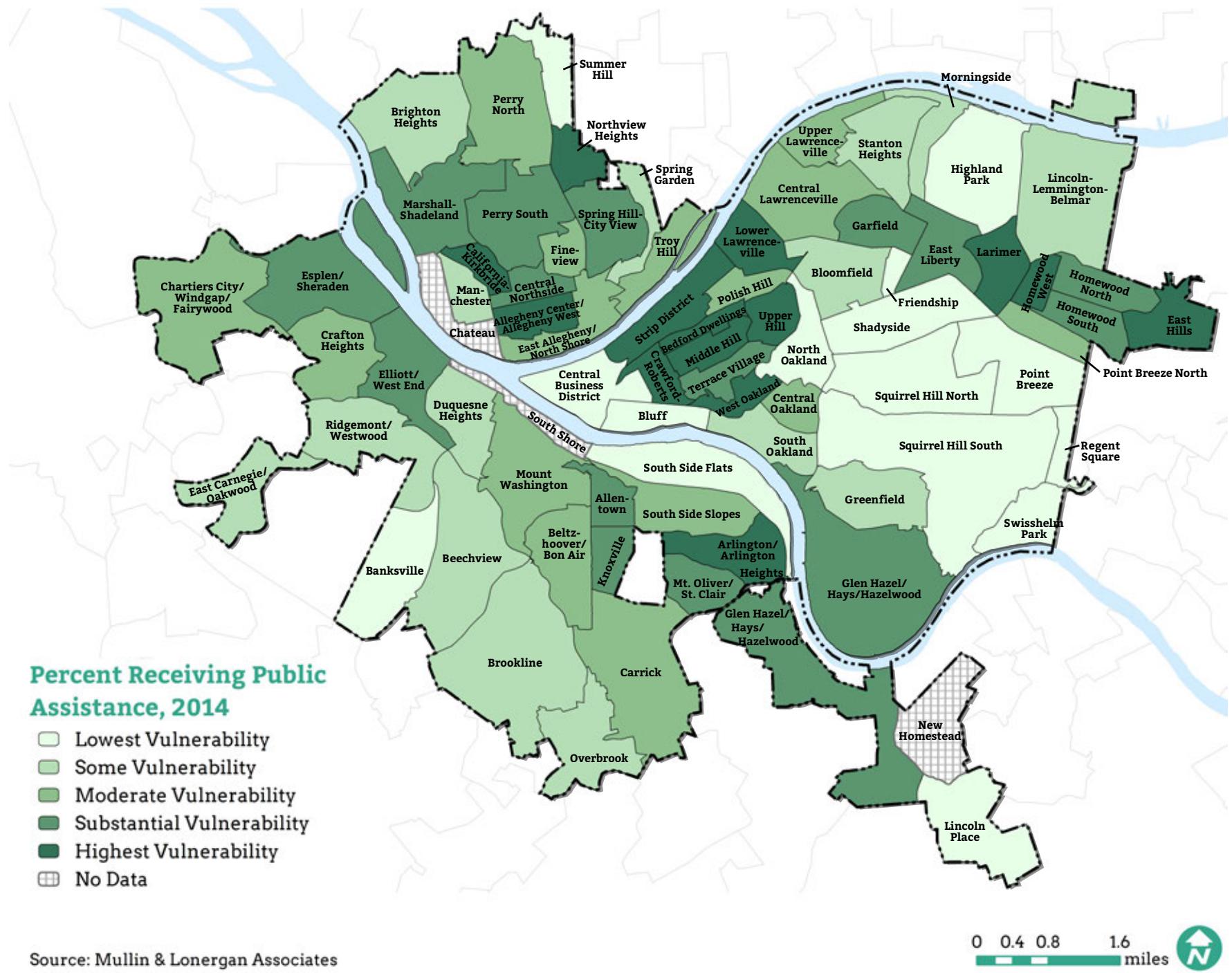
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