Springfield & Pioneer Valley Housing Phase II

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Contents

List of Tables

List of Figures

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Executive Summary

The Greater Springfield Regional Housing Report Phase II represents analytical work on housing affordability that explores key topics in analytical detail, grounded in foundational information from the Phase I report in March 2021. The Phase I report uncovered from traditional secondary data a warming housing market in Springfield, but also that housing experiences and broader regional economic growth is not being evenly felt for different incomes and races of people in the Pioneer Valley region of Hampden, Hampshire, and Franklin counties. The data from Phase I showed clear disparities in access to housing and pressures on price points for different groups and in different communities across the Pioneer Valley. This report extends the previous research by further considering the role of place in upward mobility and the disparities in access, as well as the role the COVID pandemic plays related to these place-based housing issues. To create actionable information in these areas, this report employs a mixed-methods approach that leans on available secondary data, novel data from new sources, and interviews with local experts in specific focused areas ripe for further investigation beyond these initial details, as they come to light. The research for this Phase II report shows the importance of following housing market changes, housing mismatch, access to opportunity, segregation, and production of housing, each of which merit their own future reports. There are clear community needs as well as opportunities for solutions. Crucial points address affordability issues, the impacts of COVID, addressing opportunity and segregation and closing housing gaps with regional approaches.

There is a serious affordability issue in the Pioneer Valley, and it can be addressed:

Lower incomes in the region make the relatively lower rents and house prices compared to Greater Boston, still out of reach or challenging for households in the Pioneer Valley. These issues disproportionately impact the region when compared to the state. Much of the region's rental housing is out of reach for residents, calculated by comparing rental units available and incomes to determine housing income mismatch. This represents a sizable amount of the out-of-reach rental housing in the state: the Pioneer Valley has ten percent of Massachusetts' rental units but has 15 percent of the state's rent income mismatch, in other words, one in six of all apartments in the Commonwealth that are financially out of reach are in the Pioneer Valley. This is despite the region having only 10 percent of the state's total rental units. This can be addressed and becomes an opportunity to relieve housing pressure for all through support for development of owned and rented homes. Based on calculation of income mismatch for rental housing, the region currently needs at least 17,000 more rental units at or below $500 a month. Hampshire County currently needs over 1,500 additional rental units at or below $1,000 a month and Franklin needs 100 more at $1,000, of all sizes for individuals and families. In total, the region needs about 20,000 more housing units overall, including single family homes. These tangible targets are possible with federal and state funds flowing into the Pioneer Valley to help with recovery. If we can build the necessary housing stock, prosperity can increase across our communities. Municipalities and middle-income families will benefit from a more attainable housing market with increasing opportunity for everyone.

COVID made the housing situation harder, particularly for those already in difficult economic positions:

The pandemic, along with being a public health crisis which hit families and networks of frontline workers with elderly, immunocompromised, smokers and diabetic members hardest, also dramatically worsened economic conditions for low-wage, service, and marginal workers primarily through layoffs. Many of the workers who were laid off are people of color-- as well as women, who are frequently bearing the economic brunt of both layoffs and the markedly increased care needs of both children and ill family members.

Prices are going up:

The housing market was gradually warming in Springfield and around the state, prior to the beginnning of the pandemic, as the country recovered from the Great Recession. Affordability was already an issue across all income levels. Then prices all over the Pioneer Valley sharply rose due to low housing stock and low interest rates. There have been increasingly divergent financial experiences. Most people, especially laid-off and lower income workers needed the income support from the household stimulus payments and increased unemployment insurance benefits for immediate basics, while some with steady work were able to save some or all of the direct income support, potentially contributing to down payments. Despite initial concerns of an influx from outside metro areas, there is no clear evidence so far that demand during this time is primarily driven from outside the Pioneer Valley, rather most is likely broadly local.[1] Even within the area however, demand for homes increased greatly while few units were available. Prices for free-standing homes and rents both rose, at least in part from pandemic-related phenomena.

Place-based opportunity is here and available to be shared:

Basic quality of life which supports people in their daily lives is not equally available nor equally distributed across the Pioneer Valley. Access to clean air, public transportation, high-scoring schools, nearby jobs, networks of people who are not in poverty, and high employer engagement (by hiring local residents) are some of the measurable critical amenities that makes the specific place people live important to their chances in life. Economic and racial segregation in the Pioneer Valley has meant that people don't have fair and equal access to opportunity, through the process of securing appropriate and affordable housing. A regional approach to housing production to share in the opportunities of the Pioneer Valley would benefit residents of all income levels by relieving pressure on the increasing housing and rental markets and sharing resources.

[1] Data from the U.S. Census Bureau suggests people moved within the region. Based on this initial information, demand seems local rather than from people from other counties or other states. Further information on migration during the pandemic will be available soon but has not yet been fully gathered and published by the Census Bureau.

Segregation is part of our present:

Segregation exists in the Pioneer Valley not just historically, but in the present day. In fact, segregation of white and Hispanic communities in the region is among the highest in the nation. Housing costs, deficits, and regulations are reinforcing and continuing to perpetuate segregation across our communities. The approach of working regionally on cost and availability of housing were the primary solutions suggested to begin to change these trends.

Tailored approaches will create the needed appropriate development:

Rural, suburban and urban areas face different pressing issues in housing development. Rural areas have high costs of adding infrastructure that isn't yet present (water, sewer, internet) while suburban areas often have restrictive zoning or other reasons limiting buildable lots including neighbor resistance and being somewhat built-out, urban areas face high redevelopment costs for lots with existing structures and also are sometimes more built-out (fewer available lots with nothing on them). In higher-poverty areas, building conditions are especially critical, particularly for lower-income owners, where deterioration can lead to housing loss. Keeping struggling owners in their homes and creating more stock to revitalize our region can be achieved using multiple strategies. Ultimately, thoughtful rural and urban development needs further political and monetary support to match demand and create possibilities where they are currently arising too slowly to cope with the natural growth and upkeep of our region.

Introduction

Housing prices and shortages, and their impact on household budgets, are a critical issue in the United States. This is particularly the case in larger metropolitan regions and densely populated states, such as Massachusetts. It might be easy to think that the Pioneer Valley, being in the less densely populated western half of the state and somewhat removed from Greater Boston, would avoid some of the housing-related challenges faced by the eastern part of the state. However, existing data and the lived experience in the Pioneer Valley suggests the region has many of the same housing cost and related quality of life issues, but further complicated by having substantial suburban and rural areas not strongly connected by public transit, and in rural places, less existing infrastructure such as water, sewer, and broadband internet. This can severely limit housing options and increase costs for low- and moderate-income families without reliable transportation options while limiting housing development. Urban and rural residents also face housing conditions issues and pressure on existing housing stock, as deferred maintenance can limit the number of suitable units available.

Prices and income are the two critical elements of housing affordability. In the Pioneer Valley, while rental and home prices are generally lower than other parts of the state, so are salaries and wages. Housing cost burden is actually higher in the region than the overall state average due to the mismatch between available income and housing prices here. There are fewer people competing for housing, but there are also fewer units available. Land is abundant, but land that is ready for development is scarce due to issues of infrastructure, cost and local support or the inclination of some residents to oppose new development if it is perceived as negative, at times based on reasonable issues, other times out of prejudice or unfounded concern. In addition, in a region that has a lower concentration of white, non-Hispanic residents than the state overall there is no shortage of residential segregation[2]. people of color in the region most commonly reside in the urban core of the Pioneer Valley, with many unable to move to surrounding communities due to a lack of public transportation and due to price, as well as exclusionary real estate practices, zoning and additional resistance or limitations on building affordable units in some places. The nature of racial discrimination has generally become less overt and more insidious over time, but it persists and the most aggressive practices of discrimination in housing are not only within living memory of many of the Pioneer Valley's residents, but also still relevant and happening today, often through economic and policy community processes.

This report features selected topics that highlight the holistic role of housing and the places people live in social mobility, wealth creation, and quality of life in a broader community and how access to quality housing is critical for low income residents, families with children, and communities of color, with the potential positively feeding back into higher-income communities. While enumerating and illuminating these issues, this report identifies what is needed to create a successful and prosperous future together and how

[2] The region overall appears more diverse than the state exclusively due to the influence of Springfield and Holyoke, without these two cities the Pioneer Valley would be 85 percent white, non-Hispanic compared to the state's 72 percent for the same group.

the benefits end up being both economically and socially shared across municipal, ethnic, racial, and income divisions.

Key topics were selected for this report to explore, and while they do not encompass all important housing-related areas of life, they do each play a critical role in understanding crucial housing issues. This report contains information on segregation in the region and the interplay with access to opportunities integral to life chances and outcomes, specific to each place; the effects of the pandemic; housing market trends; mismatch between what people can afford and what housing is available in the Pioneer Valley; and housing production. Rather than coming first, the section on segregation and opportunity is the culminating (last) section of this report. Each of these topics would be suitable to feed and be expanded upon in their own, freestanding reports. Taken together, they create a portrait of the present moment and create a foundation for future action for improvement.

COVID and Housing Affordability

Access to housing is influenced by market forces and current events, including the COVID pandemic. The pandemic has disproportionately impacted communities already facing the largest challenges in the economy, particularly people of color, women, young adults, workers with limited educational attainment, and those in poverty. The closing of businesses, temporary or otherwise, due to the pandemic led to massive unemployment not seen since the Great Depression, particularly in low wage, customer-facing businesses such as retail and food service, which are staffed disproportionately by people of color. Increased unemployment, particularly among renters, led to housing instability for low wage workers and their families. While the state and federal government recognized these issues and were able to put measures in place to help keep people in their homes temporarily, job losses have led to an increase in evictions, temporarily delayed for some by moratoriums on evictions at the federal and state level and reduced by the provision of rental assistance.

Housing Market

The second section will look at the prior and current local housing market through the pandemic. Available data shows a steady climb in rental and sale prices regionally, across the state, and nationally. During the pandemic prices spiked considerably as demand increased and available inventory plummeted. From 2010 to 2019 the percent of households spending 30 percent or more of their incomes on housing (i.e. "housing cost burdened") declined in the home ownership market, while rental households have seen their rent burden stay the same or gotten worse since the end of the Great Recession. Part of this issue is driven by issues in available housing stock and, in particular, the condition of vacant units. The housing stock in the Pioneer Valley tends to be much older than the nation's overall or even the state in terms of pre-1970 housing. Finally, the section will discuss lead abatement as a continued issue in getting families with children

into housing, as legislation intended to protect children inadvertently leads to them being discriminated against by landlords who fear the cost and difficulty of proper lead abatement.

Housing Mismatch (subsection of the housing market section)

Housing affordability is at the heart of this research. Within the housing market analysis is an examination of housing income mismatch. Housing mismatch is a way of identifying how many people in the region need housing of a particular type and comparing it the housing that is available. Generally, across most income levels there are large gaps between who needs housing and what is actually available at the price they can reasonably pay, reflective of an overall shortage in housing units, which drives prices up. However this does varies for the highest-income, with households at higher income levels having access to more affordable units than they actually need while moderate, middle, and lower income households experience a shortage in units they can actually afford, within both the rental and ownership markets. In many parts of the Pioneer Valley, the units that are available are generally more expensive than a person making the typical income in the area could reasonably afford. Assuming a 20 percent down payment, residents of many Pioneer Valley towns would need to save several times their median annual income in order to afford a mortgage on the typical home. Saving for a down payment on a mortgage is an aspiration for many, but the ability to do so varies greatly by circumstance and for people with low incomes, who are more likely to be people of color, this can be exceedingly challenging as these are households that are much more likely to be housing burdened in the first place. Spending over 30 percent, and in many cases over 50 percent, of household income on rent makes it extremely difficult for families to save money on top of those monthly commitments. Even if a person turns to outside the market-rate units for housing they can afford, for example by looking into subsidized housing, the availability of units is extremely limited. With those subsidized units largely concentrated in the central, more urban areas of the Pioneer Valley (e.g. Springfield, Holyoke), the communities who need affordable housing the most find themselves limited to housing in a restricted number of communities. There is an extremely highly uneven distribution of communities of color around the Pioneer Valley, driven substantially by housing affordability barriers as a central persistent factor.

Housing Production (subsection of the housing market section)

The housing market section closes with a discussion of where housing is being produced and what efforts are being made to increase production. While housing units continue to be built throughout the region, the amount is usually much less than overall projected need. The types of units built are often lower density single family homes whose infrastructure needs fit the capacity of many rural communities in the area but are unable to house nearly as many people as multifamily developments would, yet adding infrastructure such as sewers and roads is more costly and underfunded in some of the region. Falling behind in production of both rented and owned homes pushes prices further upward. Using population growth data

and housing production information, an estimate of the gap between housing need and production was estimated for Phase I of this project. Hampden has the greatest estimated shortage and Franklin has the least. A recent state law which eases zoning changes to enable new housing development may make it easier to get new developments in the region. However the unique challenges of building housing in rural parts of region such as higher costs due to less infrastructure in the more rural areas, leading to lower margins for developers, and political opposition in some of the suburban, rural, and urban areas to extensive development work will continue to hinder Pioneer Valley communities' growth, housing affordability, and accessibility.

Segregation and Opportunity

The last portion of the report is a detailed examination of opportunity of place and the socioeconomic disparities between racial and ethnic groups in the Pioneer Valley in access to places free from air pollution and poverty and with amenities which offer crucial life chances including elementary schools with high test scores and access to transportation and jobs. Where people live influences what opportunities residents have access to.

The opportunity and segregation section first shows where people live in the region by race/ethnicity with maps illustrating the present situation and the lack of much change over time. It also contains an examination of the dissimilarity index which is a measure of *evenness*, measuring whether one particular racial or ethnic group is distributed across census tracts in a city or region in the same way as another racial or ethnic group. It represents what percent of people would need to move to another place to be evenly distributed. These data suggest that in the Pioneer Valley segregation between Black and Hispanic people from white people is very high. This is reflective of the disproportionately high levels of specific racial and ethnic groups in only a few urban areas of the Pioneer Valley.

The maps and dissimilarity index show that people of color are dramatically disproportionately based in Hampden County's cities, particularly in neighborhoods of Holyoke, Chicopee, Westfield and Springfield. The analysis of the specifics of measured opportunities in different places in the region uses the Housing and Urban Development Affirmatively Furthering Fair Housing (AFFH) Opportunity Indices, a dataset which contains information on access to different measures of opportunity. It contains six index measures; the Labor Market Engagement Index, the Low Poverty Index, the Environmental Health Index, the School Proficiency Index, the Low Transportation Index, and the Transit Trips Index. On several of the measures the aforementioned communities score the lowest in the Pioneer Valley. The School Proficiency data in particular shows that communities of color in these municipalities live in neighborhoods which lack access to high-scoring elementary schools, directly affecting generational opportunity. The poverty index shows poverty is heavily but not entirely concentrated in the most urban communities in the region. It also shows rural poverty, in all three counties, most noticeably in Franklin County. On the measure of environmental health which measures exposure to air pollutants, Hampden County's areas near the river do especially

poorly, which is another barrier to the communities of color that live there, in a region with very high air quality scores in the rural parts. The two transportation indices show those urban locations doing quite well but this is reflective of those areas being some of the only parts of the Pioneer Valley that have public transportation that is close to affordable for people, and is a part of the disparity between rural and urban poverty. Low income people in rural areas are extremely limited in their ability to travel, making it harder to access job opportunities and education. Overall, housing cost pressures mean that opportunity is not equally shared across the region and thoughtful action is necessary for this to change.

Policy Intuitions

This report illuminates housing and racial segregation from a multitude of angles and incorporates qualitative information from stakeholders from throughout the Pioneer Valley region, which reinforce the understanding that racism and discrimination have exacerbated the housing crisis, particularly since the start of the COVID pandemic. These data also highlight the challenges the housing market present to everyone regardless of race or ethnicity and across many different levels of income. The conclusion of this report provides some policy intuitions that local officials and community members can apply to improve the housing situation in their own communities and region, serving also as strategic concepts that can be supported by new and existing state and Federal initiatives.

Housing Affordability

Affordability is income and cost together. Throughout this report the concept of housing affordability will be addressed in a variety of ways. In the simplest terms, housing affordability is the idea that in a given community, there exists housing in which current residents and new arrivals can afford to live. This simple definition is insufficient however.

- No housing cost is affordable without income. Housing must be paired with jobs which pay enough to make renting or buying a home within commuting distance practical.

- Affordable housing should only be a portion of a resident's regular expenses. No one can spend 100 percent of their income on housing as there are many other expenses. The traditional 30 percent standard is used this this report.

- Affordable housing must fit the residents who need it. A single bedroom apartment that can easily fit an individual or couple may not fit larger household units, regardless of the price. Housing unit size is a part of the need for housing and the most affordable units must be accessible and go beyond single-bedroom and studio units.

Given these parameters, there are two forms of affordable housing, natural and subsidized. Naturally affordable housing, sometimes called NOAH for Naturally Occurring Affordable Housing, is housing whose market price fits the budget of potential residents. Subsidized housing is housing which may not fit the budget of potential residents, but through programs at the federal, state and local level, becomes affordable through housing assistance. In both forms of affordable housing the units must fit the residents, regardless of if they are paying the entire cost themselves, or if they are receiving aid. Some subsidies go with the housing unit, such as a Federally-subsidized apartment or an entire subsidized building such as in public housing, and other subsidies are used as vouchers and are flexible for use on housing as long as it is deemed affordable to the voucher holder once the subsidy is considered, and in good enough condition (livable, no lead paint, etc.).

People with different household sizes and different income limits experience housing affordability very differently, making addressing affordability hard for any one place. One town may have an abundance of empty, low cost housing for single young professionals but none for families with children, or elderly people. Another may have housing for a huge range of different households but few jobs for them, meaning that at any price that housing is unaffordable for most people. In both examples, the towns meet some criteria of affordability (and may be able to match some people with housing) but overall still have an issue with affordable housing.

This report and the report before it estimate how much housing is needed and how much naturally affordable housing is needed in the Pioneer Valley. These are distinct but deeply linked because when housing supply overall is too short, prices will increase out of reach for everyone. In the first phase of this

study an estimate was made of the gap between needed and expected housing in the Pioneer Valley. This estimate used historical and projected housing unit counts and compared it with the historical and projected population of the region based on household formation and population change. Phase I found that over time the Pioneer Valley population would continue to outgrow the available housing units leading to a shortage of 11,000 in 2018 growing to around 19,000 units by 2025, for both rented and owned housing units.

For the second phase (this report) a distinct estimate of housing price and income mismatch was created using currently available estimates of the number of rental units at different price points, compared to the number of renters by income. This estimate found that there was a shortage of over 17,000 rental units in the Pioneer Valley at the less than $500 monthly rental price point. Unlike the Phase I estimate in the prior report, which is projected additional shortfall of all housing at any price, this estimate uses data on current renters and units by price, not longitudinal housing unit counts, population counts, and household formation. These two estimates of the region's different housing needs should not be compared directly to each other, added together, or subtracted from each other, as they are derived from different sources and reflect two different aspects of the Pioneer Valley's housing shortfall. However, they are both helpful estimates of the housing situation in the area: one which shows the current housing price needs (price mismatch) and the other which shows the overall need for all housing's increase over time (housing projection).

COVID Impacts

The first section of this report will examine the impact of the COVID-19 Pandemic on the housing and employment situation of Pioneer Valley residents.

Key Points on Effects of COVID Pandemic on Housing

- COVID-19 induced widespread hardship which has disproportionately affected women and people of color in the Pioneer Valley, particularly Black and Hispanic/Latinx individuals. As a result, many people of color and women potentially faced housing insecurity because of loss of income.
- Data on evictions show that moratoria were effective at halting evictions and buoying struggling renter households, but the future in uncertain now that these moratoria have ended. Evictions were an important issue prior to the pandemic and pressures are poised to make this worse.
- Rental and mortgage assistance programs including Residential Assistance for Families in Transition (RAFT) and Emergency Rental and Mortgage Assistance (ERMA) – both Massachusetts-administered programs - were utilized by many households around the Pioneer Valley, providing financial assistance and shielding them from housing displacement.
- New United States Postal Service change-of-address data suggest that the pandemic and subsequent rise of telework prompted individuals to move to more rural, less densely populated areas around the Pioneer Valley, but does not show a large new influx of new residents.

The COVID pandemic has transformed life for most people in one way or another. In where and how we work, the loss of a loved one, and a new sense of insecurity brought on by economic hardship, the pandemic has affected nearly everyone. The pandemic has not affected everyone equally, however, and serves as a great revealer of multiple inequalities that permeate our society.

Both in terms of the burden of incidence of illness itself and also the economic insecurity it has catalyzed, people of color and women in the Pioneer Valley have been disproportionately affected. COVID incidence has a clear relationship with the share of community's population that are people of color and has been particularly high in the Commonwealth's Gateway Cities.[3] People of color in the Pioneer Valley are more likely to experience in-home crowding and also commonly work jobs that expose them directly to the public, which helps to explain COVID's disproportionate impact on them.[4] Meanwhile, women have shouldered more of the care burdens for ill family members and for children home from school Furthermore, people of color in the Pioneer Valley and women are frequently employed in service-sector jobs in industries that suffered widespread instability and interruptions during shutdowns, leading to people of color and women experiencing disproportionately high rates of unemployment during the pandemic. With their economic futures suddenly jeopardized, thousands of people around the Pioneer

[3] See Appendix C for municipal data on COVID incidence per 10,000 residents by share of population that are people of color.
[4] See Appendix G for data on the distribution of workforce by frontline occupation as well as rate of in-home crowding by race.

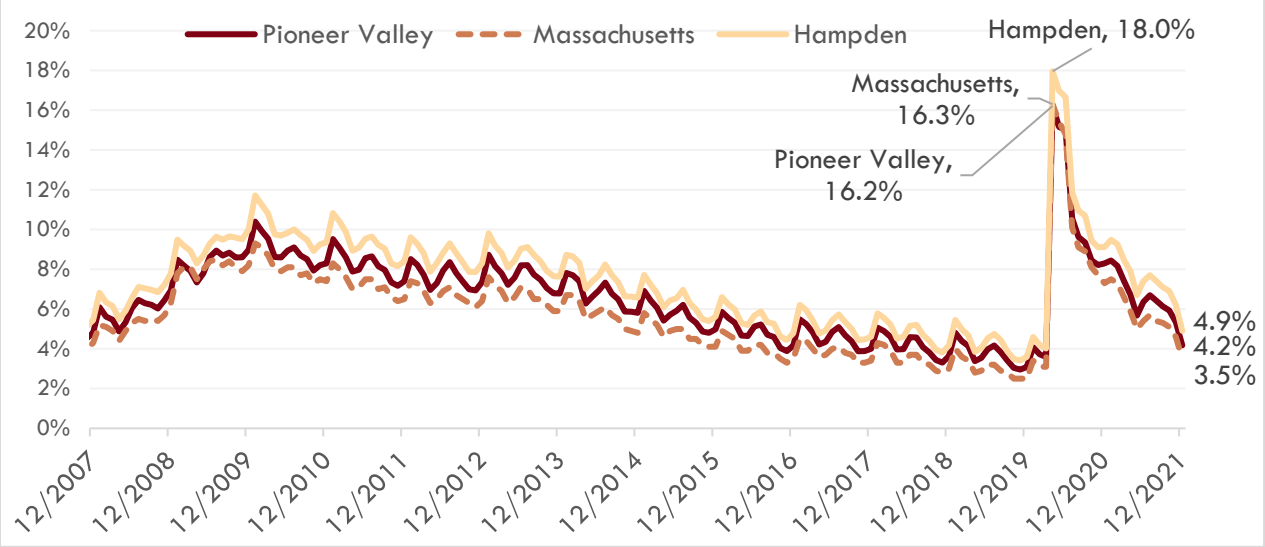
Valley potentially faced housing insecurity with disproportionate representation among people of color and women. As the data in this section details piece by piece, the economic uncertainty from the sudden rise in unemployment disproportionately and intersectionally affected women and people of color, as well as people with low levels of educational attainment.

The COVID era has been one marked by hardship. In response to this hardship, there has been an array of policy interventions including a decline in interest rates, moratoria on evictions and foreclosures, and emergency rental and mortgage assistance programs. These policy interventions have impacted the housing market in a variety of ways. While lowered interest rates made home-buying more accessible, they came at a time when housing supply decreased, contributing to rising home prices. Meanwhile, eviction and foreclosure moratoria – as well as emergency rental and mortgage assistance programs – buoyed households facing a loss of income despite rises in rents. Moving patterns also changed, with a sharp increase in the number of people moving into more rural ZIP codes throughout the Pioneer Valley.

Unemployment

In conjunction with the public health crisis that claimed the lives of thousands of Massachusetts residents, COVID also induced widespread economic insecurity. This is best displayed through trends in unemployment data. In April 2020, unemployment in Massachusetts reached a historically high rate of 16.4 percent. Unemployment in the Pioneer Valley peaked at the same time, reaching 16.2 percent.