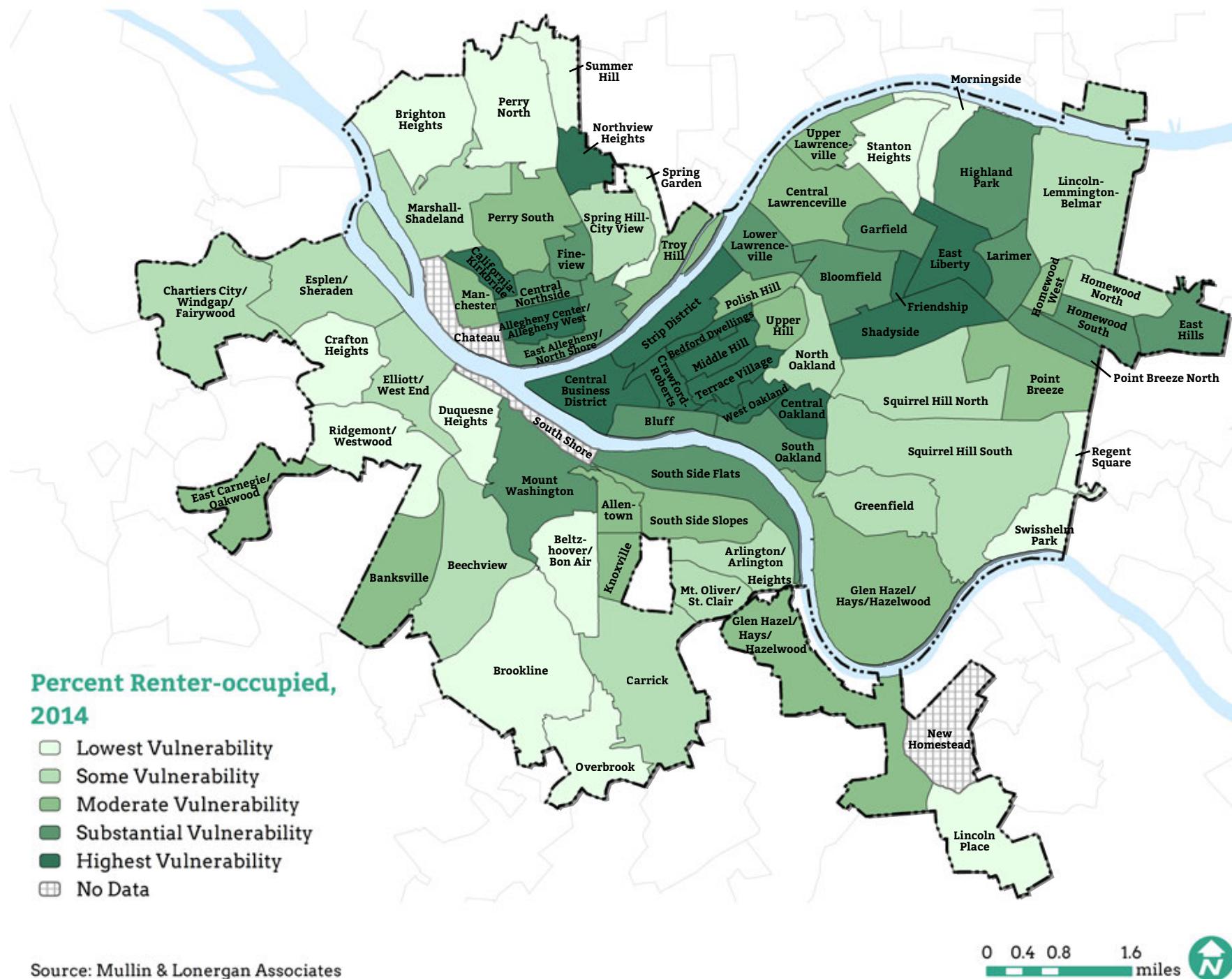
Source: Mullin & Lonergan Associates