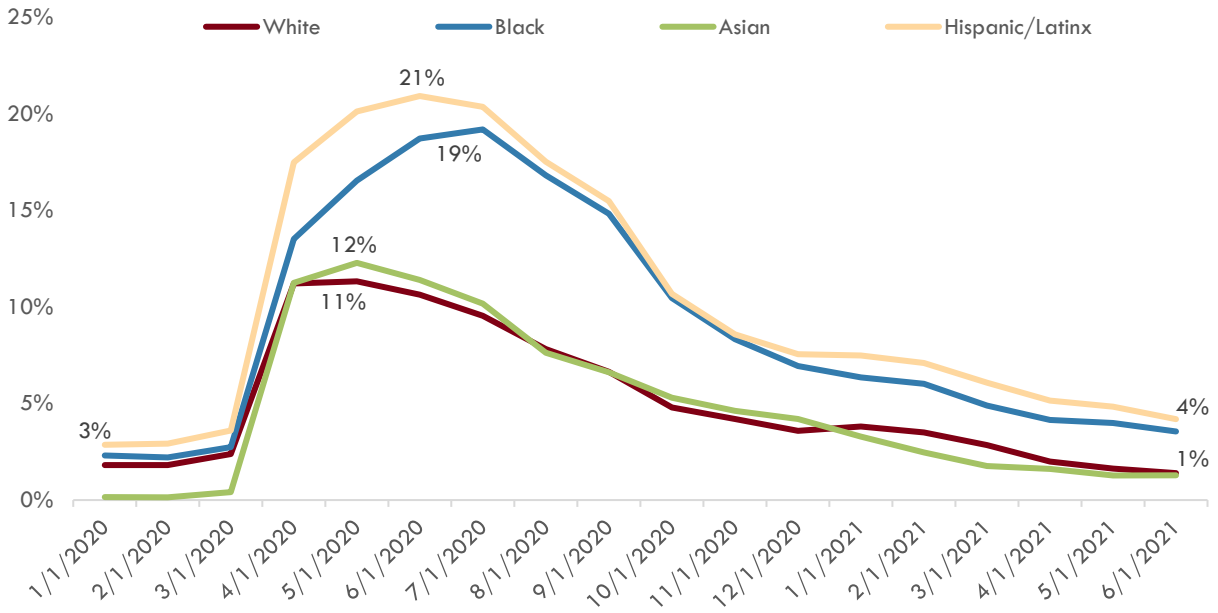
Figure 1. Unemployment in Massachusetts, Pioneer Valley, and Hampden County



Source: Massachusetts Executive Office of Labor & Workforce Development, Local Area Unemployment Statistics

Typically, the Pioneer Valley has slightly higher unemployment than the state overall, driven by the socioeconomic conditions of Hampden County. Franklin and Hampshire counties have had lower unemployment rates than the state in nearly every month since 2000. This trend was undisturbed by the pandemic. While unemployment has fluctuated wildly, it has not affected all groups in the Pioneer Valley to the same extent. Analysis of unemployment insurance claimant data shows that people of color, women, and workers with lower levels of educational attainment were disproportionately affected by unemployment, causing loss of income that in turn leaves them more vulnerable to a loss of housing.

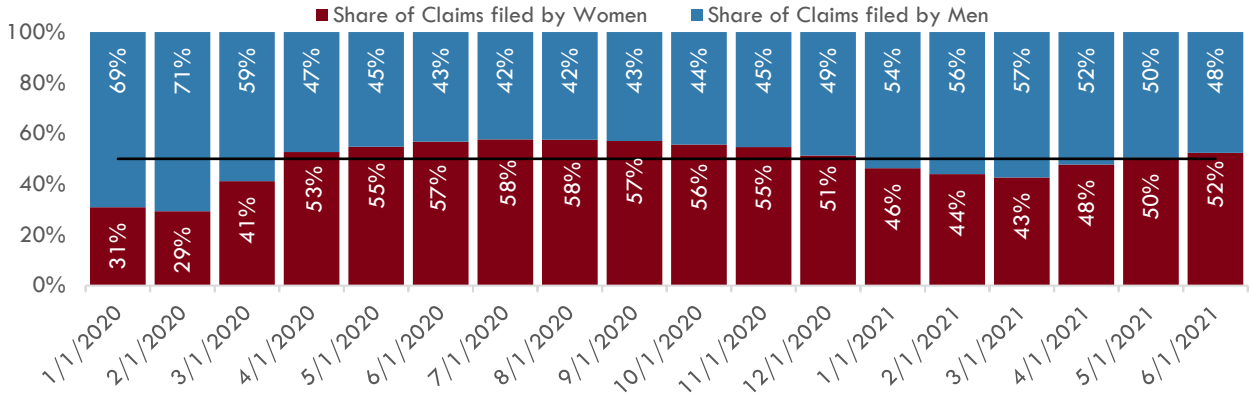
Figure 2. Initial Unemployment Insurance Claimants, as share of Own Race Group's 2019 Labor Force



Source: MA Executive Office of Labor & Workforce Development, Unemployment Insurance Claimant Profiles; ACS 2015-2019 5-Year Estimates

During the pandemic, the increase in unemployment fell hardest on people of color. White people made up the largest share of active unemployment claimants throughout the pandemic. However, due to overrepresentation in service industries and occupations, Black and Hispanic/Latinx workers were hardest hit by unemployment in terms of percent of people within their own race or ethnic group. In June 2020, 21 percent of the Hispanic/Latinx labor force and 19 percent of the Black 2019 pre-pandemic labor force had to go onto unemployment, compared to 11 percent of the white labor force and Asian labor force. The industries hardest hit by the pandemic were also the ones most likely to be more heavily staffed by people of color (see further data in Appendix G). As a result, while unemployment has fallen to pre-pandemic levels for all racial and ethnic groups in the Pioneer Valley, Black and Hispanic/Latinx workers remain more heavily affected, experiencing substantially higher unemployment than white and Asian workers.

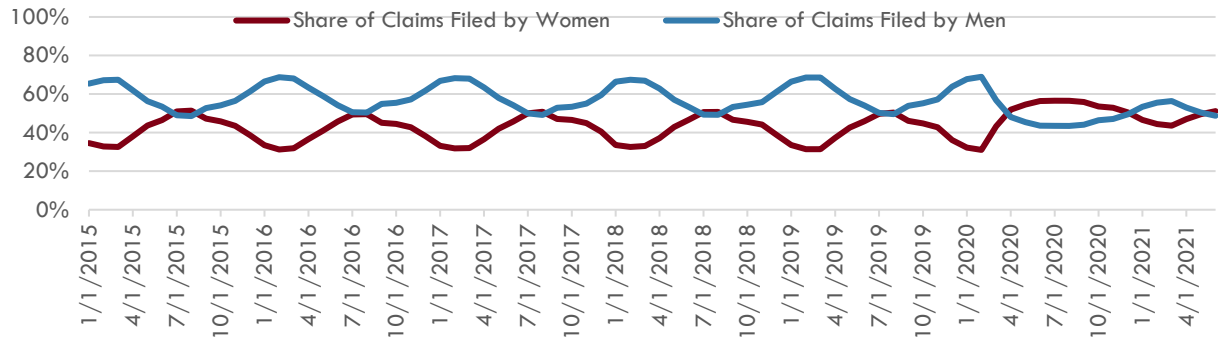
Figure 3. Share of Persons on Unemployment by Sex, 2020-Present, Pioneer Valley



Source: MA Executive Office of Labor & Workforce Development, Unemployment Insurance Claimant Profiles

Women were also heavily impacted by the pandemic, making up well over half of unemployment claimants between April and December 2020. Prior to the start of the pandemic, men comprised the majority of unemployment claimants, likely due to the concentration of men in the construction industry, which produces many seasonal layoffs during the winter. Historically, men constitute the larger share of unemployed for most of the year with their unemployment level rising in September and October through the end of winter before returning to parity in the late summer. **Figure 4** below provides a historical view of the distribution of unemployment claims by gender. While there is a clear seasonal aspect in the trend, women rarely constituted a majority of unemployment insurance claimants, and never accounted for more than 51percent of claims prior to 2020. The pandemic disrupted this trend, as women's share of claims reached as high as 57 percent in July and August 2020. This is likely due to the concentration of women in occupations that were heavily disrupted by shutdowns, specifically retail trade and food service.

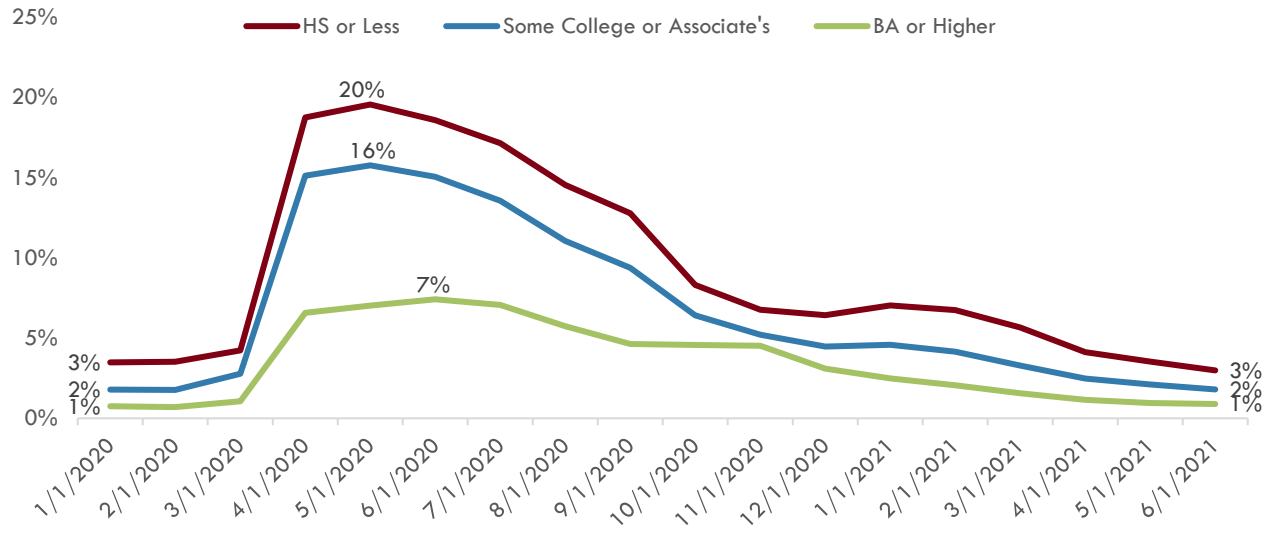
Figure 4. Share of Persons on Unemployment Insurance by Sex, 2015-Present, Massachusetts



Source: MA Executive Office of Labor & Workforce Development, Unemployment Insurance Claimant Profiles

Disparities in unemployment are also present amongst individuals with different levels of educational attainment. Pioneer Valley residents with less than a high-school diploma were hardest hit by unemployment across people with varying levels of educational attainment. At the peak of the pandemic, residents with an Associate's degree or some college were also unemployed at rates twice as high as that of people with a Bachelor's or more education. Alongside the previous charts, this illustrates that while the pandemic has created hardship for all strata of society, it has been especially hard for people of color, women, and those with less educational attainment. This also shows that the pandemic-related policy responses including expanded unemployment benefits and eviction moratoria were particularly important for these groups of people.

Figure 5. Unemployment Claimants as a Share of 2019 Population by Educational Attainment, Pioneer Valley



Source: MA Executive Office of Labor & Workforce Development, Unemployment Insurance Claimant Profiles, ACS 1-Year Estimates

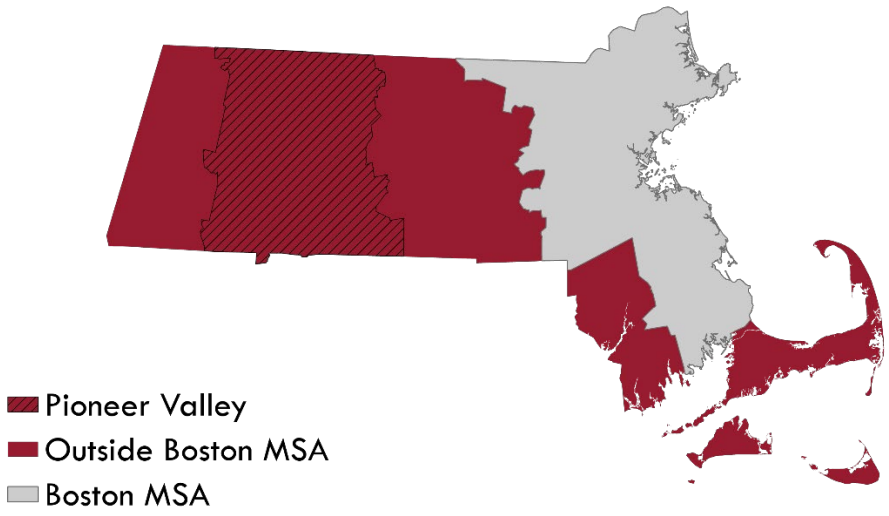
Household Pulse Survey

The COVID pandemic has led to housing insecurity for thousands of households around the Commonwealth, including in the Pioneer Valley. In April 2020, the U.S. Census Bureau began administering the experimental Household Pulse Survey in response to the COVID pandemic, allowing for near-real-time data on how households are faring during the pandemic.[5] In Massachusetts, the data are available by two

[5] Among other things, the survey asked respondents about their housing situation, including confidence in ability to pay their mortgage/rent, whether they are up-to-date on their payments, and their fear of eviction/foreclosure if they are not.

geographies; the Boston MSA (about 70% of households) and the rest of Massachusetts. While the rest of Massachusetts geography is not the same as the Pioneer Valley, the Pioneer Valley does make up a large share of the area - about 794,917 households, or 34% of the total population of the rest of Massachusetts outside the Boston MSA, and therefore sheds light on what may have been happening in the Pioneer Valley. Figure 6, below, depicts these two geographies.

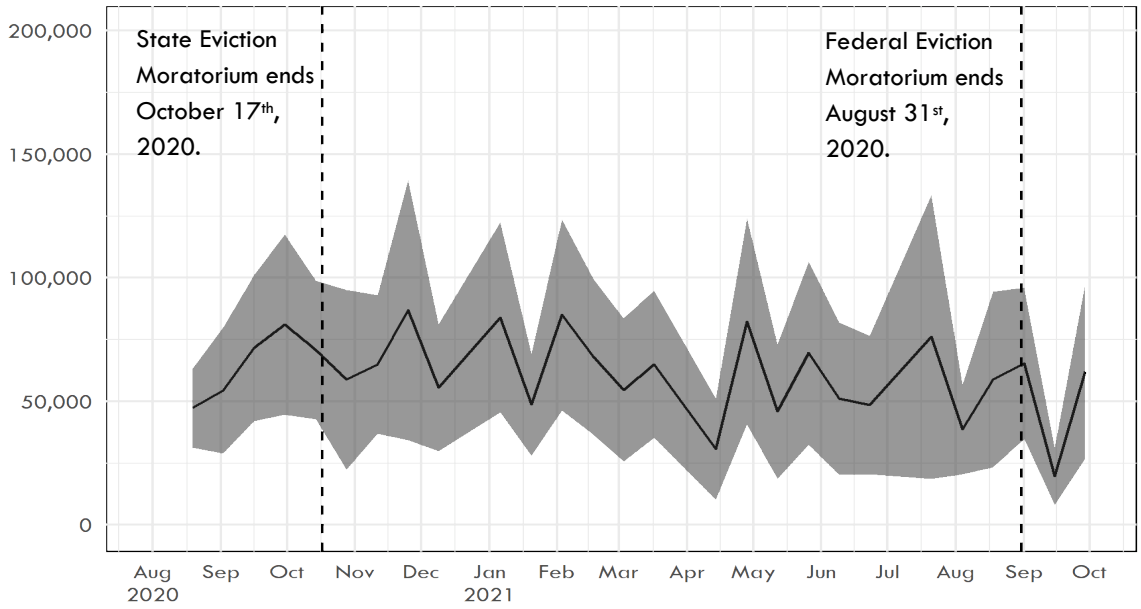
Figure 6: Boston MSA and Rest of Massachusetts



Source: MassGIS and U.S. Census Bureau Household Pulse Survey

Figure 7, below, depicts the estimated number of households outside the Boston MSA behind on their rent or mortgage payments. Data from the Household Pulse Survey are available for two geographies in Massachusetts – the Boston MSA, and everything else – to narrow in on a more relevant geographic area, data for outside the Boston MSA were analyzed. The Pioneer Valley makes up about a third of the population of this larger region. Since late August 2020, the number of households behind on their monthly housing payments has been alarmingly high and did not subside after the ending of the statewide eviction moratorium, highlighting the importance of the federal eviction moratorium that expired in August of 2021. If this trend continues, and no new policy interventions are introduced, there are potentially a very large number of households outside of the Boston MSA that may be facing eviction or foreclosure in the coming weeks/months, some of whom are residents of the Pioneer Valley.

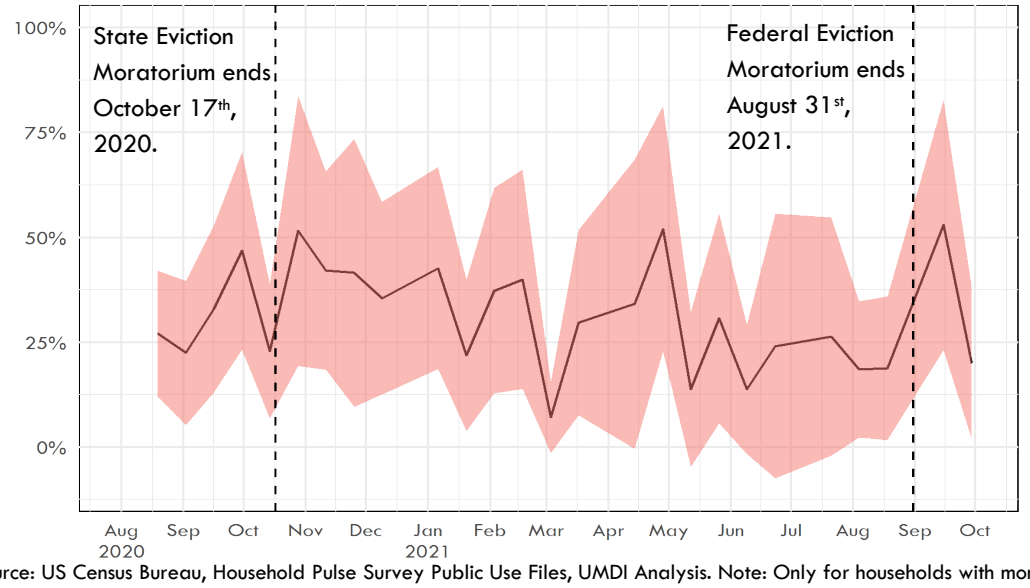
Figure 7. Estimated Number of Households Outside of Boston MSA Behind on Rent/Mortgage Payments



Source: US Census Bureau, Household Pulse Survey Public Use Files, UMDI Analysis. Note: Only for households with monthly rent or mortgage payments; this data excludes those who own their homes free and clear. Shaded band represent 95% confidence interval.

Despite the large number of households behind on their monthly housing payments, not all of these households were afraid of being forced out of their homes. **Figure 8** shows the estimated proportion of households behind on their rent or mortgage payments outside of the Boston MSA that fear being evicted or foreclosed on. Despite a brief rise after the statewide eviction moratorium ended in October 2020, the proportion of households behind on payments fearing eviction or foreclosure has fluctuated over the course of the pandemic. Together, figures 1 and 2 emphasize the importance of the array of policy interventions - including eviction/foreclosure moratoriums and emergency rental assistance - that were introduced during the pandemic by buoying the staggering number of households who may have otherwise faced displacement.

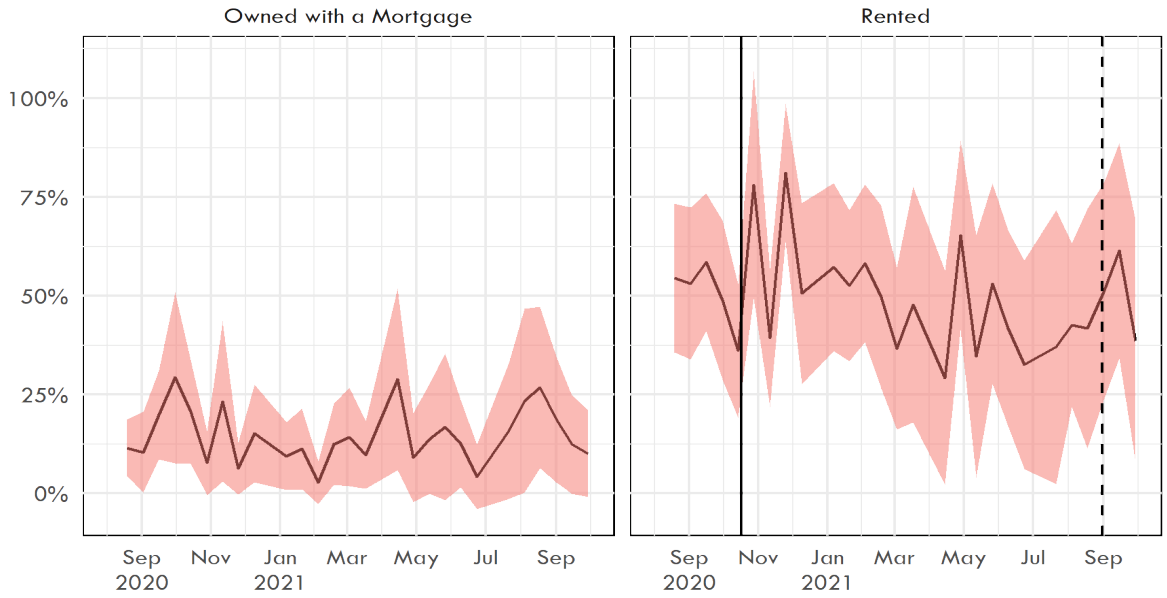
Figure 8. Estimated Share of Households Behind on Rent/Mortgage Outside of Boston MSA Fearing Eviction or Foreclosure



Source: US Census Bureau, Household Pulse Survey Public Use Files, UMDI Analysis. Note: Only for households with monthly rent or mortgage payments; this data excludes those who own their homes free and clear. Shaded band around the line represents a 95 percent confidence interval.

While sample sizes were too small to reliably examine the proportion of households outside the Boston MSA fearing eviction or foreclosure by tenure, this analysis was possible for the entire state. **Figure 9** below depicts this analysis, and shows that in most weeks, households behind on rent were more concerned about eviction than households behind on mortgage payments. While it is still unclear exactly why this discrepancy exists, it is possible that it is related to differences in the eviction and foreclosure processes, as well as the racial distribution of renters and homeowners given that renters tend to have higher incidence of poverty and unemployment.

Figure 9. Estimated Share of Households Behind on Rent/Mortgage Fearing Eviction or Foreclosure by Tenure, Massachusetts

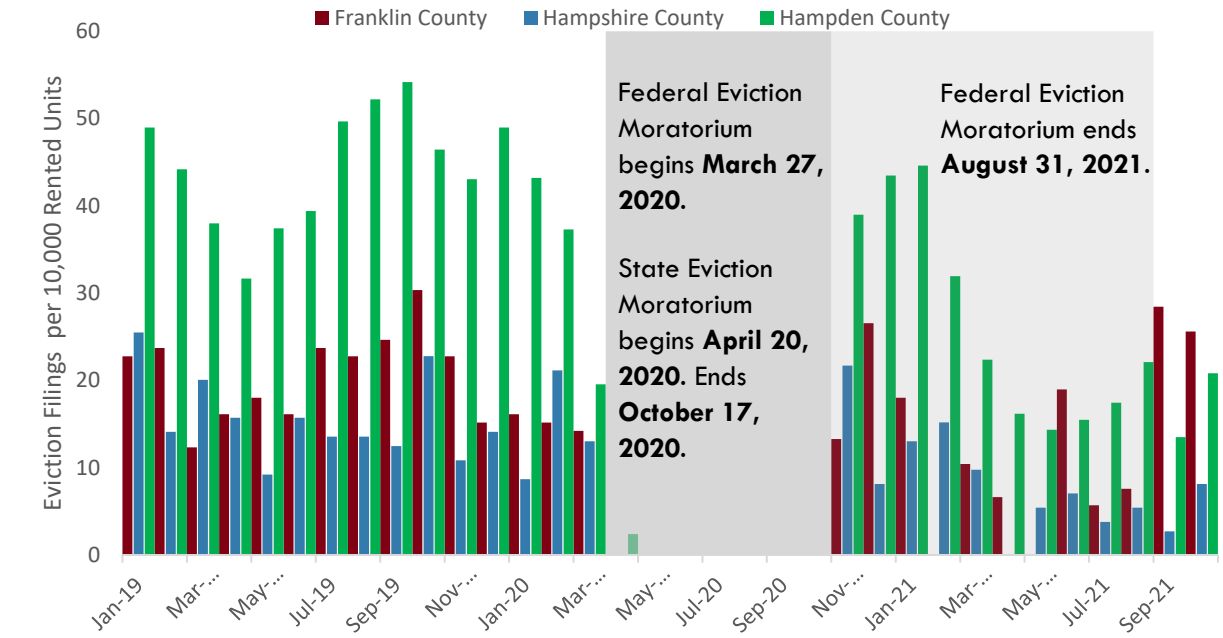


Note: The solid line denotes the end of the statewide eviction moratorium on October 17, 2020
The dashed line denotes the end of the federal eviction moratorium on August 31, 2021
Source: US Census Bureau, Household Pulse Survey Public Use Files, UMDI Analysis. Note: Only for households with monthly rent or mortgage payments; this data excludes those who own their homes free and clear. Shaded bands represent 95 percent confidence intervals. Data on all of Massachusetts utilized due to larger sample size needed to distinguish renters.

Figure 10 below shows state and federal moratoria were effective to prevent evictions during the pandemic. What the future brings with the end of Federal protection just recently, is less certain. As the estimates from the Pulse survey suggest, there are many households who are not caught up on their monthly rent, leaving them vulnerable to eviction in the absence of protective policy measures.

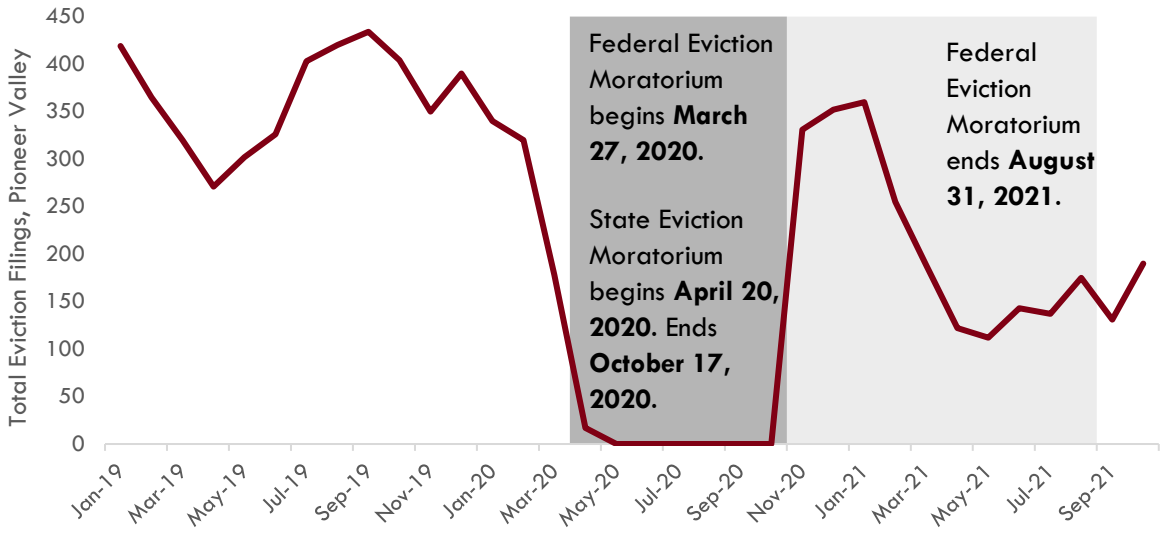
Early on during the state moratorium, very few evictions were filed in the Pioneer Valley. By May, all eviction filings in Pioneer Valley were effectively halted, as **Figures 10** and **11** show. Given the disparities in unemployment insurance claimants, it is safe to assume that this halting of filings was most protective of the most vulnerable households, including those headed by racial minorities, women, and individuals with low educational attainment. Once the state eviction moratorium was lifted in October 2020, landlords began to file – though they could not fully execute – eviction cases around the Pioneer Valley. Previously shielded by the Federal moratorium, households in the region which are behind on rent are again at risk of eviction. As **Figure 10** shows, Hampden County is home to a disproportionate share of households facing eviction. A list of eviction filings on a municipal level is available in Appendix L.