Appendix

D: Percent Receiving Public Assistance in 2014



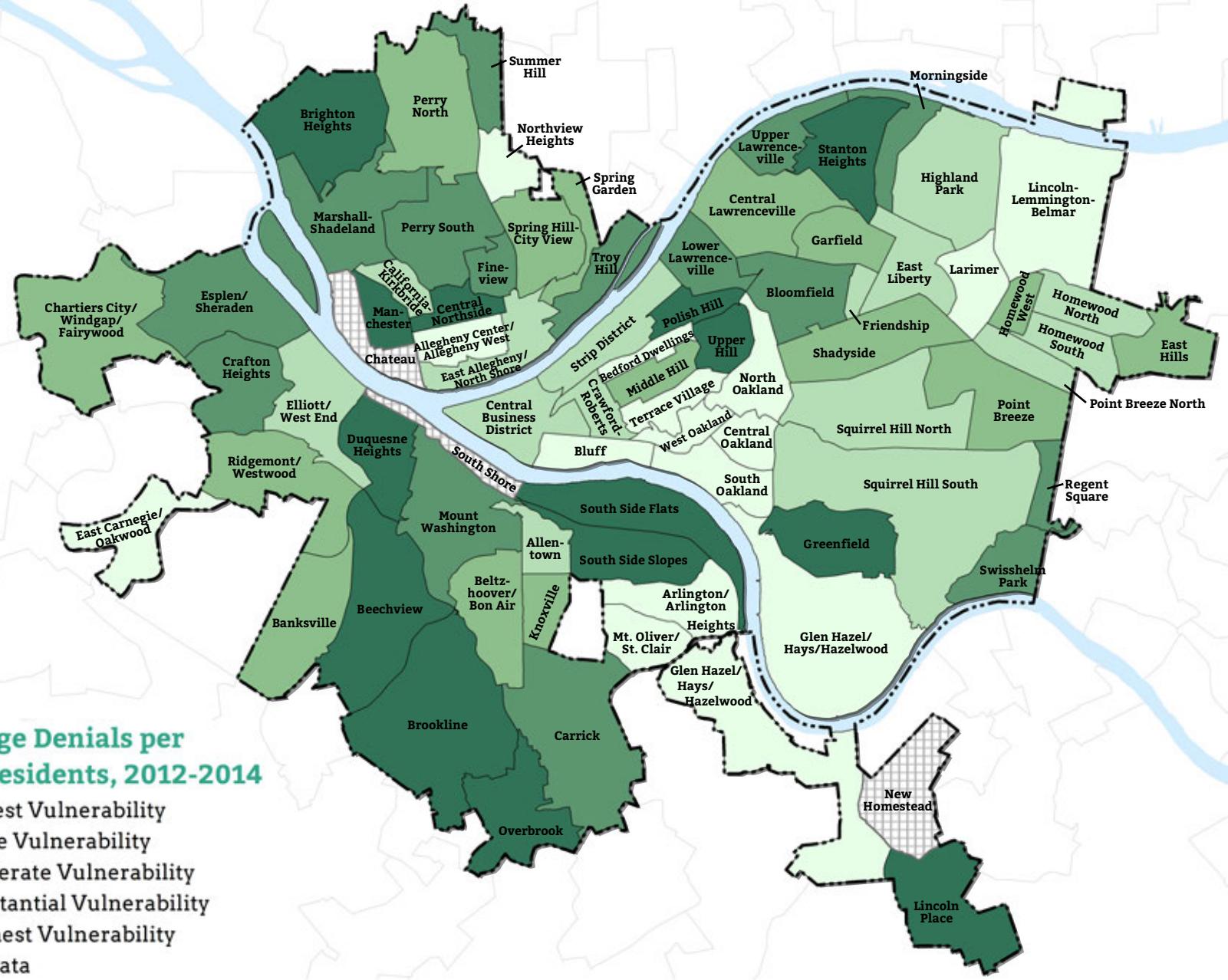
E: Percent Renter Occupied in 2014



Appendix