Figure 10. Eviction Filings per 10,000 Renter-Occupied Units, January 2020 to August 2021



Source: Massachusetts Trial Court

Figure 11. Total Eviction Filings in Pioneer Valley, 2020 to Present

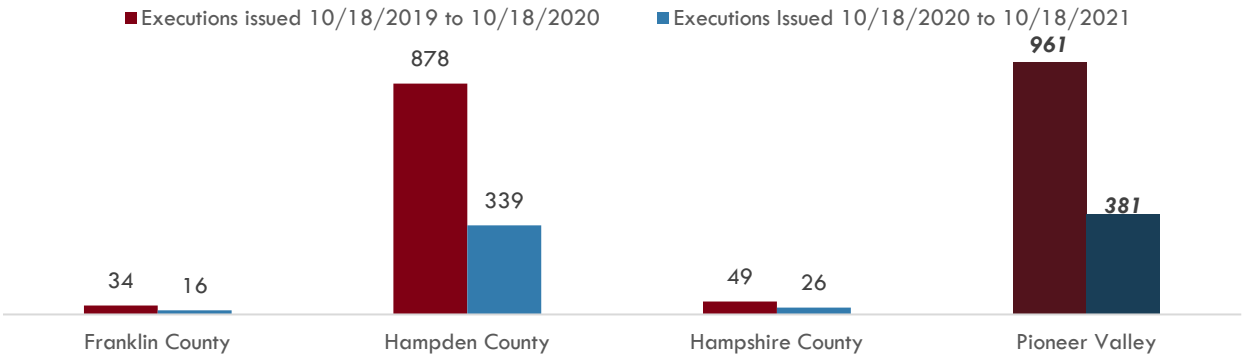


Source: Massachusetts Trial Court

In order to aid households at risk of losing their housing, Massachusetts has implemented a variety of programs to provide financial assistance to those with demonstrated need. Residential Assistance for Families in Transition (RAFT) is a long-standing program that provides up to $10,000 for households facing housing emergencies due to loss of income and/or increase in expenses. Households earning up to 50 percent of their Area Median Income are eligible (60 percent for people at risk of homelessness due to domestic violence).[6] Area Median Incomes are dependent on the number of individuals in a household. For households the Springfield MSA with two individuals, the 50 percent Area Median Income threshold is $34,200, and it is $42,700 for a family of four.[7] Specifically in response to the COVID crisis, Massachusetts has also implemented two other programs – the Emergency Rental and Mortgage Assistance Program (ERMA), and the Emergency Rental Assistance Program (ERAP). Unlike RAFT, ERMA and ERAP were created specifically in response to COVID, and applicants must demonstrate a need for assistance that is directly related to COVID. ERMA and ERAP both have higher (more permissive) income thresholds than RAFT with households earning up to 80 percent of their Area Median Income being eligible to apply. Aside from the direct financial assistance RAFT, ERMA, and ERAP also have the added benefit of buying time for distressed renters – landlords cannot evict tenants who have a pending rental assistance application.[8] A list of rental assistance payouts and total amounts of aid dispersed on a municipal level is available in Appendix L.

As **Figure 11** shows, eviction executions around the Pioneer Valley have slowed. In the one-year period leading up to the end of the statewide eviction moratorium, eviction executions were nearly twice as frequent as in the one-year period after it ended. This could be explained by the mixture of policies that were in place to curb evictions during the latter period, including the Federal eviction moratorium as well as stipulations in RAFT and ERMA that prohibit evictions while tenants are awaiting to receive rental assistance.

Figure 12. Executed Evictions

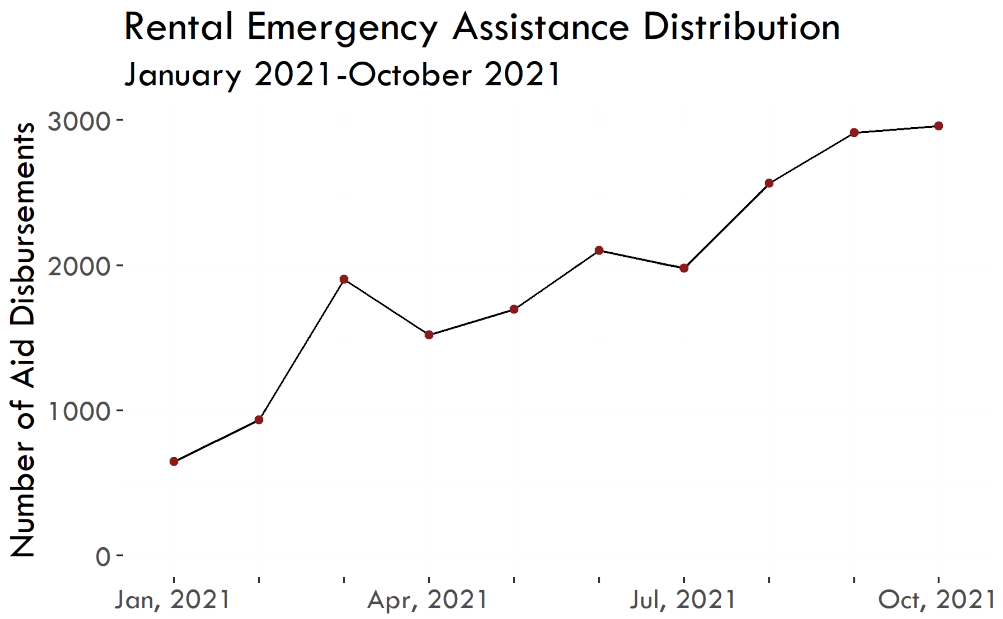


[6] https://www.mass.gov/info-details/emergency-housing-payment-assistance-during-covid-19#details-on-the-raft-and-erma-programs-
[7] A full list of Area Median Income thresholds are available here: https://www.mass.gov/doc/erma-area-median-income-information/download
[8] https://www.metrohousingboston.org/what-we-do/specialized-services/raft/

Source: MA Trial Court Note: Data on eviction executions by county were only available as cumulative totals from one year prior to the end of the statewide eviction moratorium, October 17th, 2020: comparing pre vs post pandemic eviction executions is not currently possible.

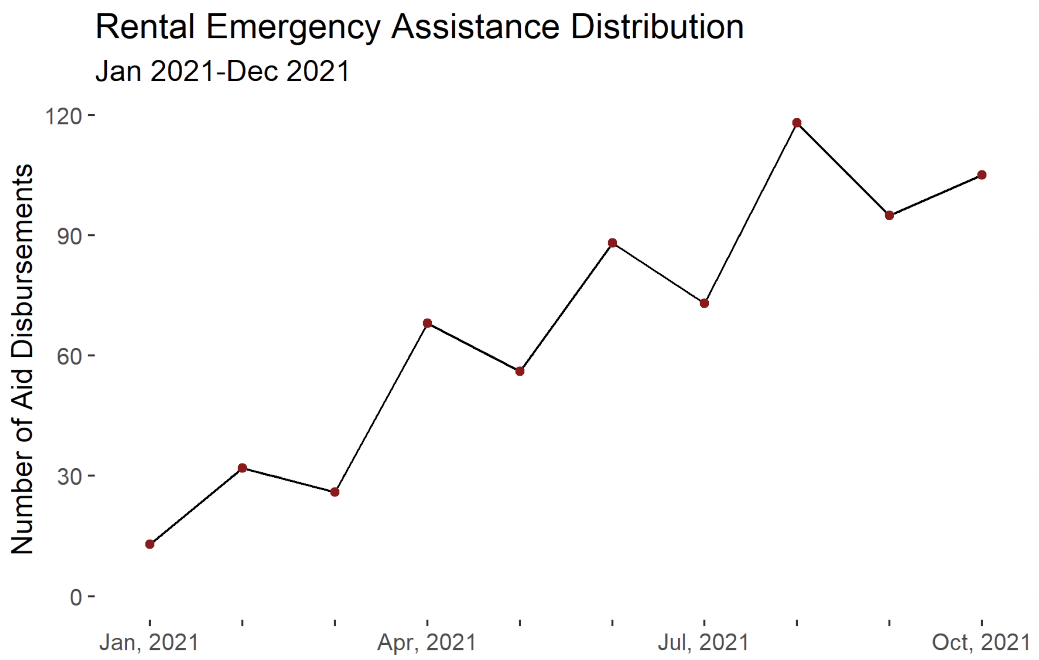
As **Figures 13 and 14** show, rental assistance has been utilized by a large number of households around the Pioneer Valley. While these programs existed prior to January 2021, stable data for this period are not available, because of the process of setting up programs and ramping up those program's capacity and reach. During the period for which reliable data are available, thousands of checks for emergency rental assistance were dispersed to households in distress: those lower-income households with demonstrated need due to missed rent or utility payments or a loss of income. **Figure 13** represents Hampshire and Hampden Counties and shows disbursements from RAFT (Rental Assistance for Families in Transition), ERAP (Emergency Rental Assistance Program), and ERMA (Emergency Rental and Mortgage Assistance Program). **Figure 14** represents RAFT and ERAP disbursements in Franklin County. Franklin County follows a similar pattern to Hampshire and Hampden Counties but at a much smaller scale due to smaller population. As **Figure 15** below shows, the majority of applications for emergency rental assistance were filed for reasons relating to COVID.

Figure 13. Number of Rental Assistance Checks Dispersed in Hampden and Hampshire County



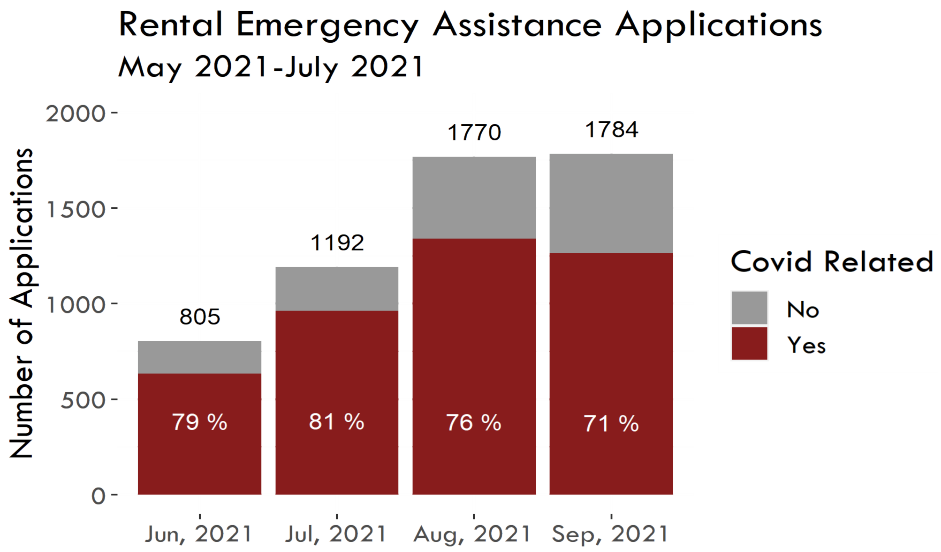
Source: Way Finders

Figure 14. Rental Assistance Aid Disbursed in Franklin County



Source: Way Finders

Figure 15. Number of Rental Assistance Applications in Hampden and Hampshire Counties



Source: Way Finders

Migration

The pandemic also seems to have prompted many people to change residence. Prior to 2020, data on migration into and out of the Pioneer Valley is available using the American Community Survey (ACS) Public Use Microdata, which includes variables on where respondents lived in the last year. Historically, the majority of Pioneer Valley residents who change residence move to a new home within the Pioneer Valley. As **Table 1** shows, here is also a sizeable amount of people who moved to another part of the state.

Table 1. Most Common Destinations for Movers from the Pioneer Valley

	Movers from Pioneer Valley	Share of Total	Margin of Error
Pioneer Valley	65,035	75%	±2,846
Rest of Massachusetts	7,938	9%	±821
Connecticut	2,266	3%	±486
New York	1,322	2%	±369
Florida	1,137	1%	±328
California	1,003	1%	±316
South Carolina	695	1%	±239
Pennsylvania	598	1%	±273
Maine	579	1%	±281
New Hampshire	549	1%	±267
North Carolina	459	1%	±261

Source: ACS PUMS, 2015-2019 5-Year Estimates via IPUMs

In terms of net migration, the Pioneer Valley typically experiences more residents moving in than leaving. **Table 2** depicts the places with the highest net migration to and from the Pioneer Valley. Not only is the rest of Massachusetts the most common place for movers to the Pioneer Valley to come from, but it is also the largest source of increase due to migration. Outside of Massachusetts, the Pioneer Valley frequently attracts a net positive number of movers from the neighboring states of New York and Connecticut. Additional data on migration to and from the Pioneer Valley are available in Appendix F.

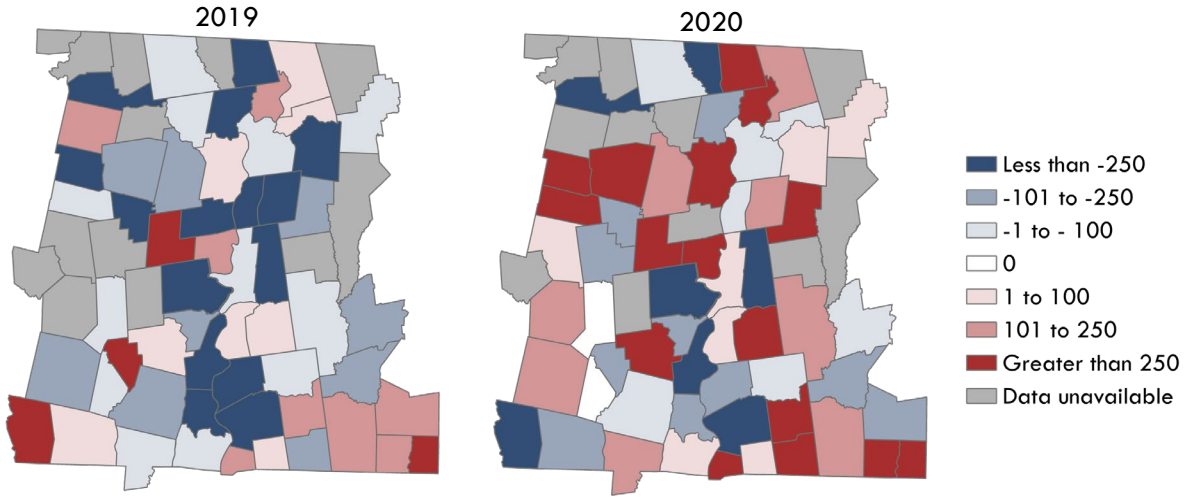
Table 2. Net Movers to Pioneer Valley

	Net Movers	Margin of Error
Rest of Massachusetts	5,062	±158
New York	1,525	±346
Connecticut	559	±375
Illinois	322	±90
New Jersey	264	±154
Kansas	223	±83
Pennsylvania	151	±198
Oregon	126	±65
Minnesota	123	±54
Georgia	108	±153

Source: ACS PUMS, 2015-2019 5-Year Estimates via IPUMs

The above tables show that historically, the majority of movers to the Pioneer Valley have been Massachusetts residents, most of whom come from other parts of the Pioneer Valley. **Figure 14** below leverages USPS change-of-address request data to provide a contemporary view of where movers are relocating to. Each time a person fills out a change of address form the USPS registers the address they left as a "move-out" and the address they moved into as a "move-in" and the difference is the net change of address value, shown in the map below. **Figure 14** uses that data to show that while people have been leaving dense urban areas at similar rates – places like Springfield, Holyoke, Northampton and West Springfield- there has been a significant change in the amount of people moving into the more rural, less densely populated parts of the region, which in 2019, were seeing people leave. This change in the rate of people moving in and out may have tightened the supply of housing in more rural areas as more people moved in, likely due to the rise of telework combined with efforts to isolate during the pandemic.

Figure 16. USPS Net Change of Address Requests per 10,000 Housing Units



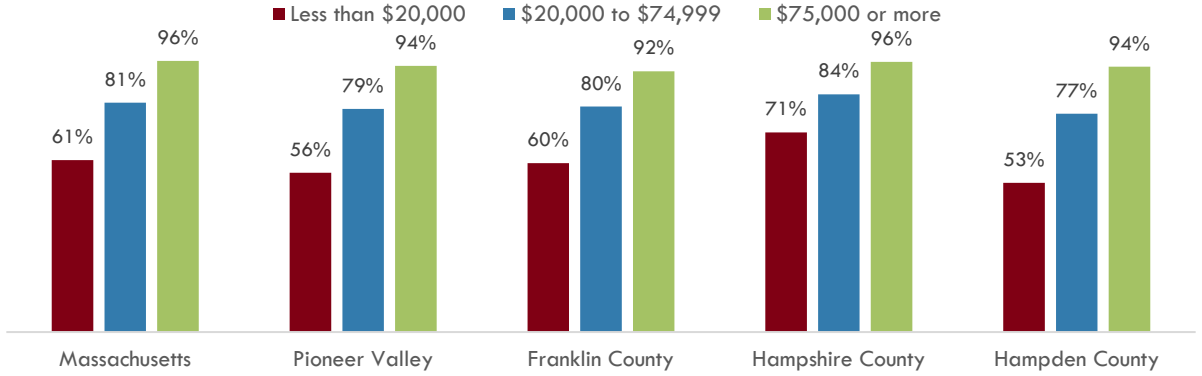
Source: USPS Change of Address Stats 2019-2020; ACS 2015-2019 5-Year Estimates

While unemployment rose dramatically in many industries during the pandemic, certain industries were isolated from its effects due to their ability to transition to remote work. The pandemic coincided with the widespread proliferation of remote work tools including video calling services, cloud storage platforms and business communication platforms. These tools enabled many firms to continue business mostly as usual by sending employees home where transmission risks were low. This transition has sparked a conversation about the future of office work and clearly shown that, in many cases, a full-time in-office presence is not as vital as it used to be.

The transition to remote work also revealed disparities between workers not only in income but also in their ability to work safely during health crises. Workers in jobs with a strong customer facing aspect who were able to keep working after the initial spike of unemployment, particularly in the retail, accommodation, healthcare and food service industries never had the option of fully remote work. These workers became commonly known as "frontline workers" and took on some of the greatest risks during the pandemic while also operating in some of the lowest paying industry sectors. In a time where technology has made remote work easier than ever, frontline workers highlighted that some of the most vital jobs in society are among the least compensated and during events like the COVID pandemic, some of the most dangerous. No amount of technological change is likely to improve the safety or quality of these frontline jobs, and as these are an abundant source of jobs accessible by people with less education or who are early in their careers, further automation of these roles would only likely hurt a large number of these workers. In the end, the pandemic revealed deep inequities in low pay service work, both in terms of job losses and in the potential health risk for those deemed essential and maintained regular contact with the general public. The pay in these jobs, in many cases, are not commensurate with the vital importance of the roles these jobs play to the general community. Additionally, the ability of frontline workers to move out of these industries and into fields that allow for remote work is extremely dependent on location, education and income level.

All remote working tools require a stable internet connection, something that has approached ubiquity in the last decade but remains far from universal. A quality internet connection can generally be considered one based on some type of broadband.[9] But the internet connection requirements for tools needed for remote work like video conferencing can be higher than certain forms of broadband connection, such as satellite or DSL can reliably provide. Despite varying quality between types of broadband access, having access to some form of broadband can be an indicator that a community has the option of telework. Some groups in the Pioneer Valley still lack that option.

Figure 17: Share of Households with Broadband by Annual Income, 2015-2019



Source: ACS 2015-2019 5-Year Estimates, broadband includes households with cable, fiber optic or DSL as well as cellular broadband and satellite service.

In the Pioneer Valley, while more than 90 percent of households on the upper end of the income spectrum have broadband internet, these households makeup only about 40 percent of all households in the region. The remaining 60 percent have less availability in some cases and in other cases less ability to afford broadband internet, for some households, of course, both issues are barriers. Households making less than $20,000 a year make up just over 17 percent of households in the region and in the whole of the Pioneer Valley and only 56 percent have broadband. These are the households most likely to be working in lower income fields which are disproportionately worked by people of color. If people in non-telework industries seek jobs in telework compatible fields, they may not be able to work remotely if the change in fields isn't coupled with a sufficient increase in income and improvement in their local access to quality internet. Broadband varies by county, with Hampshire County residents being more likely to have broadband at all income levels than Franklin or Hampden County. This is due to both physical availability being higher in Hampshire county and the ability of residents to pay being greater. However, as of July 2021, in all three Pioneer Valley counties there are communities for where broadband access is still being developed, particularly in the hill towns on the western side and in the northeast corner of the Pioneer Valley. These

[9] Which the ACS defines to be a traditional hardline connection via cable, fiber optic cable or DSL (non-dial-up phone line connection), via a cellular connection (via 4 or 5G), or via satellite. Even within this definition of broadband internet there is wide divergence in quality. For example, DSL connections are available in many places due to their use of phone lines, and range from 0.5 Mbps to as high as 15Mbps https://www.verizon.com/info/dsl-services/

towns have either no broadband access or are considered underserved.[10] While the future of work in many fields may be remote, not everyone is able to work that way and work needs to be done to improve the quality of jobs that are in-person and expand infrastructure to support remote work for jobs that can be done via telework.

Since 2016 the state government has been working on a series of "Last Mile" programs[11] to improve and expand broadband infrastructure throughout the state, especially in Western Massachusetts. Of the original list of 54 towns, more than 30 have completed broadband projects with more on the way. But even once broadband is physically available, affording high quality internet service will remain a challenge for low income families. Broadband infrastructure investment continues with the 2021 State allocation of $50 million from the Federal American Rescue Plan Act to the state's Broadband Innovation Fund. Additionally, the Federal Infrastructure bill allocated $65 billion for broadband nationwide.

Conclusion

The impacts of COVID on economic and housing stability in the Pioneer Valley were large and widespread. While the pandemic has created hardships for everybody, it has been particularly challenging for people of color, women, and workers with low educational attainment. While unemployment rates have fallen to near pre-pandemic levels, there continue to be large numbers of emergency rental assistance applications filed, many for COVID-related reasons. Emergency rental assistance has become particularly crucial given the expiration of state and Federal eviction moratoria that shielded many struggling households from eviction. Going forward, emergency rental assistance could be instrumental to ensuring housing stability for the thousands of households in the Pioneer Valley that have applied for assistance, protecting them from eviction and possible homelessness as landlords have begun to file and execute evictions. Furthermore, early data on migration suggest that the more rural parts of the Pioneer Valley have attracted movers – a departure from recent trends – possibly due to the rise of telework and fear of exposure to COVID.

[10] For information on the progress of "Last Mile" programs throughout the Western Massachusetts area see the Massachusetts Broadband Institute. https://broadband.masstech.org/last-mile-programs

[11] Last mile is a telecom industry term describing the network infrastructure closest to homes. The intent of these programs is to connect remote homes to broadband internet even where private industry may not find it profitable to do so.

Housing Market Trends

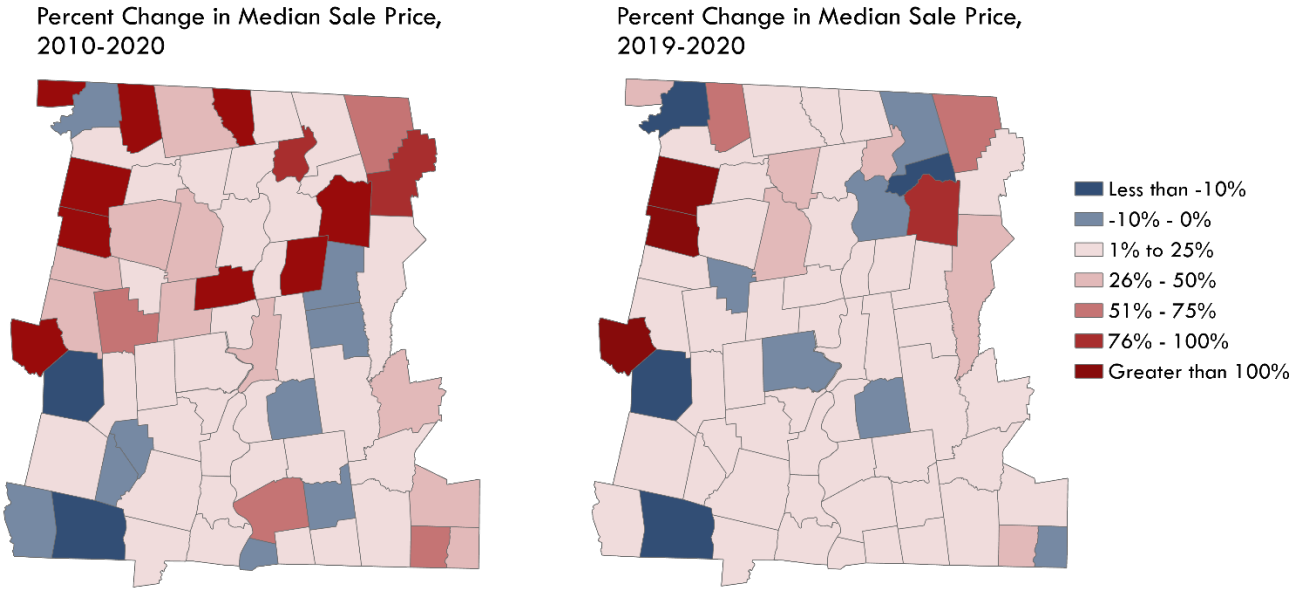
Housing Market

Key Points on the Housing Market

- Home prices and rents in the Pioneer Valley are typically lower than they are statewide and like the state, have increased in the last decade. Prices spiked sharply overall in 2020, with towns in rural areas of Franklin County seeing large increases while rural parts of Hampden saw declines in prices.
- The increase in home prices has been paired with and potentially contributed to a decline in inventories and days on market, both of which have been declining since at least 2016, reaching their lowest points in early 2021. Low mortgage rates and some of the population increasing savings may also be factors in the large price increases.
- The share of households spending 30 percent or more of their income on housing costs fell for purchased homes and stayed constant for rental units from 2010 to 2019, the most recent available data on cost burden.
- Rental cost burden increased in Franklin and Hampshire counties from 2010 to 2019, offset by burden in Hampden County remaining flat. During the same time, state overall saw a small decline in share of renters that are cost burdened. Recent rental price increases will likely increase cost burden.
- Overall, vacancy has declined and is now low. Meanwhile, the condition of existing housing stock is a concern a large share of housing is considerably older, relevant for revitalization and because building conditions can put owners on fixed and lower incomes at risk of housing loss.

Homes in the Pioneer Valley and the Berkshires are cheaper than those in the rest of the state. In 2020, the median cost of a home in the Pioneer Valley was $256,792, less than half the median for the rest of the state ($587,778). Despite remaining lower than the state median, home prices in the Pioneer Valley have increased, both over the short and long term. As **Figure 16** below depicts, home prices across the Pioneer Valley have generally increased over the course of the past decade. This trend did not subside in 2020, as prices increased over their 2019 base. While it is possible that this increase was in some ways related to pandemic-related home buying, home prices in the Pioneer Valley had already been increasing prior to the pandemic.

Figure 18. Percent Change in Median Sale Price, All Home Types

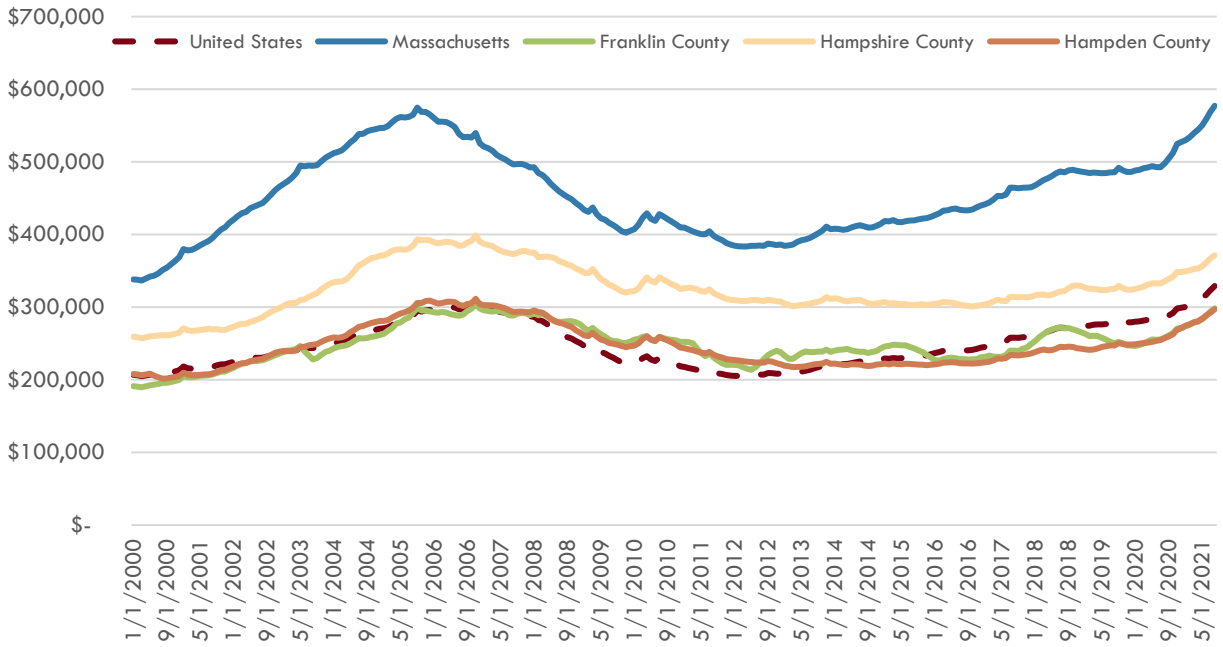


Source: Warren group 2010-2020. Note: Median sale price data were not available in Rowe in 2010, 2011 data was used in its place.

In 2020 the Massachusetts housing market underwent a sharp increase in prices and inventories declined. This trend continued through the first half of 2021. In the city of Springfield, prices increased 31 percent in June 2021 YTD.[12] Annual data from 2010 to 2020 by town shows that prices generally rose in most Pioneer Valley towns, but price changes were uneven. Much of Franklin County saw substantial price increases while some rural towns in Hampden County experienced more gradual increases or even declines. Between 2010 and 2020, Springfield prices rose 52.5%. Gerry McCafferty, Director of Housing for the City of Springfield noted "…even before the housing crash there was a little bit of a bubble, but it was nothing like the demand we're seeing now."

[12] WBUR," Hot Housing Market Shows No Signs Of Cooling Down In Massachusetts", August 11, 2021, https://www.wbur.org/news/2021/08/11/massachusetts-hot-housing-market

Figure 19. Zillow Home Price index for the State and Pioneer Valley Counties

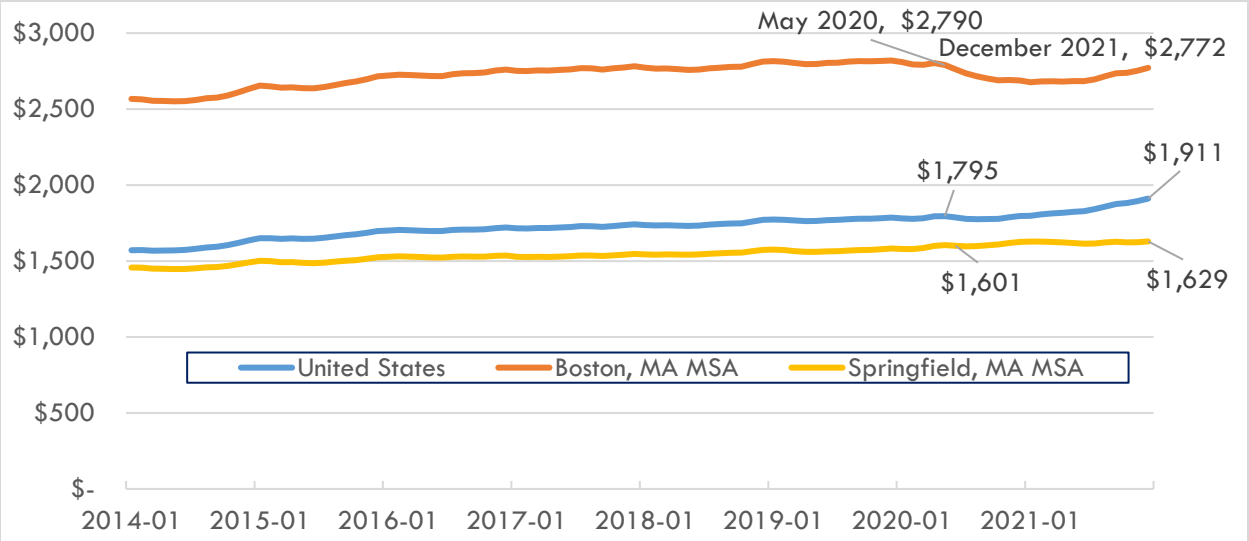


Source: Zillow Home Price Index, Counties, State and US, Monthly average, August 2021 Dollars

There are many reasons for this sharp increase in demand. Housing demand has exceeded supply in many parts of the Northeast since the 2008 financial crisis. This imbalance has driven a rise in prices for several years, but the steep acceleration in 2020 remains surprising. The Zillow Home Price index, a measure of the typical home price in a given region, produced on a monthly basis indicates that home prices are rising to levels not seen since before the 2008 financial crisis. Nationwide and in the Commonwealth overall home prices are actually above their pre-2008 levels in real terms. The three Pioneer Valley counties have not seen prices spike to levels quite as high as before the great recession but prices were trending in that direction as of August 2021.

Changes in moving patterns may also have driven the Massachusetts spike in home prices. Some stakeholders in interviews speculated that the 2020 pandemic led to many out of state people moving to more rural areas of the northeast from more urban areas, or to buy second homes, but none could say for certain that was directly tied with price increases. Data from the USPS on movers into and out of Pioneer Valley ZIP codes found that there was a spike in people moving into Pioneer Valley towns compared to 2019, particularly into more rural municipalities, but historical mover data from the ACS suggests those movers are mostly from other parts of the Pioneer Valley or the state, rather than from outside the Commonwealth. Future census data releases should allow an estimation of where 2020 movers actually travelled from.

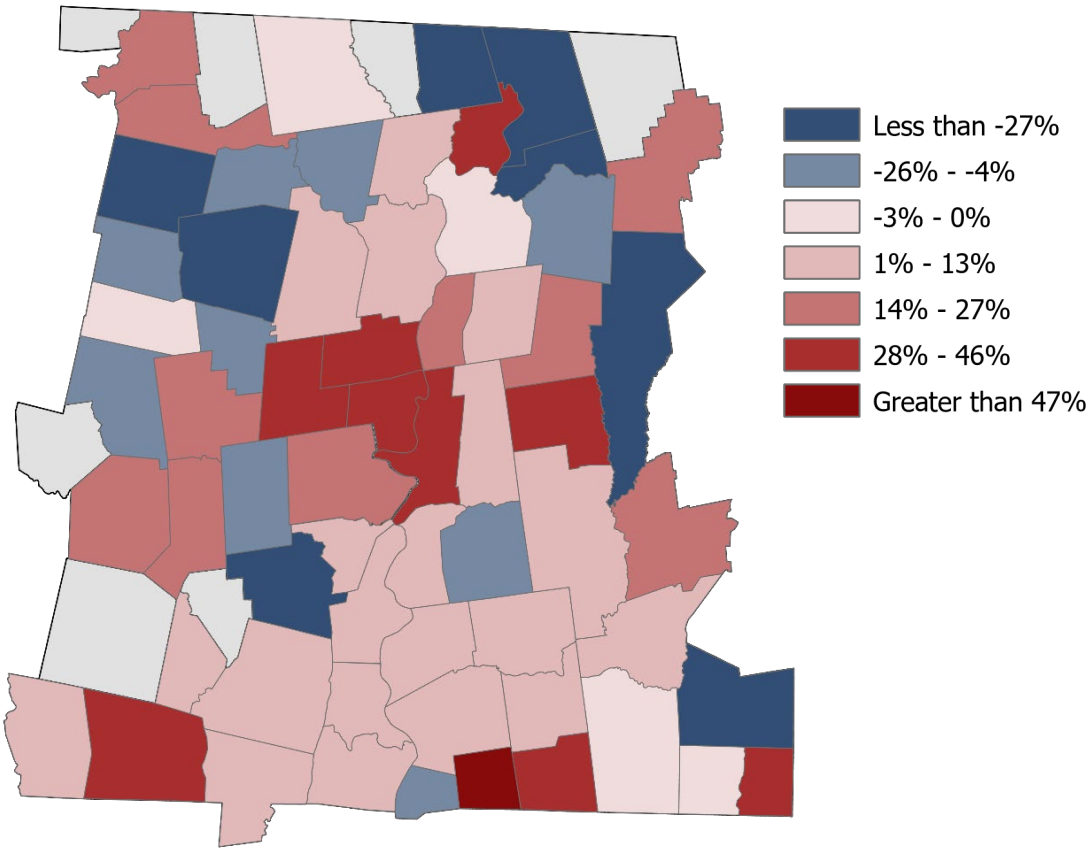
Figure 20. Zillow Observed Rent Index, MSA



Source: Zillow Home Price Index, MSAs and Nation, Monthly Average, December 2021 Dollars

Rents have changed less dramatically in the last several years than home prices. According to the Zillow Observed Rent Index (ZORI), a measure of typically observed Zillow rent at the Metropolitan Statistical Area (MSA) level, rents in the Springfield MSA (which is Hampden, Hampshire, and Franklin counties together; the same geography as the Pioneer Valley) have been lower than the Boston MSA and the country since at least 2014. Rents have risen since that time in all the areas, with a slight recent slowing in Springfield MSA. In February 2020, and Springfield MSA ZORI were the same after which rents in Worcester remained higher than in Springfield through to the present in August 2021. While Springfield had continued gradual growth in observed Zillow rent, Boston saw a 6 percent decline in observed Zillow rent between April 2020 and August 2021.

Figure 21. Change in gross Median Rent 2010-2019



Source: ACS 2006-2010, 2015-2019 5-Year Estimates, Series: B25064

As noted above, the Springfield Metropolitan Statistical Area (MSA) corresponds to the three-county region that makes up the Pioneer Valley. Rent in the region is lower than the typical rent nationwide, and much lower than the eastern part of the state around Boston, though prices vary between individual towns in the Pioneer Valley. Data from the 2019 American Community can tell us about the median gross rent in individual towns in the region. Before the pandemic, median rents ranged from almost $1,600 a month[13] in a town like Whately to just under $700 per month in Wilbraham. Large towns (More than 20,000 people) in the upper half of median rents include Westfield, Amherst, Northampton, Agawam and Ludlow. Large towns in the lower half of median rents include the two largest municipalities, Springfield and Chicopee, as well as Holyoke, and West Springfield.

[13] Expressed in 2020 dollars

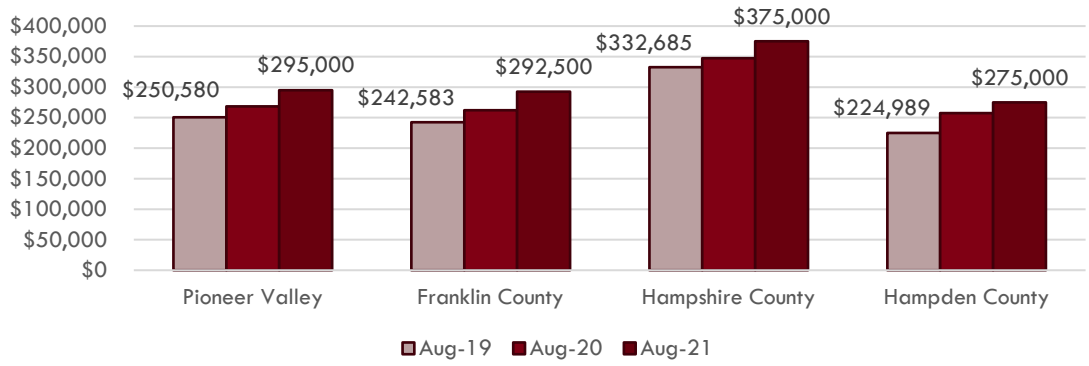
Table 3. Pioneer Valley Home Prices, Monthly, by County

Median Sales Price, Single Family Homes				
	Aug-19	Aug-20	Aug-21	Percent Change 2019-2021
Pioneer Valley	$250,580	$268,391	$295,000	18%
Franklin County	$242,583	$262,076	$292,500	21%
Hampshire County	$332,685	$347,329	$375,000	13%
Hampden County	$224,989	$257,339	$275,000	22%

Source: Realtor Association of Pioneer Valley, August 2021 Dollars

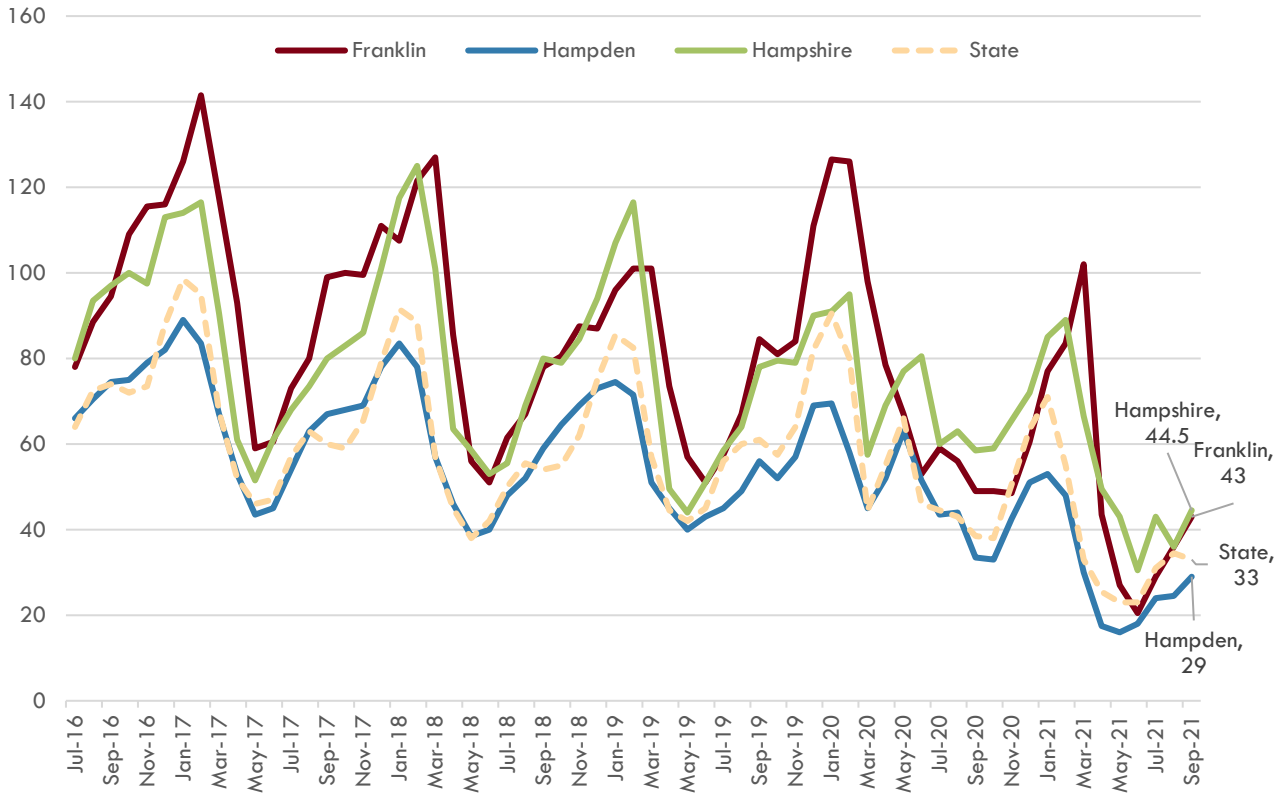
Table 3 shows that of the three Pioneer Valley counties, median sale prices are generally highest in Hampshire County followed by Franklin with Hampden County having the lowest median sale prices. Between August 2019 and August 2021, Hampden County saw the largest increase in median sale prices, growing approximately 22 percent, followed by Franklin where prices have grown approximately 21 percent.

Figure 22. Pioneer Valley Home Prices over Time, by County



Source: Realtor Association of Pioneer Valley, August 2021 Dollars

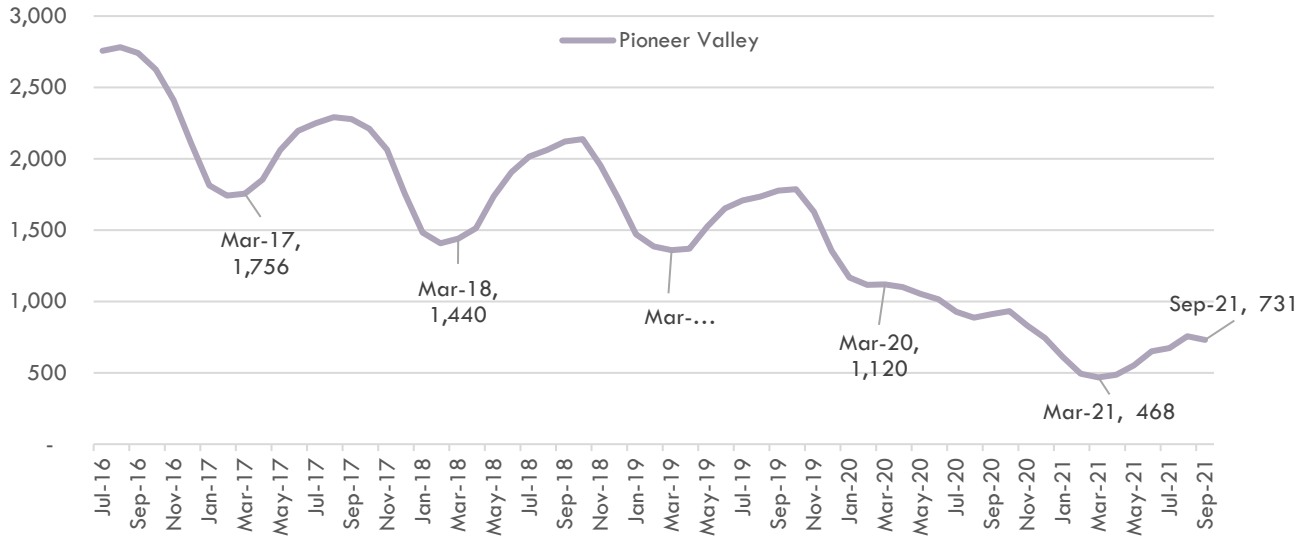
Figure 23. Median Days on Market by County, Monthly July 2016-September 2021



Source: realtor.com residential listings database, Note: Median Days on Market is the median number of days property listings spend on the market within the specified geography during the specified month. Time spent on the market is defined as the time between the initial listing of a property and either its closing date or the date it is taken off the market.

The average days on market for homes in the Pioneer Valley has been declining since at least 2016 but the pace of that decline has hastened since the beginning of 2020. Historically, Hampden County has had an average time on market very close to the state's while properties in Franklin and Hampshire counties generally stay on the market for longer. In May 2019 a Massachusetts home stayed on the market an average of 42 days, in May 2020 that average rose 52 percent to 66 days before beginning a long descent, down 65 percent to 23 days in May 2021.

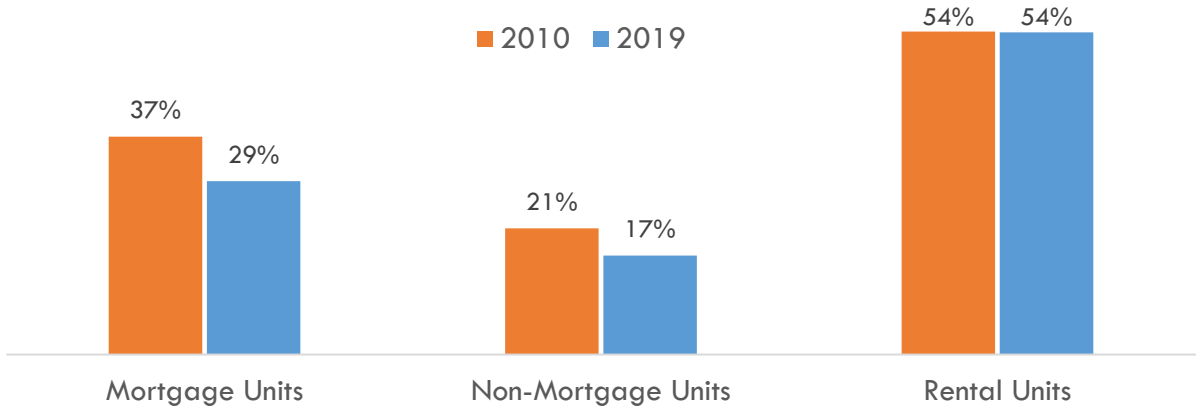
Figure 24. Number of Active Listings, Pioneer Valley, Monthly July 2016-September 2021



Source: realtor.com residential listings database Note: Active listings is the count of active listings within the specified geography during the specified month. The active listing count tracks the number of for sale properties on the market, excluding pending listings where a pending status is available. This is a snapshot measure of how many active listings can be expected on any given day of the specified month.

A driving force in the shortened time on market was a rapid decline in inventory. Between March 2020 just before the pandemic and March 2021 the number of homes actively listed halved, falling 51 percent. The sharpest decline in March year over year since 2018. But this is a continuation of a longer-term trend, the number of active listings in the Pioneer Valley has declined over time since at least 2016. At its peak, in March 2021 there were approximately 468 homes actively listed on a typical day in the entire area.

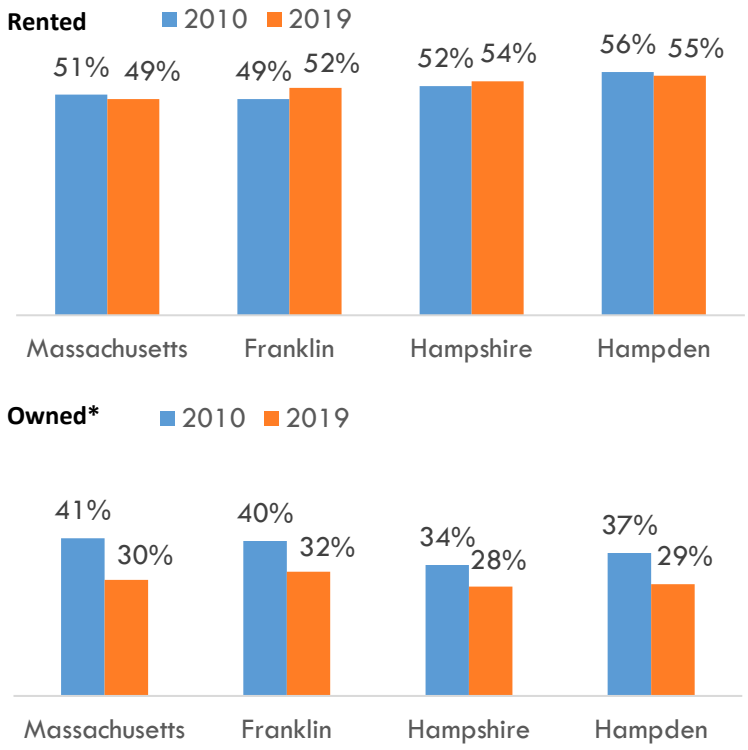
Figure 25. Pioneer Valley Households Spending 30 Percent or More of Income on Housing Costs by Housing Tenure



Source: ACS 2006-2010, 2015-2019, 5-Year Estimates, Table DP04 Selected Housing Characteristics

From 2010 to 2019, the overall housing cost burden fell for owned homes, with or without a mortgage.[14] Following the Great Recession of 2008-9, 37 percent of households in units with a mortgage were spending 30 percent or more of their income on their housing compared to 29 percent in 2019. This was likely due to the recovery from the 2008 financial crisis. Rental units however have seen no change in their overall burden, starting at 54 percent of units spending 30 percent or more and staying there in 2019.