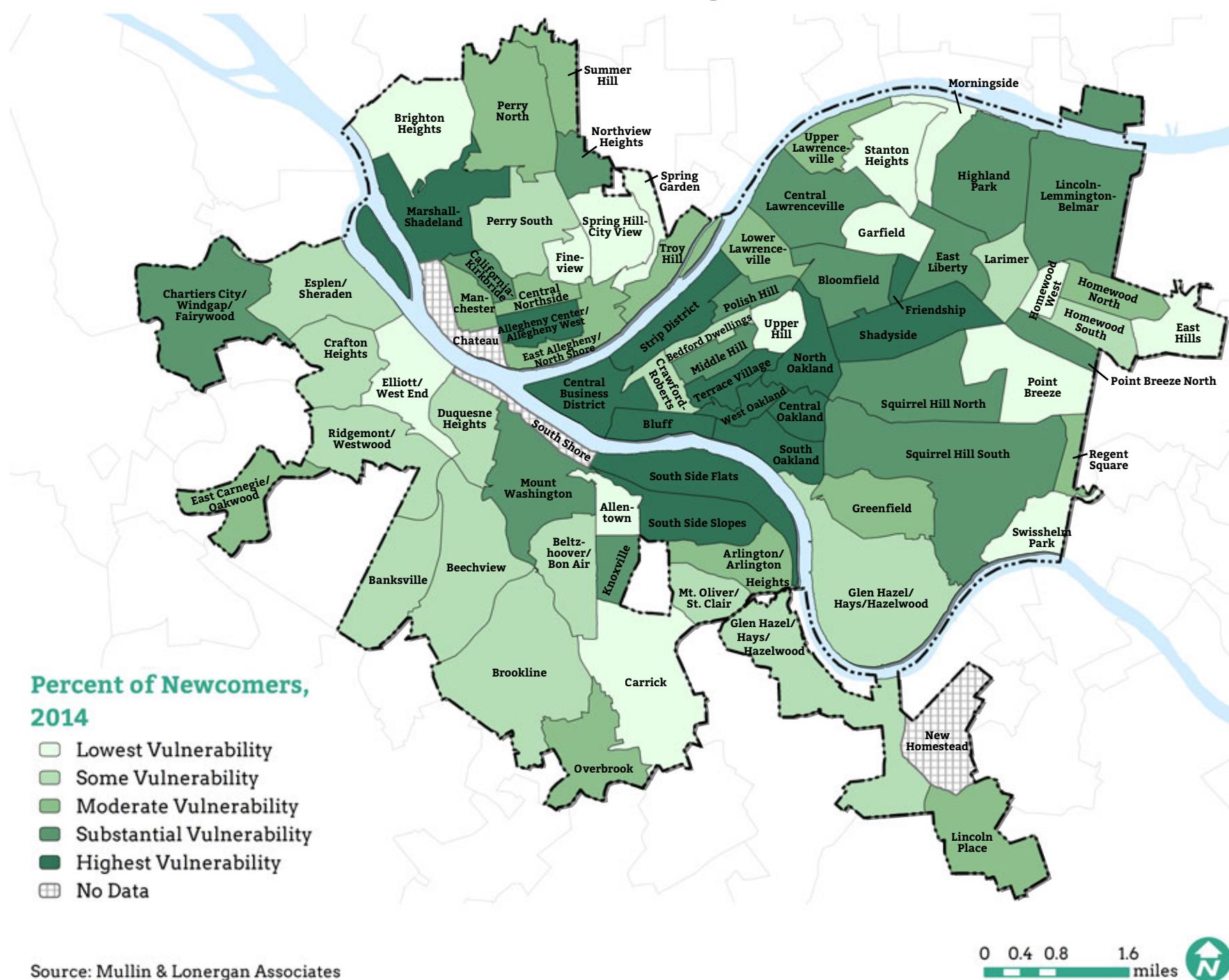
Appendix

F: Mortgage Denials per 1,000 Residents from 2012 to 2014



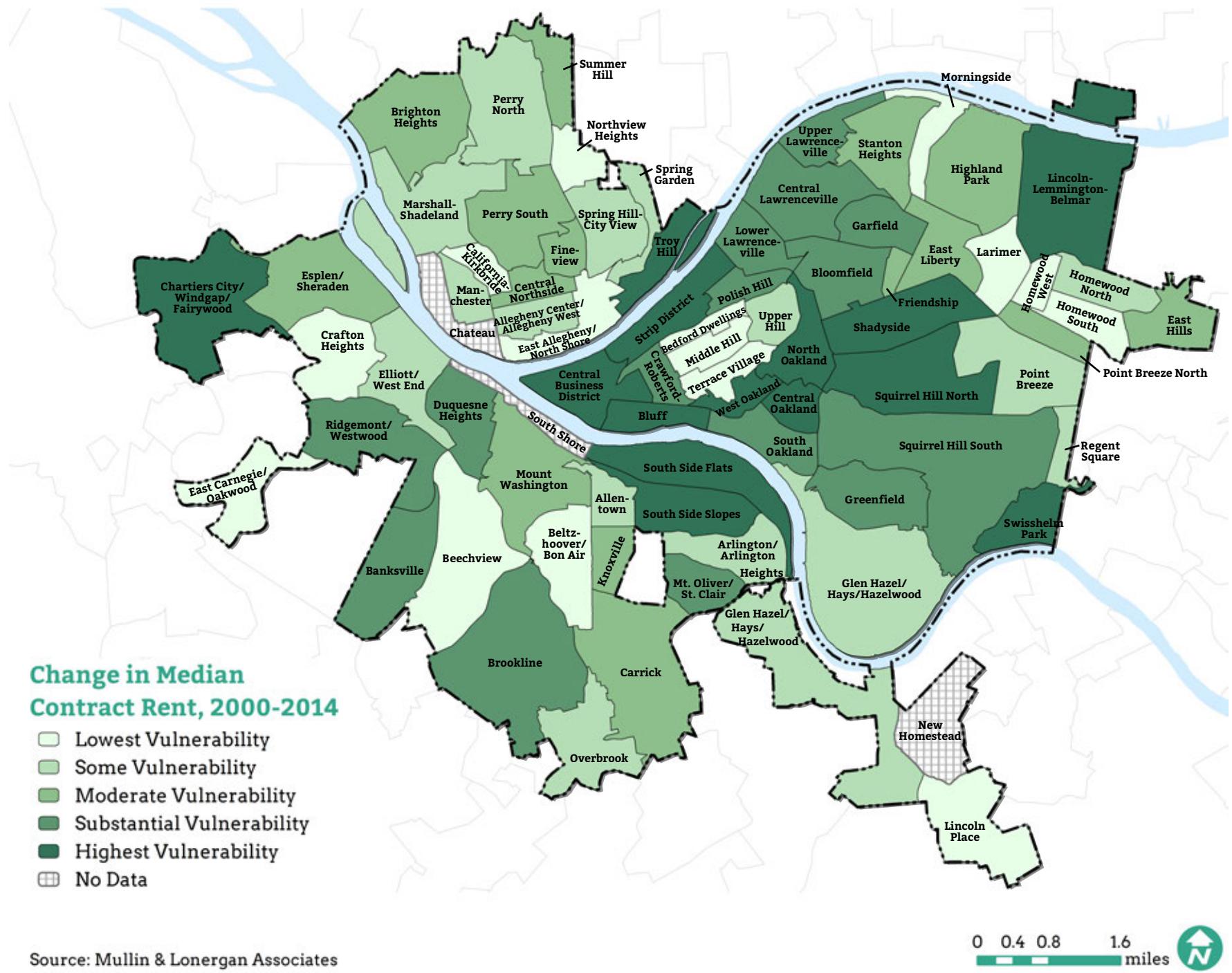