Figure 26. Cost Burden: Pioneer Valley Households Spending 30 Percent or More of Income on Housing Costs by Housing Tenure and County versus the State



Source: ACS 2006-2010, 2015-2019 5-Year Estimates, Table DP04 Selected Housing Characteristic. Note: Owned units include units that are owned both with and without mortgages. See Appendix E for breakdown of households spending 50 percent or more.

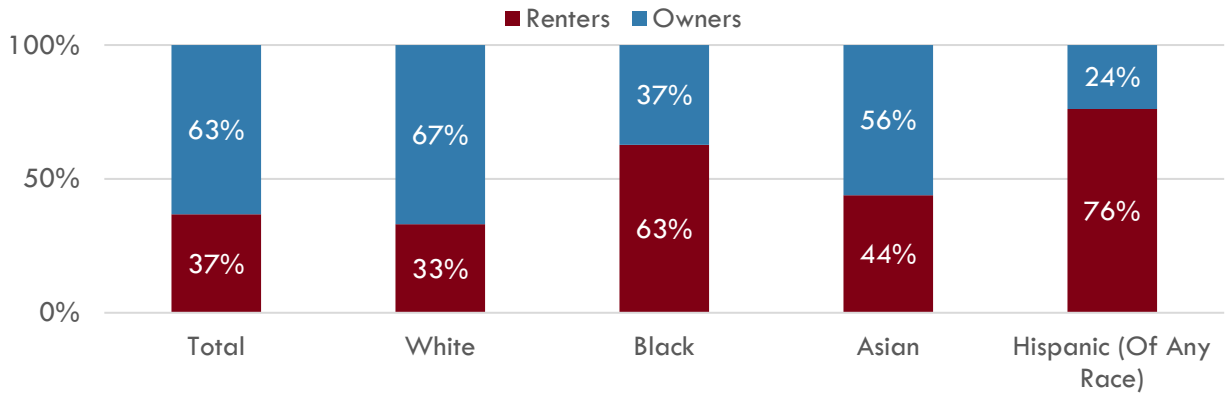
Housing burden varies greatly between counties. Owner households in Franklin are the most burdened both in 2019 and historically. But the share that are burdened has fallen the most in Franklin County while also falling in the other two Pioneer Valley counties and the state. Rental burden is a different story, while

[14] Houses owned "without a mortgage" are housing units owned outright, either having paid off their mortgage (or having bought the house without one) or because the owner inherited the property.

overall rental burden has remained steady, it has risen in both Franklin and Hampshire counties. This increase is counterbalanced by a slight decline in burden in Hampshire counties.

An analysis of housing burden is incomplete without looking at who owns a home and who rents. People of color generally rent their homes at higher rates than white residents. Related to this as well as to income differences, renters are more likely to be burdened than owners, so that communities of color tend to be disproportionately housing burdened than their white neighbors.

Figure 27: Pioneer Valley, Tenure by Race



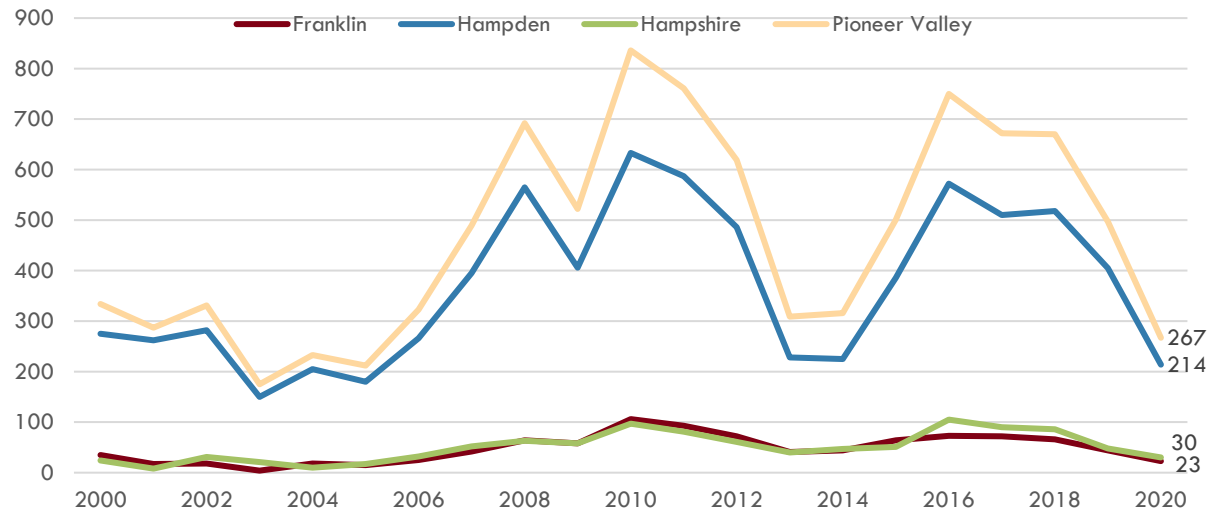
Source: ACS 2015-2019 5-Year Estimates, Table B25003, A through I

In the Pioneer Valley, most housing units are owner occupied, similar to the state. This is driven by a majority white population that owns their homes at a very high rate especially compared to communities of color in the region. Black, Asian and Hispanic residents are much more likely to rent their homes. Hispanic occupied residences are more than twice as likely to be rented as white residences with more than three quarters of Hispanic households occupied by renters. Similarly, Black residences are rented at nearly twice the rate of the white population. Asian households own their homes at higher rates that Black and Hispanic households but 44 percent are still rented, above the white population at only 33 percent. This distribution reflects the racial and ethnic layout of the Pioneer Valley, with white households distributed more widely in rural and suburban parts of the Pioneer Valley where single-family homes with mortgages are the most common form of housing. The reason for this is a long history of discriminatory policies which, particularly in the middle of the 20th century,[15] made it easier for white people to get mortgages and move to suburbs while people of color who lacked access to capital due to redlining policies and not being given the opportunity to build the wealth that is needed to buy a home, were often stuck in the urban areas that new

[15] The University of Richmond's Mapping Inequality project has done substantial work to illustrate the extent of redlining in US cities nationwide. In the Western Massachusetts area they have made digitally available maps of Holyoke and Chicopee, alongside the area descriptions used by the Home Owner's Loan Corporation to rate the risk of offering a loan to residents of certain communities. Racial and ethnic identity was a primary factor in the determination of loan risk at that time leading to the racist assignment of lower ratings to communities or color than neighboring and similar white communities. This system kept people of color from buying their own homes, one of the most important forms of intergenerational wealth. The harmful impact of this system is still felt today in the disproportionate rate that people of color rent, in where they live and in their substantially lower levels of wealth than their white peers.

white suburbanites had left behind. The racial and ethnic distribution the region has today is largely because of that discriminatory history but persists due to both new forms of discrimination and continued present-day inequalities that prevent people of color from buying homes of their own outside the region's urban centers. People of color renting at higher levels is a serious issue because while from 2010 to 2019 the burden of housing costs on owners declined across the Pioneer Valley, it has stayed constant for renters overall and has actually risen in Hampden County, even prior to the rise in prices during the pandemic. Mortgage payments and rental fees often make up the largest single cost for a household on a monthly basis but renters' payments do not lead to building equity in where they live. This means they aren't storing any wealth each month in their homes and in the long run, this creates huge gaps in wealth between white households and households of color, especially when coupled with savings and debt disparities, increasing due to wage differences. While home owners who fall behind on payments can be foreclosed upon, the process can take months, in Massachusetts a notice of non-payment and payments owed, a "right to cure", has to be provided 90 days in advance of foreclosure. Evictions can happen in a much shorter time frame when they are informal or when tenants are unable to follow up on their rights. People who rent of any race or ethnicity are limited in where they can live, particularly in the Pioneer Valley where rental housing is not as abundant in rural areas. Disparity in home ownership is a long running problem which has worsened disparities over time and continues to cause issues today.

Figure 28. Foreclosures, 2000 - 2020



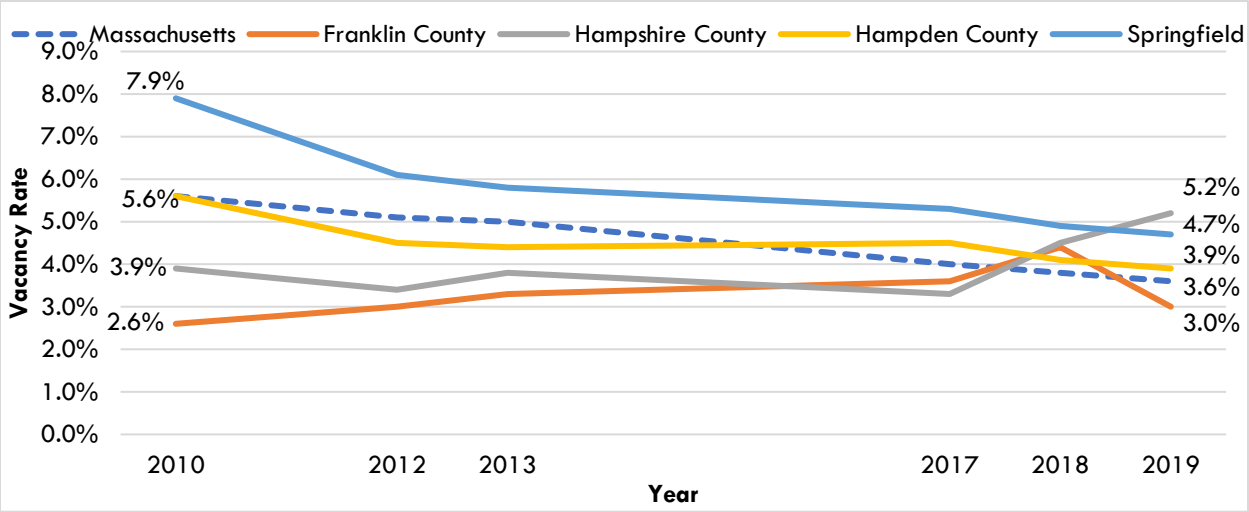
Source: The Warren Group

Across the Pioneer Valley, foreclosures dropped in 2020 (46% across the whole region) due to the foreclosure moratorium that was signed into law in April, protecting defaulting homeowners for much of the year. Foreclosures slowed briefly after 2012 as banks worked to correct their records and complied with increased regulation.[16] Foreclosures resumed after this period of correction, and they began to slow again

[16] See article "New law may be reason why foreclosures down sharply" by the Massachusetts Housing Partnership, 2013

as the number of cases dating to the Great Recession began to clear. They also dropped during the COVID-19 foreclosure moratorium, with potential to resume now that it has ended. The vast majority of foreclosures occurred in Hampden County, which experienced a foreclosure rate of 20 foreclosures per 10,000 owner-occupied housing units, as opposed to 11 and 7 foreclosures per 10,000 owner-occupied housing units in Franklin and Hampshire Counties, respectively.

Figure 29. Rental Vacancy Rate, 2010 to 2019



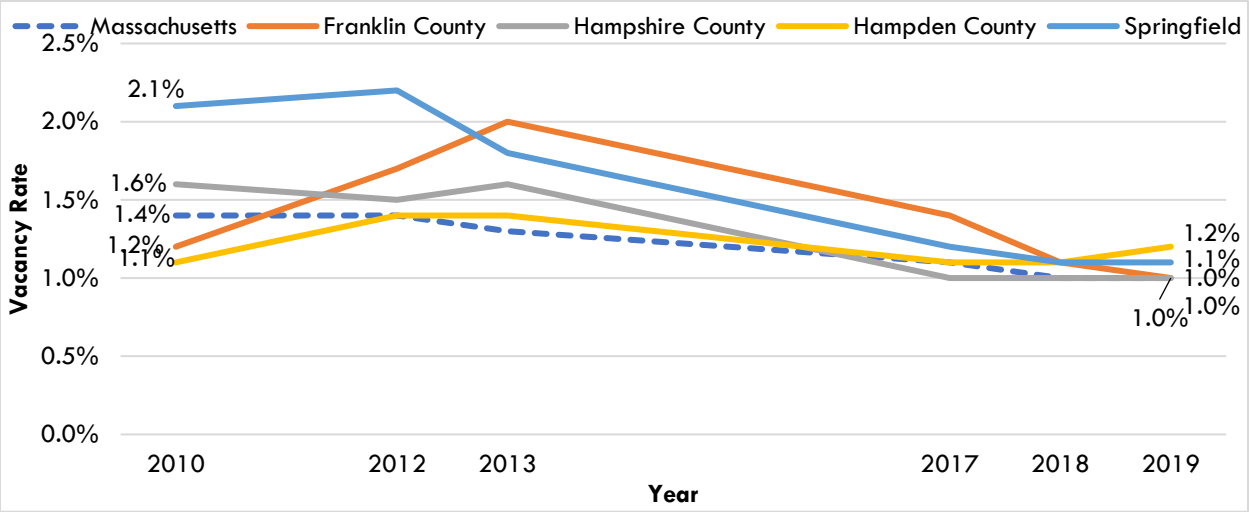
Source: ACS 2010 through 2019 5-Year Estimates, Table DP-04

In the Pioneer Valley vacancy at any point in time has generally been low, as it is througout the state, below 6 percent in all three counties and at the state level. Rental vacancies generally decreased between 2010 and 2019 statewide and in Hampden County, as well as in the city of Springfield. However, vacancies have increased in Franklin and Hampshire counties. The increase in Franklin vacancy is relatively small and unlikely to provide much relief for a tight housing market. Furthermore, between 2018 and 2019 vacancy fell again after a 2017 to 2018 increase. Hampshire county experienced a sharper rise in vacancy since 2017.

Statewide vacancy rates are driven by the increasingly tight rental market of eastern Massachusetts, particularly in the Greater Boston region, but historically vacancy in the Pioneer Valley has been below the state average outside of Springfield itself. The popualtion of Massachusetts is becoming older overall and a pre-pandemic study found that adults increasingly prefer to age in their homes[17] and communities meaning a decrease in homeowner vacancies which also reduces the number of units that can be converted to rentals.

[17] https://www.huduser.gov/portal/pdredge/pdr_edge_featd_article_102014.html

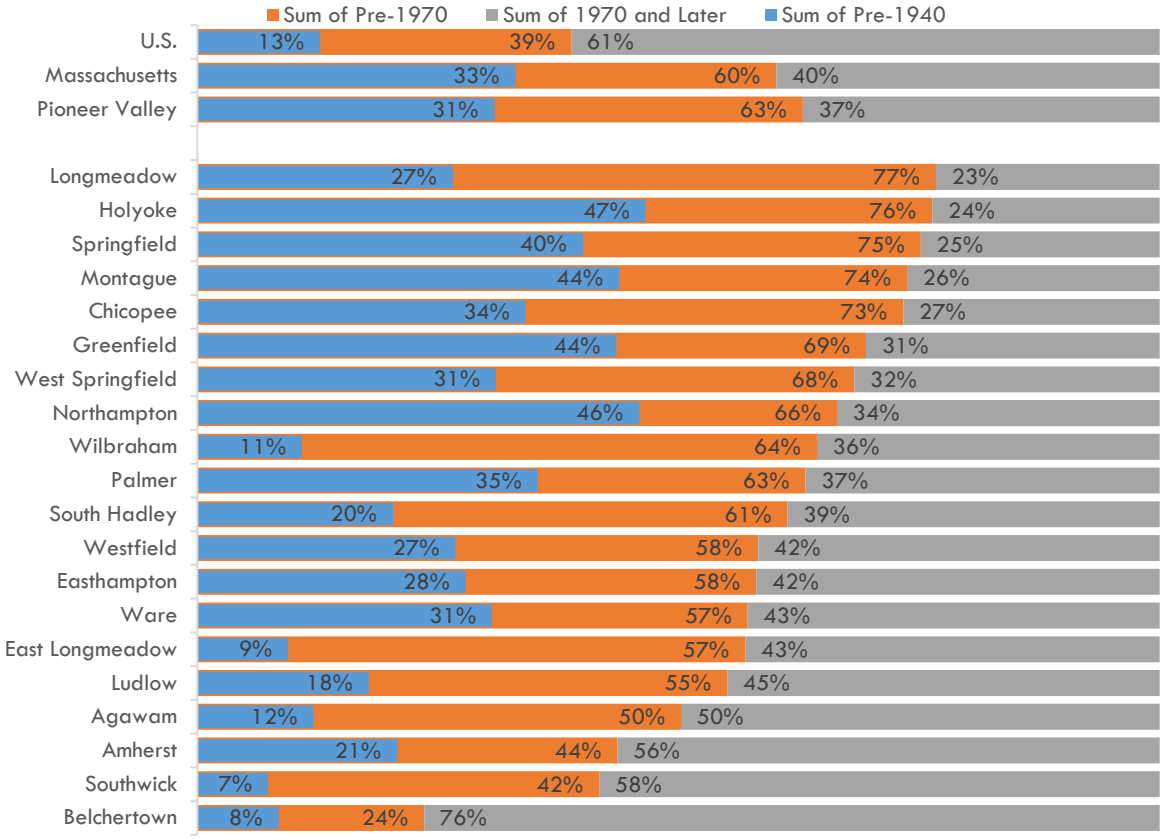
Figure 30. Homeowner Vacancy Rate, 2010 to 2019



Source: ACS 2010 through 2019 5-Year Estimates, Table DP-04. Note: A variety of detailed periods are shown in an effort to provide information but avoid overlap, as possible. The most recent available data is currently still ends in 2019.

Vacancy of owned homes is approximately a quarter of rental vacancy statewide. Statewide vacancy of this type is on a slight decline but in Hampden County it slightly increased since 2010. The most recent available rates in the region can be considered quite low, even for homeownership vacancy, which is usually lower than rental vacancy rates.

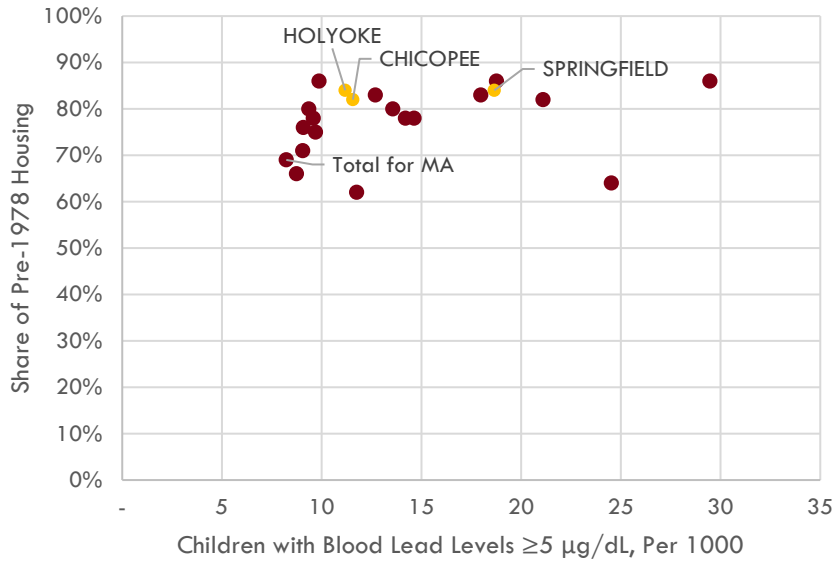
Figure 31. Age of Housing Stock



Source: ACS 2014-2018, 5-Year Estimates

As shown in Phase 1, Massachusetts housing is considerably older than the rest of the nation's, with approximately a third of all units dating back to before 1940. Pioneer Valley housing overall tends to be newer than that but more than 60 percent of it is at least 50 years old being built before 1970. Older housing stock may become so dilapidated that it is no longer up to code and cannot be rented or sold. The cost of refurbishing a property can be prohibitive, especially in a market where rents are low. Gerry McCafferty explains "…in Springfield there is so much Section 8 vouchering that the fair market rent is the market rent… here we say that we actually don't know what a market rent would be, fair market rent is set regionally, not for Hampden county or not for Springfield alone, and we believe that, it is higher than what our natural rent would be, but there is so much of it that every landlord in Springfield pretty much sets their rents, according to what HUD says the fair market rent [is]." While FMR acts as something of a price floor for properties in the city, it is still low enough that landlords cannot expect a prompt return on their investment in the event that they spend the money to rehabilitate their properties.

Figure 32: Estimated Count of Children with Elevated Lead Levels Vs. Share of Pre-1978 Housing



Source: Massachusetts Department of Public Health, 2019

Lead abatement is also a serious problem with older housing stock. Lead found in paint of older homes can cause serious health problems for anyone ingesting or otherwise interacting with it. In Massachusetts there is a law that requires "the removal or covering of lead paint hazards in homes built before 1978 where any children under 6 live." To comply with this law is often an expensive process that requires extensive remodeling of the existing property. Programs are available to help reduce or eliminate the costs of this procedure, such as Springfield's Healthy Homes program which connects landlords with funds for lead abatement, but it remains a serious hurdle for landlords to overcome. These programs have not been widely taken advantage of, however, and work continues to educate landlords about these funding opportunities.

For a childless adult tenant in a pre-1978 home, interaction with this law is limited to signing a waiver that acknowledges lead exists in the home (assuming it has not been abated). But for families with children this is an extremely consequential policy. A law designed to protect children from a serious poison also can lead to a perverse incentive for landlords to not rent to people they may need to perform lead abatement for. Landlords may be motivated to simply reject the application of a parent with a young child rather than go through the process to have lead abatement done, or they may rent to them without disclosing their obligation to deal with lead in the home, endangering the child. To reject a tenant with children is

illegal discrimination but it can be difficult to prove, and taking the case to court can be a stressful and expensive process.[18]

In practice, this means a family with a child aged 6 or younger is more limited in the housing that is available to them, in a market where housing can be difficult to find for most people. If this parent needs affordable housing, they are even further limited in their options as older units tend to have lower rents, reflective of their older condition and amenities.

[18] Hampshire Gazette, "Housing advocacy group sues state over lead law", November, 25th, 2019, https://www.gazettenet.com/Massachusetts-Fair-Housing-Center-sues-state-officials-over-lead-poisoning-prevention-law-30782557

Housing Income Mismatch

Key Points on Housing Income Mismatch

- Households of all income levels are having trouble finding housing in the Pioneer Valley due to a lack of homes that meet their needs in terms of size, cost, or location.
- More than half of renter households in the Pioneer Valley are housing cost burdened, (spending more than 30 percent of their income on housing) a larger proportion than in Massachusetts overall.
- In most towns, lower-income housing is almost as prevalent as middle-income housing, but towns across the board are still lacking 'naturally' affordable housing for low-income, moderate income and middle-income residents.
- There is a critical need across the Pioneer Valley for about 17,300 apartments or other rental units of all sizes which cost less than $500. This represents roughly 15 percent of all of the need for housing at this price across Massachusetts.
- Households earning the median income are typically facing house prices two to four times their income, for homes at the median price in the city or town, and more than half of municipalities have median prices that are even higher.
- Renter households earning the median income are facing rent prices as much as 22 percent of their income, a price which is worth up to 3 months of their annual salary.
- At 20 percent of the asking price, down payments at the median price in Holyoke require saving nearly $80,000. An initial payment at the median first month's rent, last month's rent and security deposit requires renters to save more than $2,000 before securing a place.

Housing production levels across the Commonwealth make it difficult for households to secure a place for themselves in the Pioneer Valley. But what proves to be particularly difficult for renters has less to do with the stock of housing units and everything to do with the diversity of this stock—the units that *do* exist don't always meet their needs. When the housing stock in an area does not meet a household's needs, we call this housing mismatch. Housing mismatch measures deficits of housing in an area due to a mismatch between the housing unit's cost, location, size, or other features and the household's needs. Cost mismatch is defined simply by housing that costs too much, putting strain on a household to meet their rent or mortgage payment every month at the wage levels offered in the region. In other words, the reason that families of all income levels are having trouble finding places to live in the Pioneer Valley is not exclusively because of low production of homes in the area, but also due to a lack of homes that fit their budget.

Massachusetts housing is expensive, making affordability an issue for households in the region at all income levels. In the Pioneer Valley, where jobs pay less compared to the highest-cost areas of the state, affordability challenges are even more pronounced than in the state overall for middle income and low-income levels. More than half of most households in the Pioneer Valley are housing cost burdened, a Census Bureau measure of households who are spending more than 30 percent of their income on housing. At most income levels, more households in the Pioneer Valley are cost burdened than in the state overall. The share of cost-burdened renter households in each county are represented by a percentage of the total renter households in **Table 3** below. Some cost burden exists for households at every income category.

Table 3: Percent of Renters who are Cost-Burdened

Percentage of Cost Burdened Renter Households by Income	Franklin County	Hampden County	Hampshire County	Massachusetts
Less than $10,000	64%	80%	41%	68%
$10,000 to $19,999	64%	75%	83%	73%
$20,000 to $35,999	78%	76%	78%	74%
$35,000 to $50,000	31%	34%	66%	61%
$50,000 to $74,999	9%	11%	12%	34%
$75,000 or more	0%	3%	1%	8%

Source: U.S. Census Bureau, ACS 2015-2019 5-Year, Tables C25074

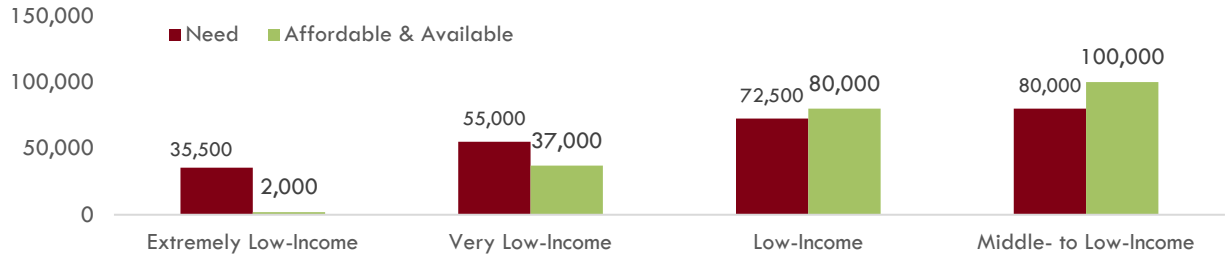
To alleviate this burden, more housing is needed *at the right price levels*, where the condition, accessibility, size and opportunities also meet household needs. This section will use two different methods to estimate the level of mismatch among renters and rent prices, or the number of units needed at certain price points, throughout the Pioneer Valley. By identifying the number of households at each income category, an estimate of how many are needed is generated and then compared to the current rental stock is available at certain prices. Comparing the two results in a conservative estimate of how many *more* units are needed and at what prices, gauging only the minimum number of units to be added, which will be paired with an investigation of where and how the housing stock is divided up among different target tenant types. The first method is focused only on estimating of the "gap" for low-income households based on the housing availability. The second method is comprehensive of all income levels, but can only estimate affordability demand based on occupied homes. This is because only rental units with households in them can be accounted for. The first approach here, calculating the "gap" in availability for low-income households uses the Comprehensive Housing Affordability Strategy (CHAS) data from U.S. Department of Housing and Urban Development (HUD) to show which units are both affordable at low income levels and available on the rental market.

CHAS Income Mismatch Method (for Low Income)

To measure the gap between affordable housing need and availability, the HUD CHAS data identifies housing need based on the number of households at a given income threshold determined by the HUD area median family income. This number represents those who live in the area, or the amount of demand for housing units in the area. To measure the supply of housing units, HUD first considers unit cost. The rental housing stock – the number of housing units that exist, both occupied and vacant, at a given income level –

represents the total number of housing units in the area. Counts of housing need and housing stock are then compared to estimate the gap between how many units exist and how many needed, for households at low-income levels. What this measure does not portray, however, is the assumption that every household is living in a unit that is well matched in price to their income. However, higher-income households may reside in more affordable places. Additionally, affordability data is not available on households above the HUD area median income from CHAS. [19]At the lower income levels, it's clear that the difference between the need and available housing units is very large, but we want to know if this trend continues for households of all incomes. Unfortunately, this measure focuses on those in lower and extremely low-income categories and is only generalizable at the regional level, not county or municipal.

Figure 33. Housing Mismatch in the Pioneer Valley (HUD Income Levels)



Source: HUD CHAS Table 14 and 15, 2013-2017.

Method to Determine What is Still Needed, on the Basis of Income Mismatch

To create a better basis for policy insights, we have taken another, broader approach to estimate the number rental units needed at several price levels. This method uses ACS data from the U.S. Census to estimate the number of units needed by people at different income levels in the Pioneer Valley's counties, and then to show where and how the housing stock is divided up among different target tenant types. Identifying the number of households at each income category creates an estimate of what's needed to compare to what rental stock is available at which prices. The result is a conservative estimate of how many more units are needed and at what prices, gauging only the minimum number of units to be added. Because this is a conservative estimate, even more housing might be needed at these prices. In addition, rental units across the range of prices are needed at a variety of sizes—single bedroom and studio apartments are not enough for the variety of households at each income level.

The following sections break down the steps in determining the estimate of how many rental units are needed in the Pioneer Valley and at what prices. First, is a determination of affordable rent prices using standard affordability levels of 30 percent or less of income to create cut-offs in income thresholds. Next,

using these income thresholds as categories, we will count the number of households in the Pioneer Valley, an estimate which represents need. Then, using income brackets, a count of the rental units that naturally exist in the region is estimated, representing the stock of affordable housing in the area. Finally, to understand the smallest number of units needed at what price, we compare the count of households representing need and the count of units representing stock. The difference between the need and stock is the net number of rental units still needed at each price point. A negative net rental unit result represents a lack of sufficient housing for each household income level. In other words, this is the level of housing mismatch at each rent level, broken out for each county.

Step 1: Determine Affordable Rent Prices

In general, affordability is a relationship between two elements: what it costs, or price, and what you earn, or income. Within all price points, some people are able to find 'naturally' affordable housing. Market rate refers to the price of a rental unit *without subsidy*, typically the landlord's asking price. 'Naturally' affordable rent prices in this report refer to market rate rental units which are affordable at a given income level, meaning that the cost of rent is no more than 30 percent of household income. Though few households are able to find means-tested subsidized housing (either through rental assistance for the family or a subsidized housing unit), many households seek naturally affordable housing. There is far less subsidized housing than people who qualify for it, and waiting lists can be decades long in Massachusetts, which means that seeking naturally affordable housing is the route most households have to take.

According to the HUD, families should spend 30 percent or less of their monthly income on housing. However, for the sake of policymaking, it is essential to understand the dollar value of affordable rental units in the area, and just how many are needed. To determine a dollar value for affordable rent, first income thresholds were created to represent the households as a part of an income category as follows; those making less than $25,000 are considered to have the Lowest Income, between $25,000 and $50,000 a year makes up the Low-Income group, between $50,000 and $150,000 defines the Middle-Income group, while Upper Income families make more than $200,000. Using the upper thresholds of these categories, monthly income and then affordable rent prices were calculated by taking 30 percent of this monthly income. After rounding, affordable rent prices by income category are as follows:

Table 4. Affordable Rent by Income Level, Pioneer Valley

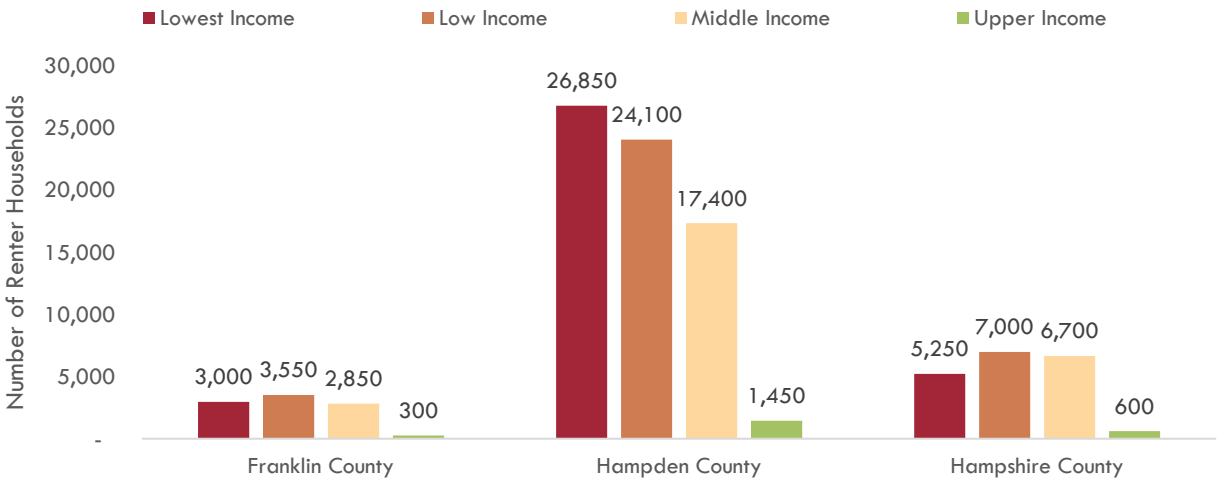
Affordable Rent for each Income Category (30% of income)	Affordable Rent
Lowest Income (less than $25,000)	$200
Low Income (between $25,000 and $50,000)	$700
Middle Income (between $50,000 and $150,000)	$2,000
Upper Income (greater than $200,000)	$4,700

Source: U.S. Census Bureau, ACS 2015-2019 5-Year, Tables S1901

Step 2: Determine Need: Total Number of Rental Units Needed

To measure how many rental units are needed in an area, the number of renter households in the area at each income level are estimated. This becomes the estimate of total demand (or need) by income level, which in the next step is compared to how many units there are at each price range.

Figure 34. Number of Renter Households in the Pioneer Valley by Income



Source: U.S. Census Bureau, ACS 2015-2019 5-Year, Tables S2503

In the Pioneer Valley, there are about 99,050[20] renter-occupied households which range in size from one to five or more bedrooms, though the average size of a renter-occupied unit is about two.[21] The majority of these households make between $50,000 to $150,000 a year, putting them in the Middle-Income category. Households in this category can afford rent up to $2,000 a month: **Figure 32** shows that Franklin County needs to have at least 14,600 units of various sizes renting at $2,000 or less to accommodate their renter population.

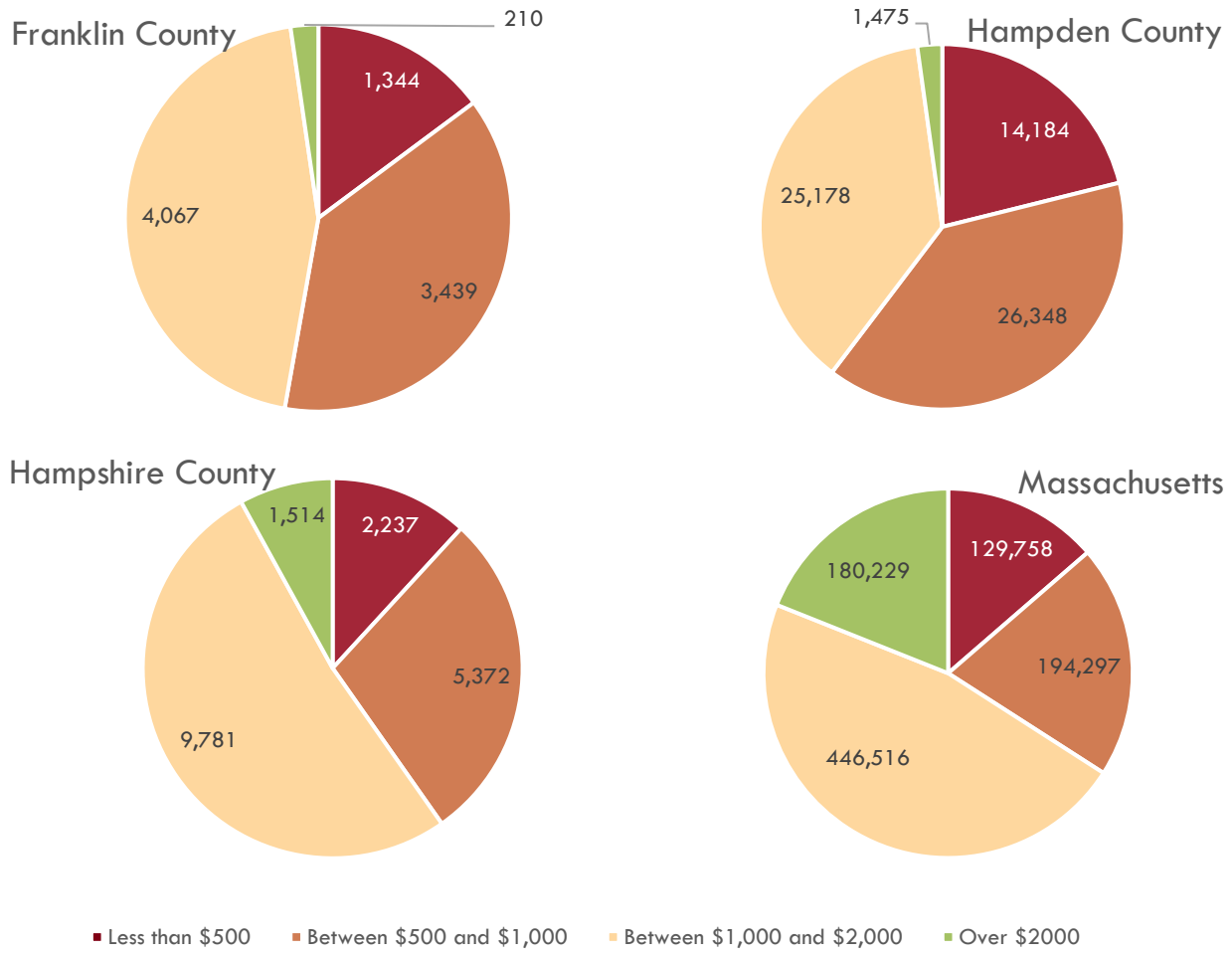
Step 3: Determine Existing Stock

To understand how many units are available in the area, the number of rental units that exist is estimated relative to rental prices. In other words, here we will count the number of rental units which exist in each county to understand what is already naturally available for housing. Across the counties, most rental units are going for rates between $1,000 and $2,000 a month, and nearly 40,000 units exist at this price in the Pioneer Valley. This is consistent with trends across the state, while counties in the region have more

[20] These estimates are rounded to the nearest 50
[21] U.S. Census Bureau, ACS 2015-2019 5-Year, Table B25010

units at prices between $500 and $1000 range. Comparatively, only 17,765 units exist at the less than $500 price point.

Figure 35 Existing Rental Housing Stock by Rent Price



Source: U.S. Census Bureau, ACS 2015-2019 5-Year, Tables B25063

Table 4 below details the distribution of renters in the Pioneer Valley across price points and municipality. Throughout the region, the majority of housing is best fit for middle-income families, as prices seen most frequently are between $700 and $2,000. In most towns, lower-income housing is almost as prevalent as middle-income housing, but towns across the board are lacking in the lowest-income section. Aside from towns like Longmeadow and Pelham, most towns have very little housing for the upper income categories, though these households may be more likely to purchase a home than to rent.

Table 5: Distribution of Renters in the Pioneer Valley by Municipality

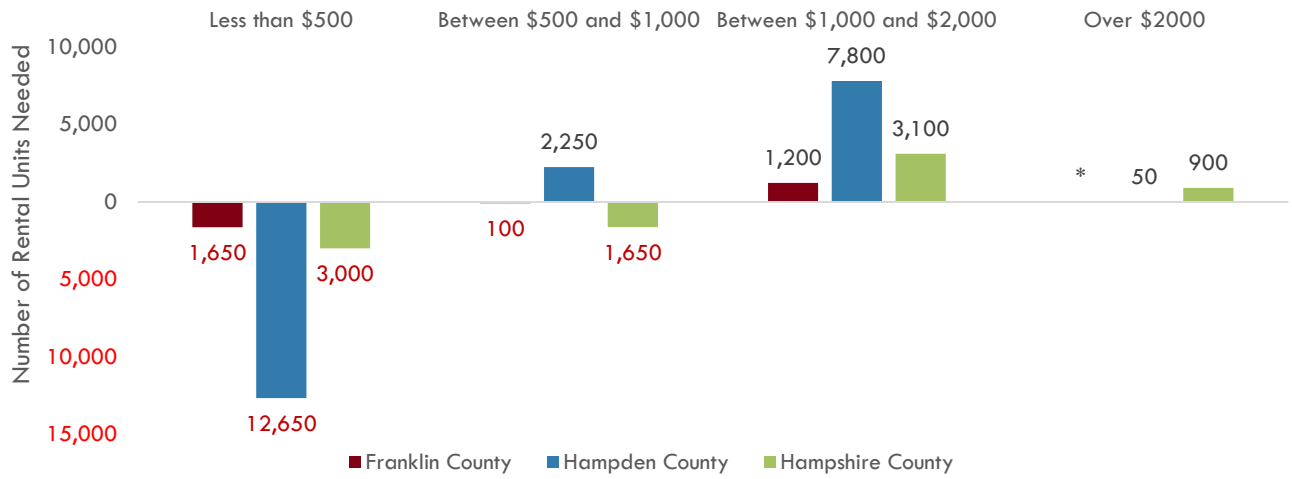
Lowest Income	Lower Income	Middle Income	Upper Income	Distribution of Renters		Lowest Income	Lower Income	Middle Income	Upper Income
16	611	1862	200	Agawam	Ludlow	11	240	1783	0
58	555	3385	825	Amherst	Middlefield	0	0	0	0
0	19	79	3	Ashfield	Monroe	0	0	11	0
12	223	677	73	Belchertown	Monson	0	110	402	9
0	22	119	0	Bernardston	Montague	52	339	1132	10
0	0	13	0	Blandford	Montgomery	0	0	4	0
0	79	73	7	Brimfield	New Salem	0	0	59	0
6	39	173	0	Buckland	Northampton	151	895	3692	239
0	5	79	0	Charlemont	Northfield	0	85	98	7
0	17	71	10	Chester	Orange	23	251	616	10
0	3	43	4	Chesterfield	Palmer	29	301	968	14
165	2473	6430	164	Chicopee	Pelham	0	12	84	45
0	3	85	0	Colrain	Plainfield	0	12	32	2
11	0	90	3	Conway	Rowe	0	0	4	0
0	19	60	0	Cummington	Russell	0	21	58	3
0	20	327	53	Deerfield	Shelburne	5	39	210	5
17	357	402	136	East Longmeadow	Shutesbury	0	4	60	7
19	288	2339	68	Easthampton	South Hadley	0	274	1396	84
0	34	74	0	Erving	Southampton	0	33	165	21
0	25	51	7	Gill	Southwick	14	123	538	9
0	0	43	0	Goshen	Springfield	977	9899	17744	563
0	62	244	0	Granby	Sunderland	0	17	954	31
0	3	31	0	Granville	Tolland	0	2	22	0
60	965	2356	52	Greenfield	Wales	0	33	82	0
0	46	341	57	Hadley	Ware	84	297	947	53
0	50	81	32	Hampden	Warwick	0	8	11	0
0	82	243	43	Hatfield	Wendell	0	14	41	5
0	2	2	1	Hawley	West Springfield	29	1311	3635	30
0	0	118	0	Holland	Westfield	94	1022	3733	22
253	2868	5646	85	Holyoke	Westhampton	0	0	56	0
0	18	140	0	Huntington	Whately	0	10	84	4
0	8	56	12	Leverett	Wilbraham	0	275	224	32
0	2	11	0	Leyden	Williamsburg	6	25	264	0
20	147	223	159	Longmeadow	Worthington	0	27	38	0

Source: U.S. Census Bureau, ACS 2015-2019 5-Year, Tables B25063

Step 4: Compare Stock to Need to Determine Mismatch (Number of Units Needed at Each Price)

To determine how many rental units are needed at what price, the difference between the number of naturally affordable units that exist at rent prices affordable for each income category is compared to the number of households in that income category. In other words, this creates an estimate of the gap between need and supply by subtracting the former from the latter. This number represents a measure of cost mismatch in the rental housing market at these prices.

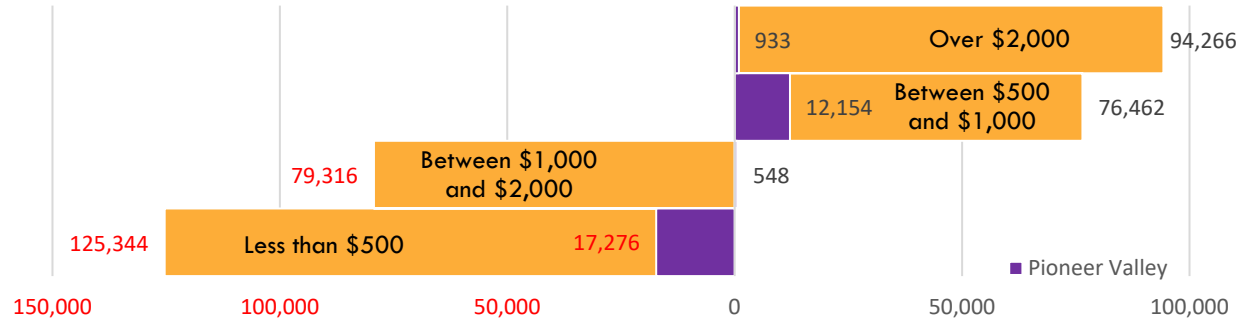
Figure 36. Number of Rental Units Needed by Rent Price, Pioneer Valley



Source: U.S. Census Bureau, ACS 2015-2019 5-Year, Tables S2503, S1901, B25063; Note: numbers are rounded to the nearest 50.

By rent price category, the graph above indicates either a lack or excess of housing units. Negative values, displayed here in red, show a need, while positive numbers represent that there are enough units at that price. The bar extending below zero expresses the size of the gap in rental units needed. **Figure 33 shows that there is a critical need across the Pioneer Valley for about 17,300 units of all sizes in the Less than $500 range.** This represents roughly 15 percent of the need for housing for less than $500 across the entire state of Massachusetts, as seen in **Figure 34** below. On net, the Pioneer Valley breaks even for mismatch in the $500 to $1,000 category, however there is a need in both Franklin and Hampshire County mathematically offset by Hampden's surplus, but likely not actually offset in practice.

Figure 37. Number of Rental Units Needed in Massachusetts vs. Pioneer Valley (Net)

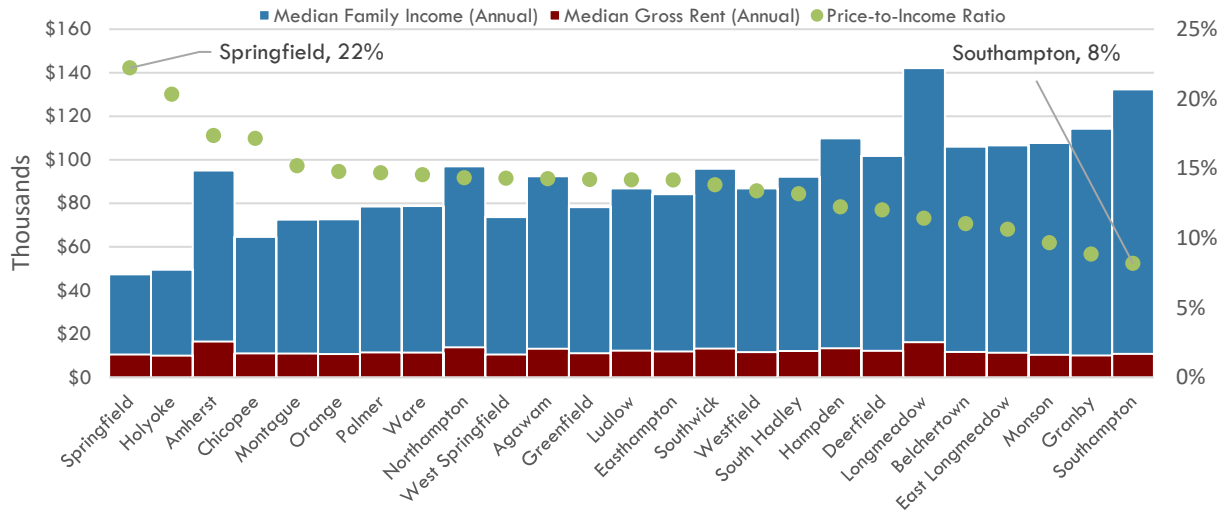


Source: U.S. Census Bureau, ACS 2015-2019 5-Year, Tables S2503, S1901, B25063

Middle Income Affordability Challenges

After illuminating income mismatch for the lowest income renters with CHAS data, and renters as a whole with ACS data, it's clear that there are a lot of households who fall into the middle-income category. Many of these households are also experiencing difficulty affording housing in the Pioneer Valley. To demonstrate the housing mismatch for an average household, this analysis now turns to examine households earning the median income. For units at the **median** gross rent price in each city or town, renter households at the median income face an uphill battle. The blue bars in **Figure 35** represent median family income by city or town, while the maroon bars in front represent the median gross rent for the same municipality. The discrepancy between the two is displayed as a price-to-income ratio in the gray line. Towns with lower ratios represent places where it is harder to buy rent a unit for the median family. For example, the median gross rent price in Springfield is 22 percent of the median family income, while the median gross rent price in Southampton is 8 percent of the median family income, meaning that the median family in Springfield would need to spend almost three months of their annual their income on a rental unit, while a Southampton family only spends about one month of their income. Though the price-to-income ratio is far smaller for renter households than it is for buyers, note that while monthly mortgage payments increase a family's net ownership, rent payments become income for landlords, which is money renters will not get back.

Figure 38: Median Rent Price vs Median Income

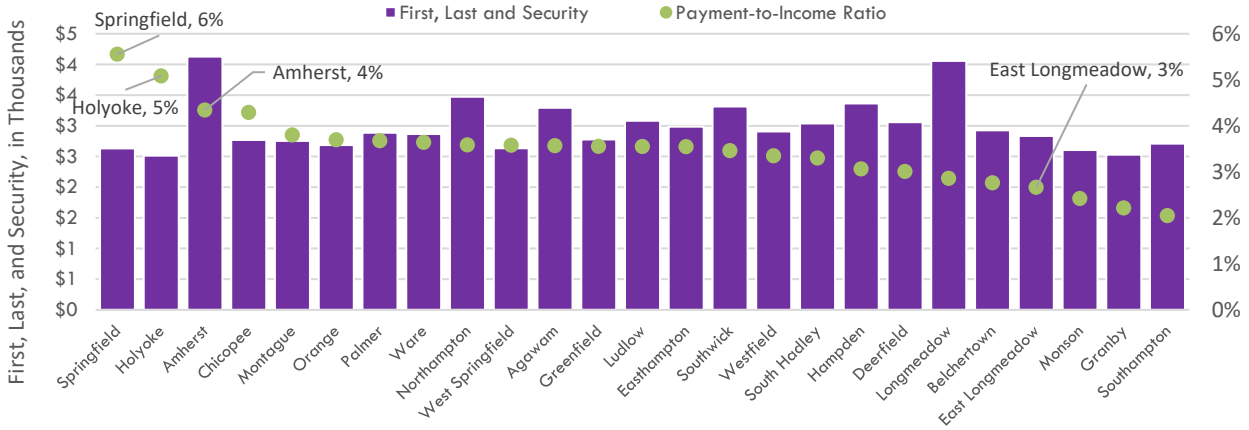


Source: 2019 ACS 5-Year Estimates, Tables S1901& B25064; The Warren Group 2020, Note: Due to low sample size and/or high margin of error, not all municipalities are displayed. Municipalities with fewer than 5,000 residents were removed from the sample. For a table with all municipalities, see Appendix I.

What this statistic fails to capture, however, is that there are startup costs for renters, too. A landlord typically asks for a security deposit in order to reserve a rental unit, the deposit includes payment for the

first and last month of rent at the time of deposit, along with a check the amount of one month's rent to cover any damages to the unit during use (the landlord determines whether or not the security deposit will be retuned based on the condition of the property, if there are damages this check will cover expenses). Even for a town like Southampton where rent prices are lowest of this subset, this initial payment could require saving $2,000 before signing a lease. In Springfield, a $2,630 initial payment is equal to 6 percent of their annual income, where one month's salary is equal to about 8 percent of annual income. Buyers in the region might have the salary to pay the price over time but saving more than $2,000 to secure a place can be difficult.