Source: Mullin & Lonergan Associates

G: Percent who Lived in Different House 1 Year Ago in 2014

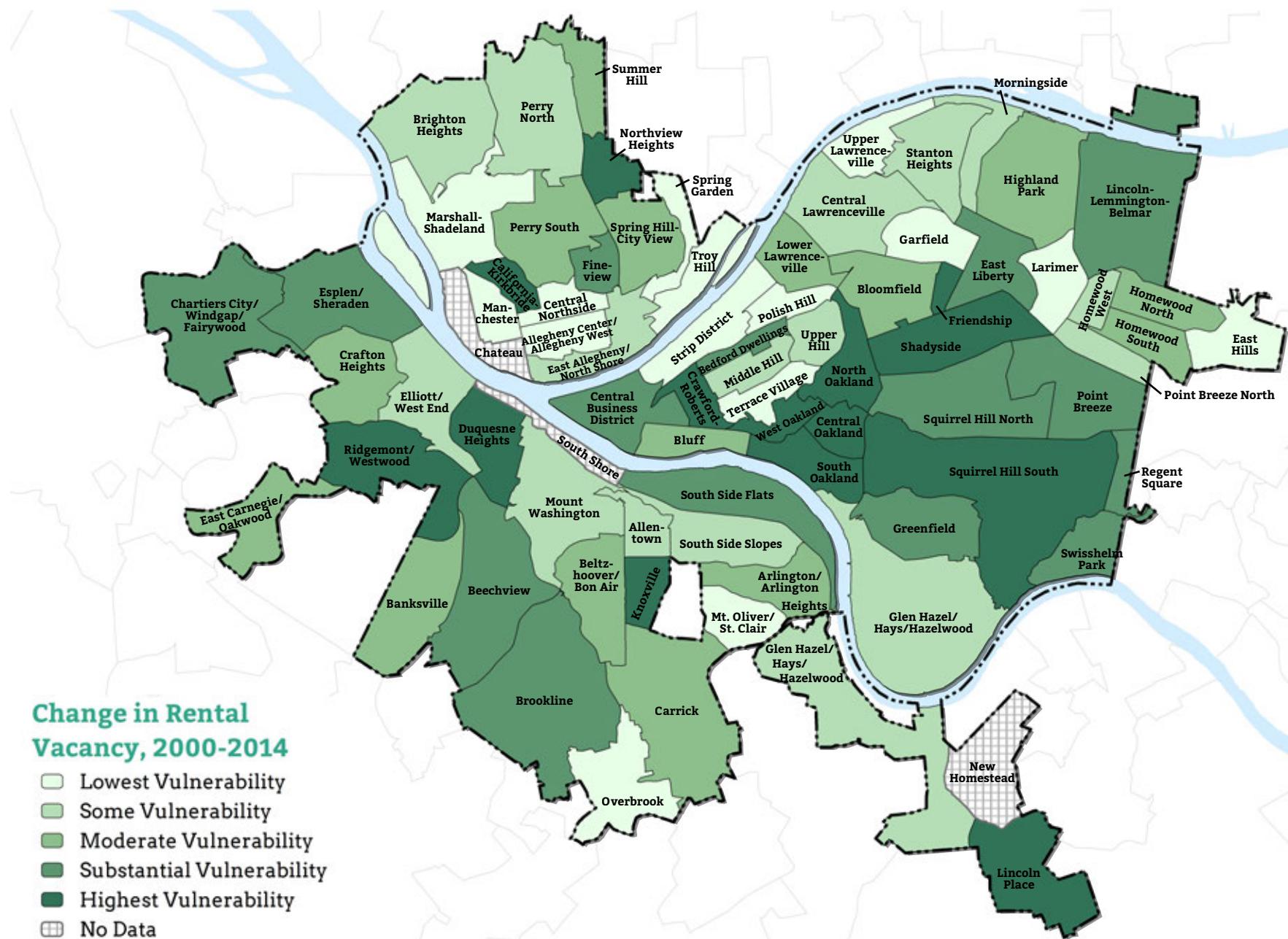


Appendix

H: Change in Median Contract