Figure 39: First, Last and Security Affordability

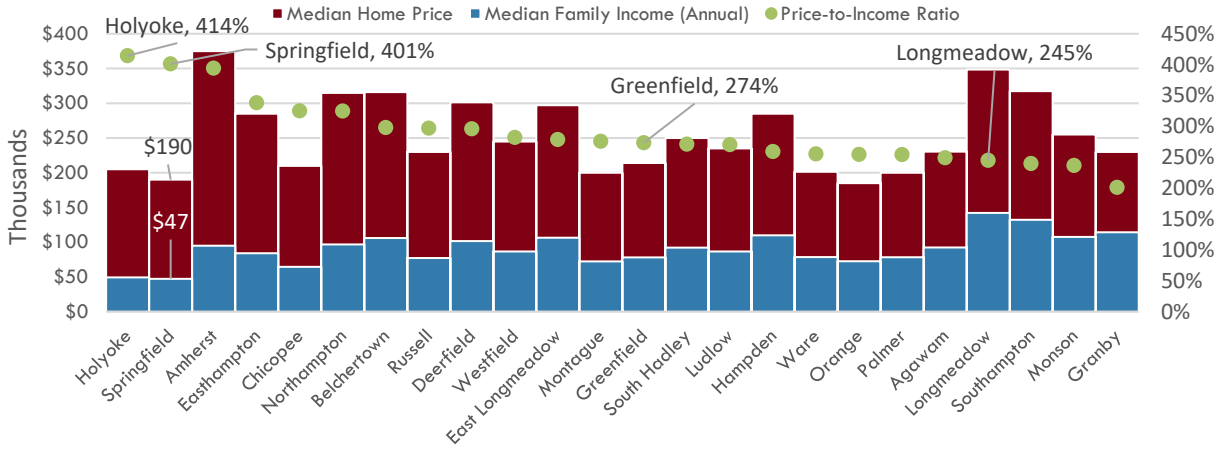


Source: 2019 ACS 5-Year Estimates, Tables S1901& B25064; The Warren Group 2020 Note: Due to low sample size and/or high margin of error, not all municipalities are displayed. Municipalities > 5,000 residents are shown. See Appendix I for all municipalities.

Many households see renting as a temporary option and have plans to own their own home. However, while an upper income family can hypothetically pay own a home and pay their monthly mortgage – which is usually between $1,000 and $2,000,[22] middle income households in the Pioneer Valley are not always able to afford a house priced in the middle of home sale prices (the median). The gap between median home sale price and median incomes are very large across the board.

[22] U.S. Census Bureau, ACS 2015-2019 5-Year, Tables S2506

Figure 40. Median Home Sale Price (2020) vs Median Income (2019)

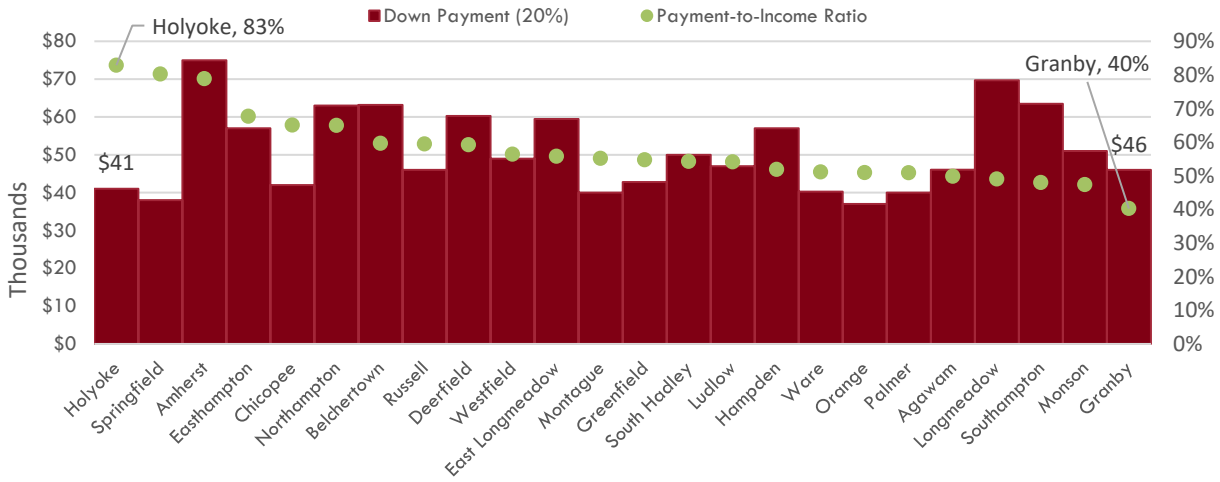


Source: 2019 ACS 5-Year Estimates, Table S1901; The Warren Group 2020 Note: Due to low sample size and/or high margin of error, not all municipalities are displayed. Municipalities > 5,000 residents are shown. For a table with all municipalities, see Appendix I.

In some places in the Pioneer Valley in 2019, even before prices rose in the pandemic, households faced house prices typically as much as two to four times their income, for homes at the **median** price in the city or town, with half of the home sales prices even higher than that in each municipality. The blue bars in **Figure 37** represent median family income in 2019 by city or town, while the maroon bars in front represent the median home sale price in 2020 for the same municipality. The discrepancy between the two is displayed as a price-to-income ratio in the gray line. Towns with lower ratios represent places where it is harder to buy a house for the median family. For example, the median home sale price in Springfield is 401 percent of the median family income, while the median home sale price in Granby is 201 percent of the median family income, meaning that the median family in Springfield would need to spend 4 times their income on a home, while a Granby family only pays 2 times their income.

What this statistic fails to capture, however, is the startup costs of buying a house are more than likely a make or break for most buyers. A down payment for a house is typically 20% of the asking price, and for a town like Holyoke, this initial payment could require saving nearly $80,000 before even taking out a mortgage.[23] Buyers in the region might have the salary to pay the price over time but saving over 9 month's salary is inconceivable for some families who often live paycheck-to-paycheck.

Figure 41. Down Payment Affordability by City or Town



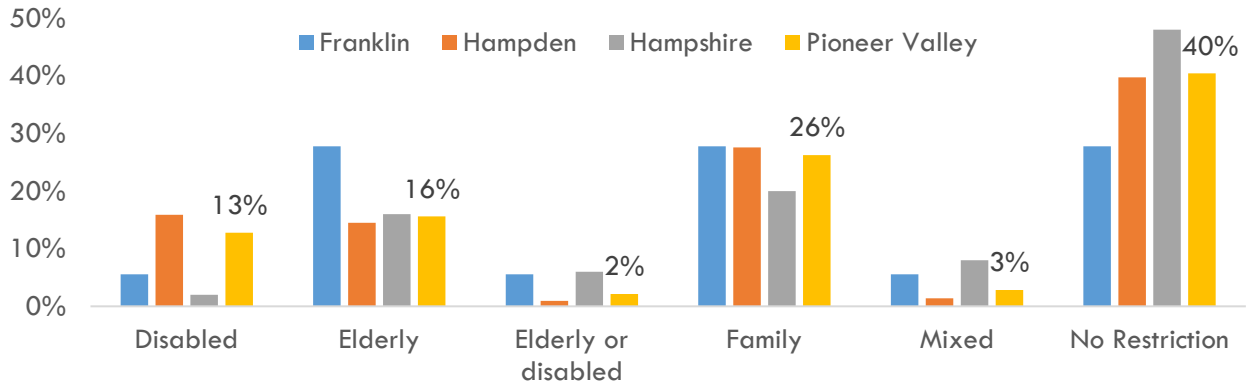
Source: 2019 ACS 5-Year Estimates, Table S1903; The Warren Group 2020. Note: Due to low sample size/high margin of error, not all municipalities are displayed. Municipalities > 5,000 residents are shown. For a table with all municipalities, see Appendix I.

[23] Down payment rates can be and have been lower than the historic 20 percent. Down payment amounts vary greatly depending on the type of buyer and the type of mortgage loan, as some buyers may use inheritance or gifts to make a down payment greater than 20 percent of the home sale price, while many others choose loan programs that require as little as 3 or even 0 percent down. First time homebuyers tend to put less down on average, around 7 percent, but other expenses such as mortgage insurance might accrue if the down payment is less than 20 percent. https://www.buyersbrokersonly.com/buying/first-time-home-buyer-programs

Additional Forms of Housing Mismatch

The strain on the housing market in the Pioneer Valley is coming from all price and income levels. Broader housing market affordability across the income spectrum can be overlooked in efforts to bring low-income folks necessary relief, but housing that is affordable at higher income levels influences the availability and price of other housing naturally affordable housing without subsidy at lower income levels as more and more households work to secure housing at prices below their income range. Addressing affordability issue at all income levels, lessens strain on the small fraction of homes that are subsidized as well as the broader stock of naturally affordable market rate housing. It is also necessary housing units be of various sizes be available and have appropriate accessibility. Two-, three- and four-bedroom apartments at low prices are needed, as well as disability-accessible units. These are additional forms of housing mismatch across the market, and the mismatch issues are cross-cutting. Denise Jordan, the Executive Director of the Springfield Housing Authority noted that "the larger units always go the fastest and there's not a lot of [them]." Aside from scattered sites and duplexes across the Valley, it's clear that for larger families "the need for three plus [bedrooms] is great, because just the need for two bedrooms in the city is becoming a problem." Additionally, housing mismatch also occurs when there is adequate affordable housing, but it is not accessible to people who need affordable housing for reasons beyond just price such as age restrictions, disabilities or medical needs, and more. For this reason, despite the fact that there is very little subsidized housing and it is a small part of the picture of housing units and affordability, data on type-restricted and if there is enough is important. Data on restrictions is unfortunately only available on subsidized housing.

Figure 42. Share of Subsidized Housing by Target Tenant Type



Source: National Housing Preservation Database. Note:Housing includes both properties and units subsidized at the state or national level

Housing assistance or subsidy comes in several forms, and can be by housing unit or travel with the person. The data above reflects type restrictions so it is limited to subsidized housing units (not vouchers or other mobile aid). A person who needs housing assistance can apply for a Section 8 voucher or other rental assistance through a local housing agency, this voucher can then be used on any home as long as it meets the standards of the program and the landlord is willing to participate. The housing agency then pays the amount of aid (for Section 8 vouchers it is based on the income of the applicant) and then tenant pays any

difference. In some cases, families may even use the program to purchase a home. Additionally, there are subsidized housing units whose prices are kept low or at no cost for qualifying tenants despite otherwise being on the open market. These are subsidized units and they are provided through a wide variety of government programs.[24] One type of subsidized unit are public housing units, operated by local public housing authorities which charge reduced rent based on the income of the applicant but are entirely restricted to households who meet certain requirements and are not on the open market. However, city-wide housing authorities can only provide so much in terms of housing stock, and often the houses they do have aren't appropriate for the tenant. Denise Jordan recalls "I know even here in the housing authority, we only have a very small number of the largest units we have may have, like four bedrooms. And so, even in some of the apartments we have where there's five bedrooms some of them are still under housed, we have like one house where there's like 15 people."

A problem for people in need of subsidized housing units is that different housing programs serve (or "target") different groups. **Figure 39** illustrates the share of government subsidized housing units that have a restriction on who can occupy the unit. Data on these housing restrictions for subsidized units reflect another problem, also found in naturally affordable housing, where finding the money to pay for housing is not the only issue: housing must also be accessible to the person paying for it. In naturally affordable housing, sometimes communities are entirely devoted to certain populations such as retirees or the elderly additionally affordable housing can still be physically inaccessible to disabled and elderly people, or lack the space for a family. In subsidized housing, physical characteristics can still make a unit inaccessible to certain people but there may also be stricter rules that prevent certain populations from taking up residence in that unit.

Certain subsidy programs are often focused on helping the elderly or disabled populations find housing, while others are intended primarily for families with children. Meanwhile, some new housing, affordable or not, is sometimes being built with restrictions, for example, age-restricted housing. This can mean that a region appears to have an adequate level of affordable or subsidized housing, but lacks units certain people are allowed to rent. Data is available on this issue which shows only subsidized housing (a small fraction of the overall housing stock) in the National Housing Preservation Database (NHPD).[25] In August 2021, the NHPD showed the Pioneer Valley had 282 subsidized properties, representing nearly 20,000 units, 76 percent of which are in Hampden County, although not all of the individual units are themselves subsidized. (The NHPD is unable to provide an exact count of subsidized units as some units and properties are covered by multiple housing assistance programs such that they might end up double counted if a count were taken. In addition, voucher-based assistance and other rental aid is also in use in the region. Therefore the NHPD data represents only a subset of the total affordable and subsidized housing in the

[24]Housing Choice Vouchers Fact Sheet, https://www.hud.gov/topics/housing_choice_voucher_program_section_8

[25] The NHPD is a product of the Public and Affordable Housing Organization and the National Low-Income Housing Coalition. It is intended to educate communities about the subsidized housing stock in their region in order to make it easier for them to preserve it. Updated tri-annually, the database is populated with information from federal sources covering more than 20 different programs. State level data is also available for Massachusetts, though it is not available for most states.

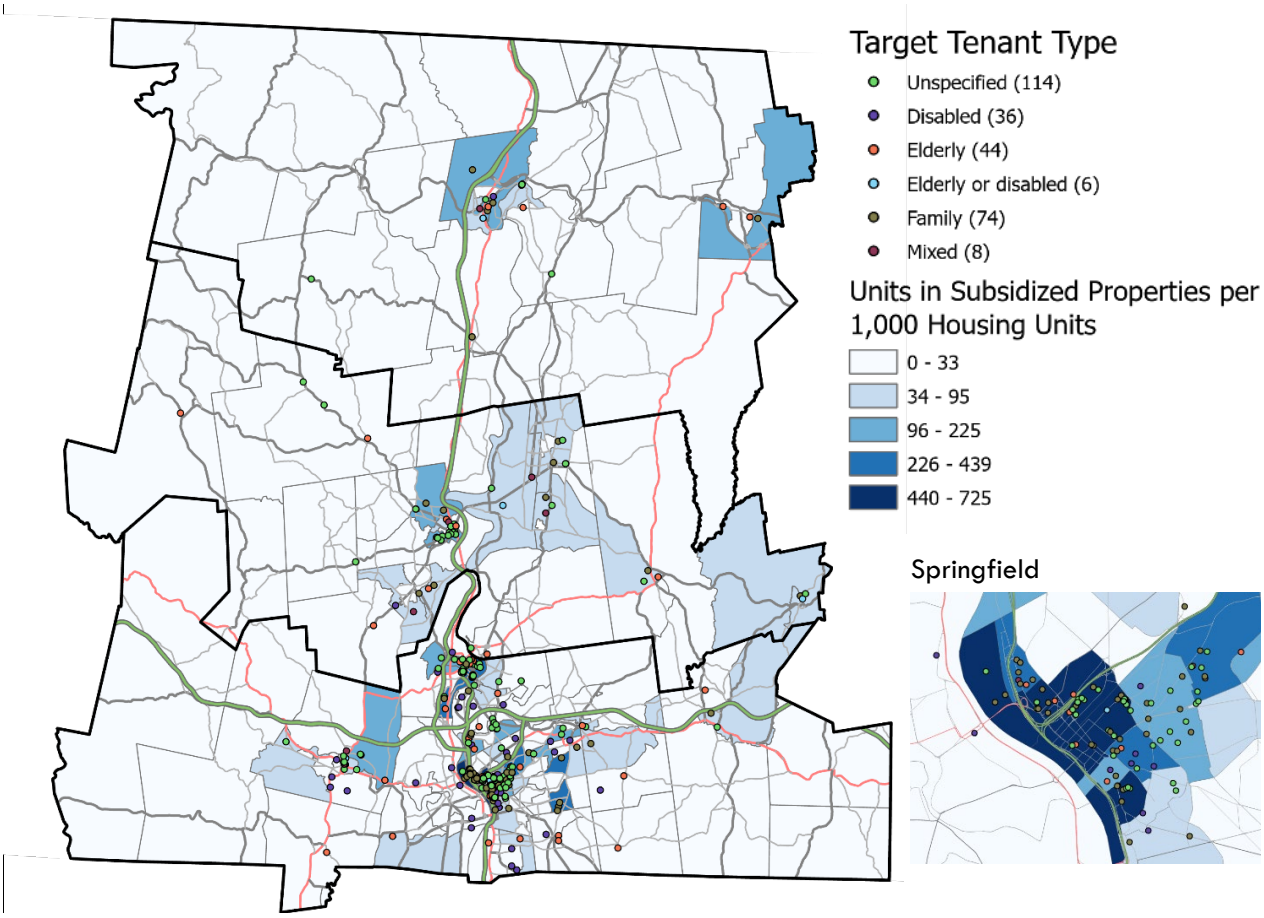
region: The Massachusetts Subsidized Housing Inventory (SHI)[26] for 2020 estimates that there were more than 27,000 subsidized units in the Pioneer Valley overall.[27] Even with 27,000 subsidized units, it's clear to housing authority Executive Director Denise Jordan that the need in the region has not been met. "We have heard from a lot of voucher holders [is] that they're having a hard time finding housing with their voucher," she remarked "because [there are] just not enough [homes within budget]." Subsidized housing can be difficult to qualify for, in part due to restrictions by age and its limited availability. The NHPD database shows that about 2 percent of subsidized properties in the Pioneer Valley are intended for elderly people alone, but this varies by county with 6 percent of Franklin's subsidized properties devoted to elderly people. In total, only 40 percent of the 282 properties in the database are listed with no restriction on tenant type. While restrictions on who can live in housing blocks people who do not meet the criteria, setting aside accessible units that fit people with disabilities or who are elderly or those are large enough for families is sensible as these tenants have specific needs that cannot be met in all or even most of the housing stock. For example, a disabled person may need an accessible building, having affordable units, subsidized or otherwise units available that meet specific needs is vital to utilize housing. Gina Govoni, executive director of the Franklin County Regional Housing and Redevelopment Authority, noted that accessible housing was very hard to find for elderly and disabled people. In Franklin County she identified this issue as the greatest single source of mismatch in the area, "I think the greatest need, that we see are from elderly and then secondly, disabled, that's definitely, I think numerically, the largest mismatch." She also noted that accessible housing alone wasn't the issue, even finding "accessible-adjacent" housing that could be adapted to become more accessible is hard to find. Gina noted that common issues for the elderly and disabled population in Franklin include older units that rely on stairs and doorways that aren't wide enough for wheelchair access.

Affordable units for single people if they are not elderly, disabled and have no family of their own are also very limited due to restriction of new housing and restriction of housing subsidies to certain tenant characteristics, including limitations to renters who are ages 55 and older.

[26] The Subsidized Housing Inventory is used to measure subsidized housing units to support the implementation of M.G.L. Chapter 40B, the Comprehensive Permit Law. As of this writing these estimates were still based on 2010 Census data and had not been revised to reflect changes in the recent 2020 Census data release. For a table of SHI counts and shares by town see **Appendix H.** https://www.mass.gov/service-details/subsidized-housing-inventory-shi

[27] Approximately 37 percent of those subsidized units are in the city of Springfield, with over 10,000 units of subsidized housing estimated, and followed by Holyoke with 12 percent (Over 3,000 units) and Chicopee with 10 percent. (Over 2,600 units.) 58 percent of subsidized units in the Pioneer Valley are found in these three cities despite collectively only possessing 36 percent of the 2010 Census total housing unit stock.

Figure 43. Properties by Target Tenant Type and Density of Properties with Subsidies by Tract



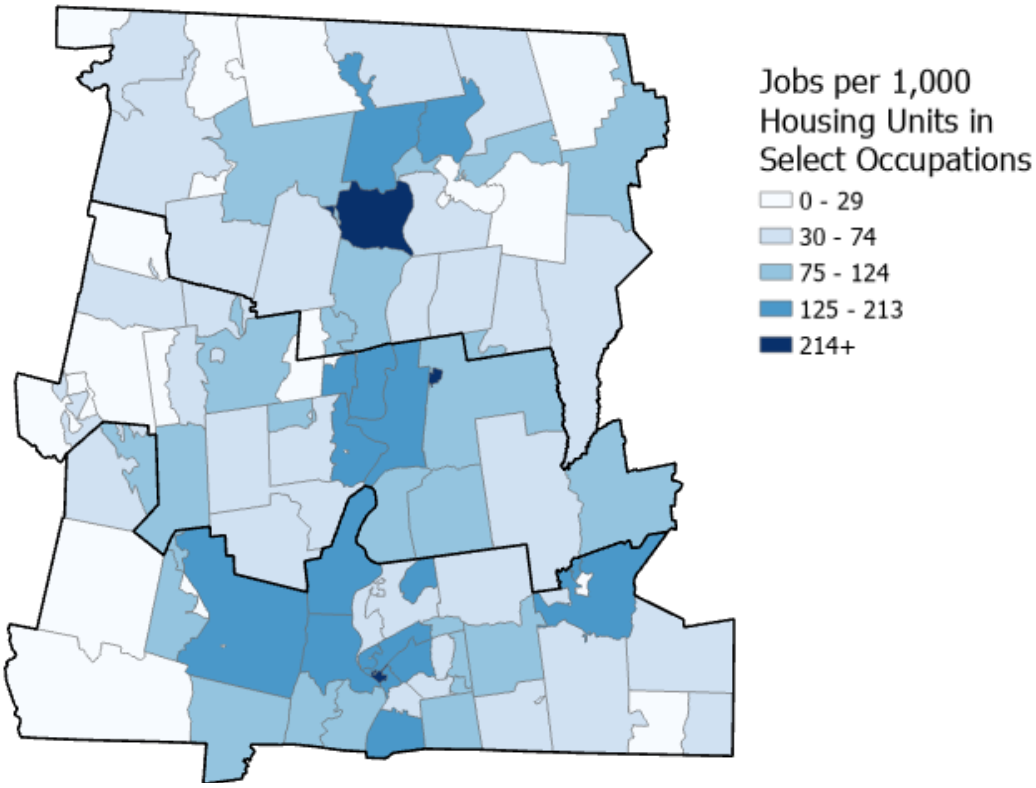
Source: National Housing Preservation Database, Housing includes both properties and units subsidized at the state or national level and ACS 2015-2019 5-Year Estimates

The NHPD does not provide a clear count of subsidized units because a given unit can have multiple subsidies, but a count of units in properties which contain some amount of subsidized units is available. Comparing the count of these units to the total housing stock (normalization) allows identification of areas with potentially much larger shares of subsidized units. **Figure 40** shows properties with subsidies are mainly in only a few parts of the Pioneer Valley. As a share of total housing units, these properties are most densely located in Springfield, Northampton and Greenfield. Nearly all Springfield Census tracts contain a substantial number of NHPD properties. Interestingly, Census tracts on the east side of the Pioneer Valley have a higher density of subsidized units as seen in the towns of Ware, Palmer, Orange and the northern end of New Salem. For the vast majority of Census tracts in the region, there are fewer than 33 units that are potentially subsidized according to the NHPD database.

In the private market, a force that can make it difficult for non-elderly people with families to find adequate affordable housing is how the federal Fair Housing Act was structured. While it made it much harder for landlords and property owners to discriminate on the basis of race, national origin, religion, sex, disability and familial status [28] it left an exemption for 55 plus communities to discriminate against families with children if the community had 55 plus occupants in 80% of its units, demonstrated its intent to be a 55 plus community and verified the age of residents using HUD compliant methods. [29] This reduces the number of available family units in communities with substantial amounts of 55 plus housing.

Affordability and Income: Local Job Market

Figure 44: Jobs with High Median Wages and a Large Number of Openings by ZIP



Source: EMSI 5-Digit SOC Occupation Data and ACS 2015-2019 5-Year Estimates, Table B25001; MIT Living Wage Calculator
Note: Displayed are the top 10 living wage paying occupations by average annual openings. Living Wage is defined as the MIT Living Wage Calculator value for a family of three with two adults, one working and one child for the Springfield MSA ($53,726 in 2020 Dollars) which encompasses Franklin, Hampden and Hampshire Counties. Note occasionally on this map some ZIP codes have a single large employer with a small number of residents within the ZIP.

[28] Housing Discrimination Under the Fair Housing Act https://www.hud.gov/program_offices/fair_housing_equal_opp/fair_housing_act_overview
[29] The Fair Housing Act: Housing for Older Persons https://www.hud.gov/program_offices/fair_housing_equal_opp/fair_housing_act_housing_older_persons

Another challenge to affordability for Pioneer Valley residents is that only select parts of the region contain jobs which pay an adequate wage to live in the area. Using an estimate of a living wage produced by MIT for the Springfield MSA of $53,726 for a family of 3 with 2 adults, 1 working and a child, the occupations that pay that amount or more annually can be identified. Of those, only a few have a high number of average annual openings. In **Figure 42** a map of the top ten jobs which pay that living wage by the average number of annual openings available shows that jobs which pay well and are in demand are not available in every part of the Pioneer Valley and are concentrated in the central regions of the Pioneer Valley where rents have grown the most in the last decade. The single largest value on this map is part of UMass Amherst Campus which has an exceptional number of people in these occupations, including postsecondary teachers, office administrators and registered nurses (as part of the nursing school and student health center) spread across very few housing units as defined by the Census. The second largest value is in the vicinity of the town of Deerfield which is home to several schools which host several of the top 10 occupations including teachers and administrators, the third largest value is in downtown Springfield. See **Table 4** below for a full listing of occupations used in **Figure 42**.

Table 6: Top 10 Occupations in the Pioneer Valley by Average Annual Openings which Pay a Living Wage for a Family of 3

Occupation	2019 Jobs	2010 - 2019 % Change	Avg. Annual Openings
Postsecondary Teachers	9,339	16%	1,053
General and Operations Managers	6,366	78%	721
Registered Nurses	7,405	5%	464
First-Line Supervisors of Office and Administrative Support Workers	3,375	11%	358
Elementary School Teachers, Except Special Education	3,785	3%	317
Secondary School Teachers, Except Special and Career/Technical Education	3,248	1%	258
Accountants and Auditors	2,569	(2%)	248
Executive Secretaries and Executive Administrative Assistants	1,896	(18%)	228
Financial Managers	2,233	63%	224
Sales Representatives, Wholesale and Manufacturing, Except Technical &Scientific	1,991	(7%)	219

Source: EMSI 5-Digit SOC Occupation Data by ZIP. Local living wage for a family of 3 defined as $53,726 in MIT living wage estimates.