Rent between 2000 and 2014

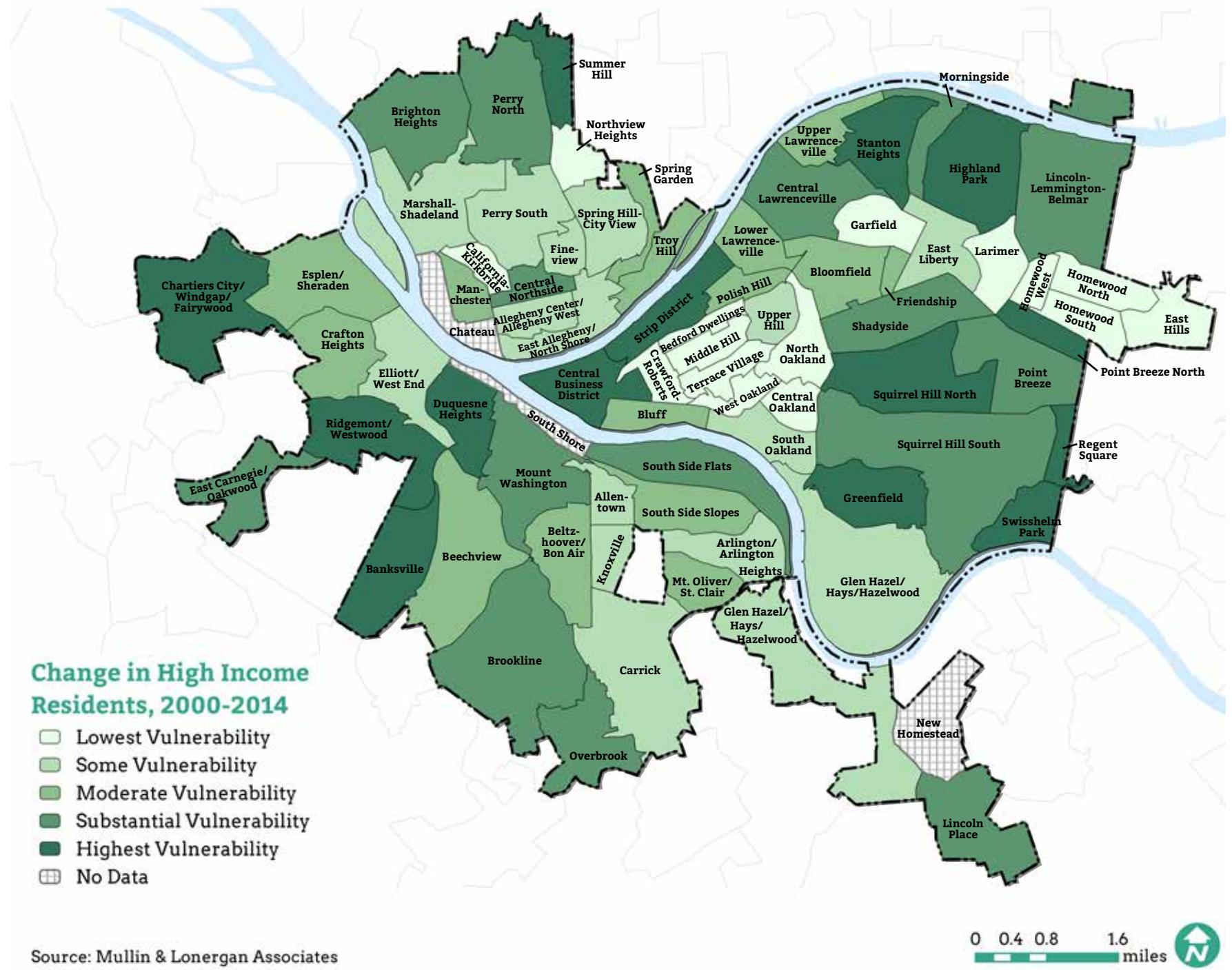


I: Change in Rental Vacancy Rate between 2000 and 2014

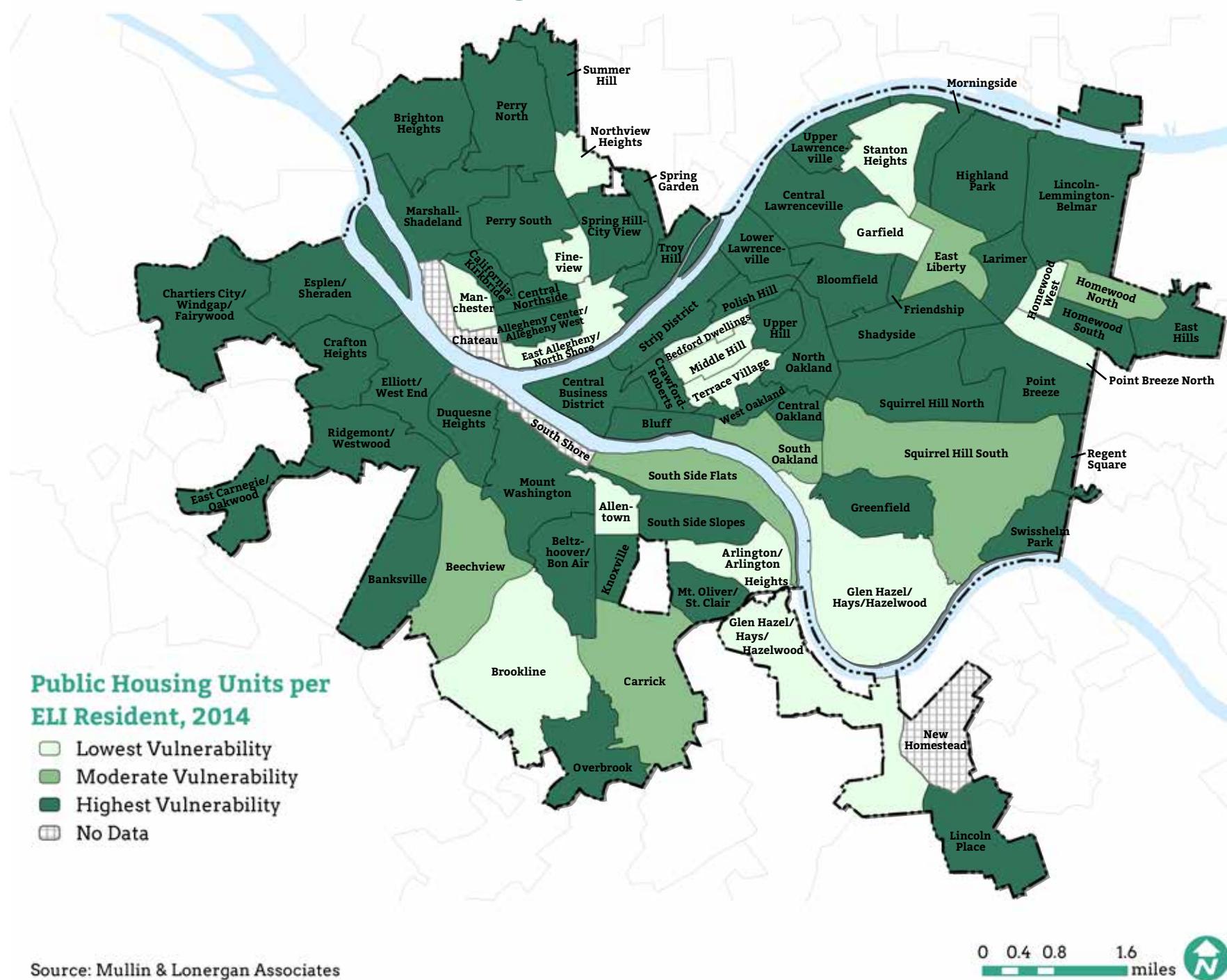


Appendix

J: Change in Percent of Households Earning Over \$50k between 2000 and 2014

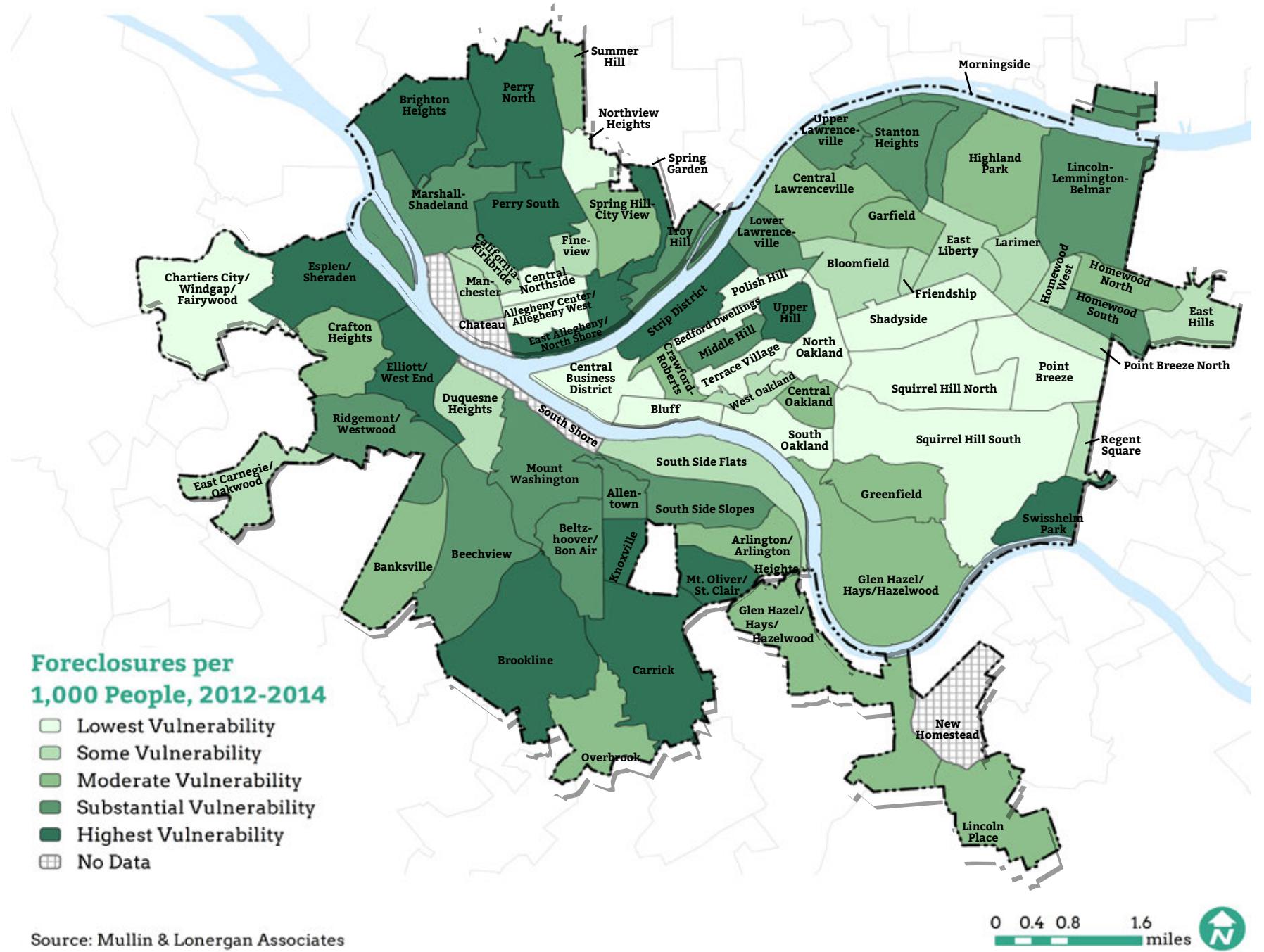


K: Inverse Percent of Public Housing Units per ELI Renter in 2014



Appendix

L: Foreclosures per 1,000 Persons from 2012 to 2014



M: Percent of Rapid Resales from 2013 to 2015