The 10 jobs that are most in demand (as determined by number of average openings) are not all accessible without high levels of education or experience. Seven of the 10 Top 10 jobs listed here require at least a four year degree. Of the three that typically require only a high school degree, only one typically requires no experience. Of these ten jobs, only one, sales representative, typically has on the job training according to EMSI data. With low educational attainment and little experience, the list of accessible jobs that pay a living wage and which have strong demand can be small. Many families compensate for this by having both adults work, or by working multiple jobs but this can be burdensome on a family particularly with children as long hours and having both parents work requires family support or paying for childcare which can be one of the largest expenses for a household.

Housing Production

Key Points on Housing Production

- There is a housing shortage. Housing unit growth is being outpaced by demand in many parts of the Pioneer Valley, leading to a growing shortage of units. In most places this is due to local population growth and household formation. This shortage is intensified by high proportions of single-family homes rather than multi-family homes.
- Production is happening at too low a rate throughout the region.
- Recent legislation to lower the vote barrier for local governments has the goal of allowing municipalities to make zoning changes that promote residential development.
- Housing production can be met by community opposition to residential development. Combined with high material prices and with infrastructure challenges in the rural places where roads, sewer, and broadband are not yet built out, large residential developments can be a challenge to build even when funding and local support are secured.

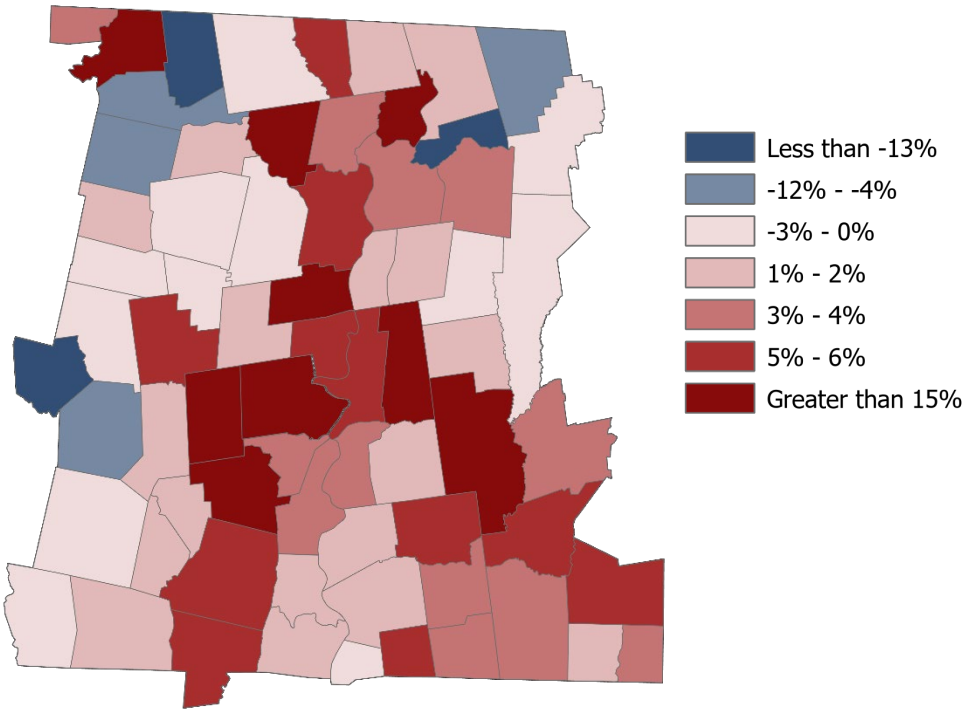
In interviews with stakeholders around the Pioneer Valley, the concept that there is a housing shortage in the Pioneer Valley was repeatedly reinforced. Alyssa Larose, Senior Land Use and Natural Resources Planner at Franklin Regional Council of Governments (FRCOG) commenting on Franklin County's shortage said "…the big question about is housing production keeping up with demand? The overwhelming answer would be no, we definitely have a housing shortage. There's a lack of supply there's a lack of units, both on the homeownership and the rental side, we continue to hear that from folks who are working on the ground with tenants and with clients trying to find housing, it's very difficult to find housing right now, across the income spectrum." Ideally more homes would be built to address this shortage, but there are serious barriers to new housing production throughout the Commonwealth. Zoning laws at the town level have historically required a supermajority of councilors to support a change which can make it hard to transform industrial or commercial zoned vacant land into residential uses. New developments, particularly developments with affordable housing, often are opposed by potential neighbors who may view affordable developments negatively, or as a force of gentrification if the new development is not based around affordability.[30] Data on housing production generally shows that where population is growing, so are the number of housing units, but a shortage persists and is expected to grow based on an analysis of available housing data. One reason for this persistent and growing shortage may be that the majority of new units are in the form of single family homes (as suggested by permit data) rather than multi-family units. This section will dig into the data that is available around housing production. It will examine population and housing trends, where housing is being built the most and estimate the gap between housing demand and supply. This section will also look at a recent reform to state law that seeks to

[30] "Affordable Housing Initiatives Spark Community Controversy Throughout Massachusetts", WGBH, May 12, 2016 https://www.wgbh.org/news/2016/05/12/local-news/affordable-housing-initiatives-spark-community-controversy-throughout

encourage new development by lowering the voting requirement on certain pieces of local housing legislation including zoning changes.

The release of early Census 2020 data in August of 2021 allows a look at the performance of housing production in Massachusetts' towns since 2010. Housing production is most heavily concentrated in Hampshire County, with 5 communities increasing their housing stock by more than 15 percent between 2010 and 2020. More rural areas of all three Pioneer Valley counties appear to have experienced little or no growth and even declines in their housing stock in the same period.

Figure 45. 2010-2020 Housing Unit Percent Change



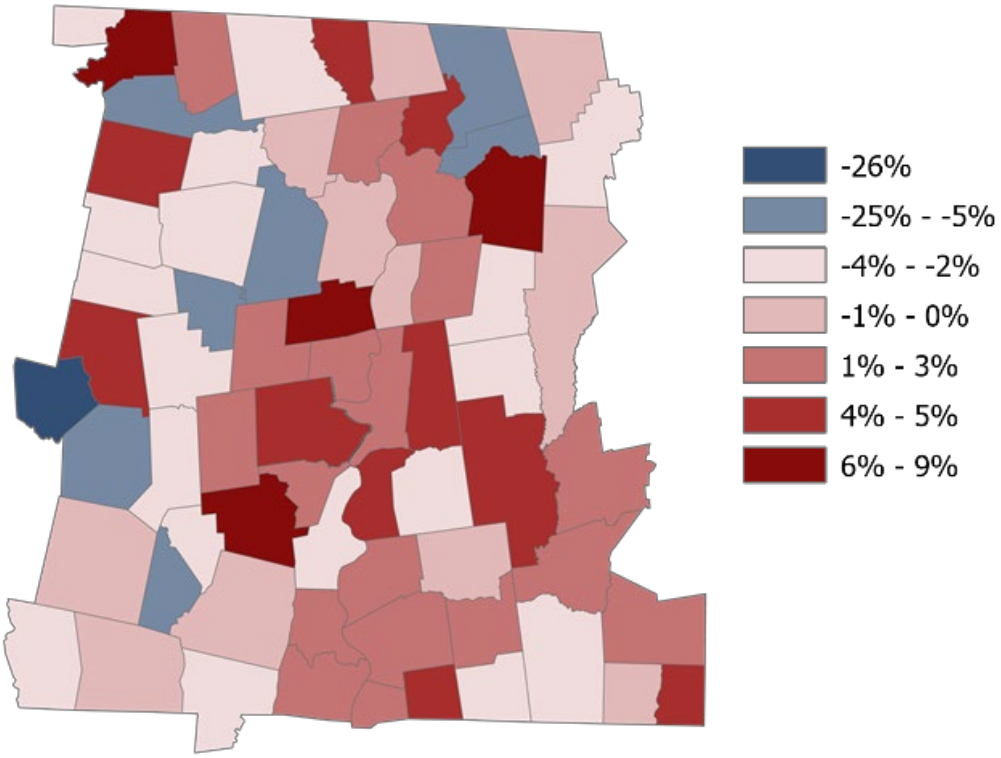
Source: Decennial Census 2010 and Census 2020 PL94 Data

It should be noted that in small towns, in rural areas of the Pioneer Valley, a single new development or the destruction of an existing development can lead to radical percent change in the town's housing stock over time. Towns with a growing housing stock are (not surprisingly) the same towns with a growing population: In most towns in the Pioneer Valley, housing unit growth and population growth are closely matched, diverging in few places if any. In a few rural towns such as Hawley, Heath and Warwick, the number of housing units actually decreased but the population rose in the period 2010 to 2020. Springfield, Amherst, Westfield and Belchertown experienced the largest increases in housing units in the

period with Amherst increasing its housing unit stock by 11 percent. Westfield experienced housing unit growth but actually experienced a small population decline between 2010 and 2020. [31]

[31] See Appendix J for a town by town table of Housing Unit Change 2010 to 2020.

Figure 46. 2010-2020 Population Percent Change



Source: Decennial Census 2010 and Census 2020 PL94 Data

Population growth in the last decade was very uneven. Springfield, Amherst, Northampton, East Long Meadow and Belchertown saw the largest population increase in absolute terms. Several Hampshire county towns saw strong growth both Amherst and Northampton saw more than 3.5 percent growth adding 1,444 and1,022 people respectively. In Hampden County, Holyoke saw a four percent decline in population, a loss of more than 1,600 people, while the large towns of Chicopee and Westfield remained relatively flat. Springfield saw slight growth with its population increasing approximately two percent in the period, a change of 1,076 people. In Franklin County, Greenfield's population saw a two percent increase adding 312 people.[32]

Table 7 below depicts the number of building permits issued from 2015 to 2020 around the Pioneer Valley by county and building size. New residential construction is predominately single-family, and the vast majority of large, multi-family construction has taken place in Hampshire County.

[32] See Appendix K for a town by town table of population change from 2010 to 2020.

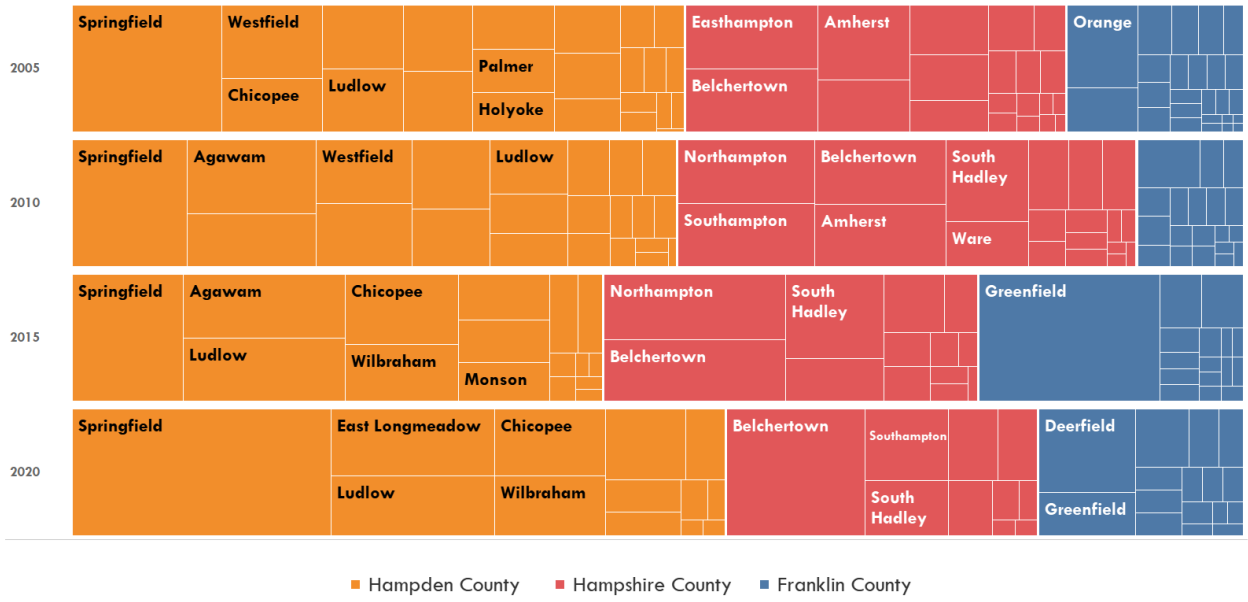
Table 7. Building Permits Issued by County and Building Size, 2015 - 2020

	Single-Family	Two-Family	Three-to-Four-Family	5 or more Families
Franklin County	392	20	7	64
Hampden County	1,547	108	15	29
Hampshire County	1,174	18	8	702

Source: U.S. Census Bureau, Building Permit Survey

Figure 33 below depicts the share of new units permitted in the Pioneer Valley in each municipality. The size of each municipalities' square is proportional to that municipalities' share of new housing units permitted in the Pioneer Valley in that year. Since 2005, the majority of new residential construction has occurred in Hampden County, largely due single-family home production in Springfield.

Figure 47. Share of New Units Permitted in Pioneer Valley by Municipality

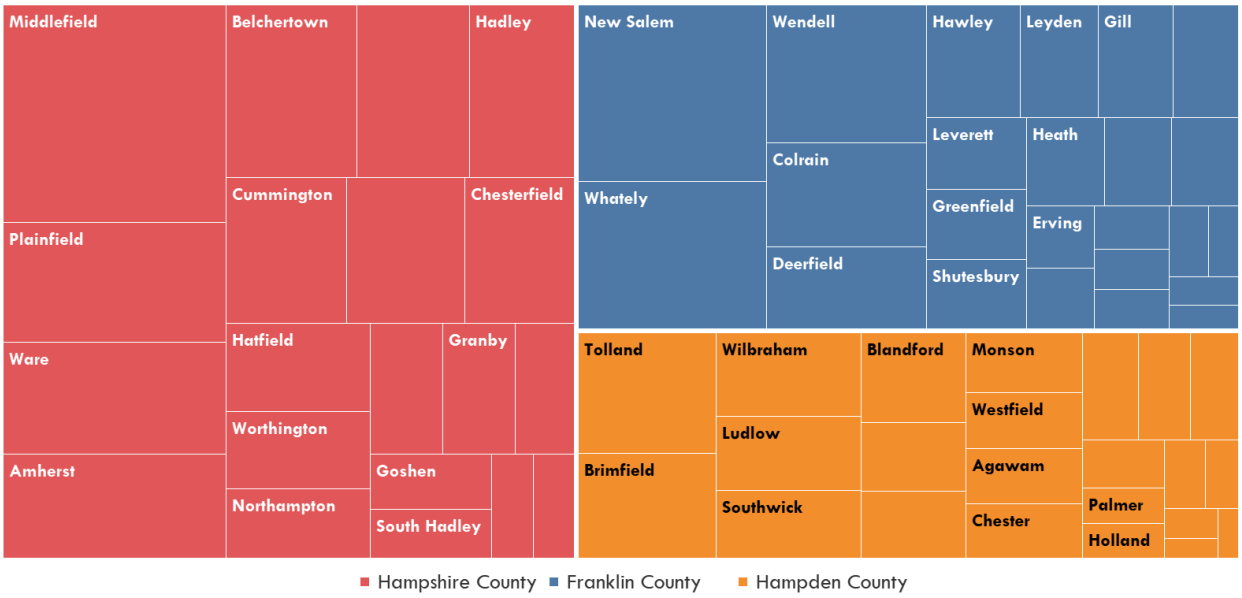


Source: U.S. Census Bureau Building Permit Survey, 2005, 2010, 2015 & 2020

However, while Hampden County – specifically Springfield – has generally accounted for the majority of new housing units erected in the Pioneer Valley over the last decade, relative to the size of their existing housing stock, they, have grown the least, perhaps due in part to less open space and more existing structures. Each square in **Figure 46** is proportional to the amount of new housing units that have been permitted in each municipality from 2015 to 2020, normalized by the size of their existing housing stock. Large squares depict towns that have permitted more housing units for construction than did other towns, relative to their current size. This shows that relative to their existing housing stock, Hampshire and Franklin Counties have added more housing units to the Pioneer Valley market than did Hampden County.

Municipalities with small squares – and therefore a smaller amount of new housing relative to their existing stock – may be faced with barriers to production, including a lack of buildable lots or necessary infrastructure, prohibitory zoning laws, high costs of construction, or other reasons all together.

Figure 48. Permitted Housing Units as a Share of Existing Housing Stock, 2015 to 2020

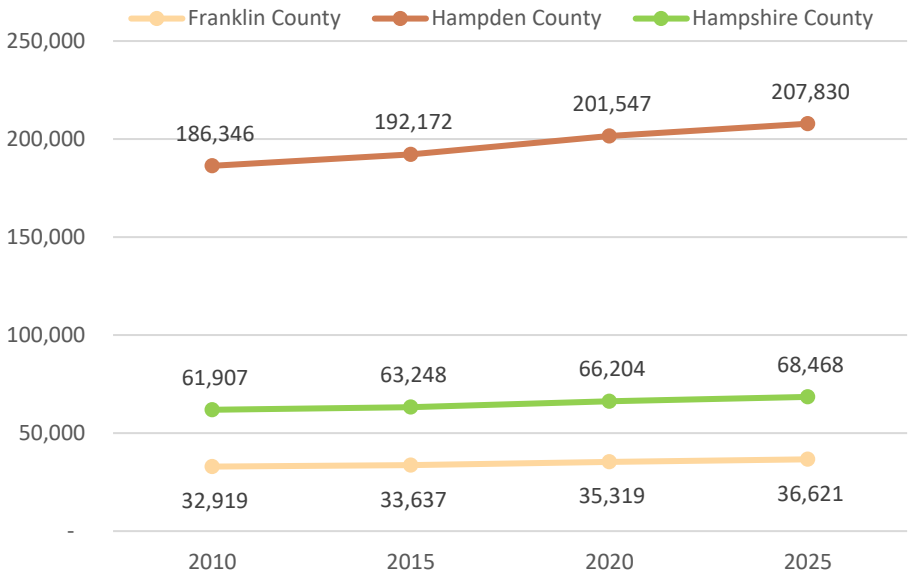


Source: U.S. Census Bureau Building Permits Survey, 2015-2019 ACS 5-Year Estimates

The reason housing production of homes to rent and to own are both critical is because there is a growing gap predicted between the number of housing units and the need. For Phase I of this project, UMDI projected housing unit demand out to 2025 using a combination of American Community Survey (ACS) data from the Census Bureau and UMDI's own population projections. These housing unit demand projections assume that households in the future will look similar to households in the most recent data. [33] These projections suggest a growth in housing demand between 2010 and 2025 of over 10 percent for all Pioneer Valley counties. While this represents less growth than the state overall in that same period, the increase predicted in the housing gap continues and adds to the upward pressure on housing prices in the region, where housing cost burden already outstrips the state's rate.

[33] For more detail on the projection method used to create these data, refer to Appendix D.

Figure 49. Projected Housing Unit Demand in the Pioneer Valley, County-Level

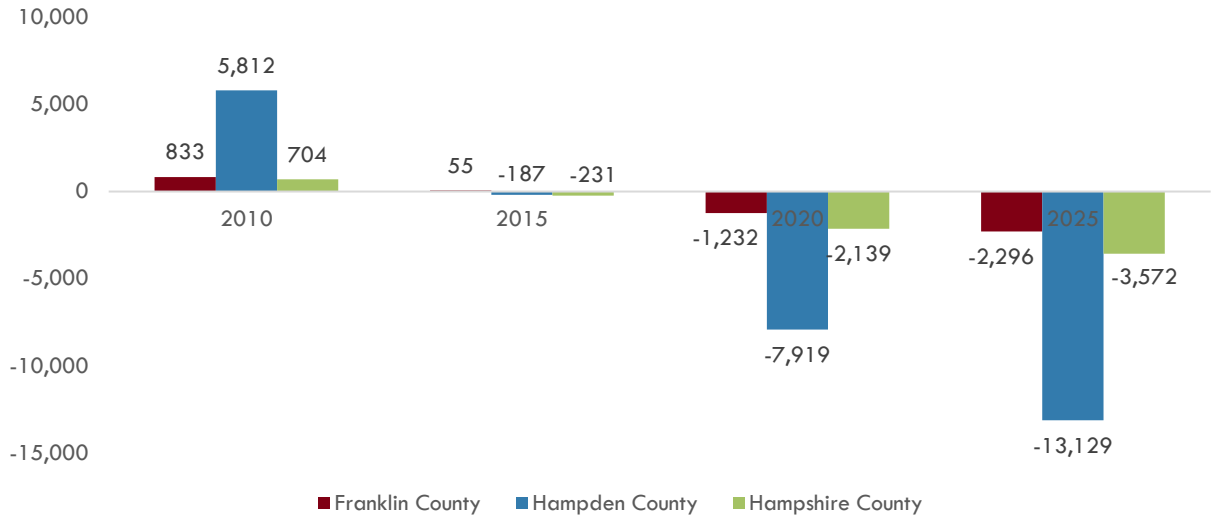


Source: UMDI Housing Unit Demand Projection based on UMDI Population Projection and ACS 2014-2018 5-Year Estimates

Housing demand in all three counties is growing. The rates of increase in housing demand are larger than the equivalent population growth rates. The reason for this is the aging population of the region which tends to use more housing per person as people begin to age in place in homes that once housed an entire family.

Assuming that trends in household formation remain constant, the largest communities in the Pioneer Valley are projected to see their demand for housing units increase gradually over time. Amherst is the only top 10 largest community expected to see a decline in demand in 2025 from estimated 2020 levels. In order to assess how the Pioneer Valley was preparing to meet this increase in housing unit demand, UMDI also examined data on the number of housing units by county from the American Community Survey from 2010 to 2018. The found in these data was taken and extended out to 2025, that projected housing unit count was then compared to the projected housing unit demand. In 2020 the number of housing units in the state actually exceeded the demand in that same year, likely due to the housing market crash. This relationship would flip over the next decade. In 2015 the number of units nearly met demand and by 2020 demand exceeded the count of units by over 11,000. The reason for this shift is the slow growth in housing units over time. When these projections were performed, the number of housing units in Franklin County had grown by just one percent between 2010 and 2018, which was the latest year of available ACS data. Hampden's had grown just under one percent and Hampshire's had grown just over 2 percent. If this slow growth in housing stock continues the gap between demand and supply for housing units will only get worse over time. The projections found a shortfall in total housing units of all types at all prices over nearly 19,000 by 2025 given the trends at the time. Note that this count is for all housing units of all kinds and prices. Because it measures something else, this projection is not combinable with or comparable to the calculation of rental housing need by price.

Figure 50. Projected Gap in Housing Units



Source: UMDI calculations, based on UMDI Population Projections and ACS 2014-2018 5-Year Estimates

Housing Production and the Housing Choice Bill

A major barrier to housing production throughout the state and also in the Pioneer Valley is the political challenge of rezoning property in the towns. An attempt to address this was the signing of Governor Baker's Housing Choice Legislation in January of 2021, which amended General Laws Chapter 40A, also known as "The Zoning Act". This reform affected all cities and towns except for Boston. The primary reform of this legislation was to make it easier for towns to pass changes to zoning laws by reducing the number of votes required to enact certain types of zoning ordinance (or bylaw) from a two-thirds supermajority to a simple majority. The amendments also reduced the number of votes for certain types of permits. This law goes into effect if the proposed ordinance, bylaw or permit[34]:

- Allows for multi-family or mixed-use development.
- Enables open space development.
- Allows accessory dwelling units (ADU) or by special permit, an ADU in a detached, same-lot structure.
- Reduces the parking requirements for residential and mixed-use development under a special permit.
- Increases the permissible density of population or intensity of use in a proposed multi-family or mixed-use development that requires a special permit.

[34] https://www.mass.gov/info-details/voting-threshold-guidance

- Changes dimensional standards of new construction to provide more units on a parcel.
- Provides for the transfer of development rights or natural resource protection zoning in areas deemed appropriate for such development.
- Adopts smart growth or starter home districts as provided for in section 40R.[35]

By reducing the threshold on votes for certain types of development, the hope is to increase the density and number of housing units in Massachusetts cities and towns. Not only do these laws encourage wholly new development, they also encourage infill development on existing low density lots when possible. The advantage of construction on existing lots is that it allows for new units to take advantage of existing infrastructure for things like water and sewer. This kind of development is something many Pioneer Valley nonprofits and municipal organizations have been encouraging for some time. But the ability to access these kinds of developments vary by municipality. Alyssa Larose, of FRCOG explained some of the types of development that is needed in Franklin County: "…multifamily zoning, accessory dwelling units, smaller lot sizes places that do have water and sewer, to encourage infill development and smaller homes. All of those types of things are [what] we're talking with some of our communities about." It is too early to say what impact this amendment will have on the broader housing market, and whether or not it will substantially increase the types of development needed in a way that will reduce the local housing shortage both in Franklin County and other parts of the Pioneer Valley.

Key Challenges to Redress

Even with these reforms, there will be large barriers to substantial residential development in the Pioneer Valley. While zoning reform helps, it does not address the lack of infrastructure in the more rural parts of the Pioneer Valley, particularly in Franklin County. Septic and well systems can be expensive to build out, particularly for a large development which makes the development of housing of any kind more expensive. Even when funding is secured for a development, materials for the development fluctuate in price, for example lumber prices during the pandemic skyrocketed. Gina Govoni of the Franklin County Regional Housing and Redevelopment Authority noted that to counter future prices hikes materials might be bought ahead of time. But for developers in rural communities there may be a challenge to get them the funding they need to purchase that inventory and getting funders to support a purchases of material well in advance of construction starting can be difficult. There is also the continued problem of stigma towards new housing development, particularly affordable housing development. Gina Govoni explained the importance of educating communities "…you have to deal with each community individually and there's a real need to educate folks on affordable housing and make it not be… not seem, like the stigma, that it is." This makes for a clear call for both work internal to the Pioneer Valley and the need for external monetary support for the needed social and infrastructural and construction work.

[35] Smart growth districts are a program allowing for new development of starter homes in areas judged suitable for such homes.

Access to Opportunity and Segregation

Key Points on Access to Opportunity and Segregation

- People of color in the Pioneer Valley, particularly Black and Hispanic populations, are heavily located in places that also tend to score low on access to opportunity measures.
- Housing costs can limit lower income households to places with high poverty rates, more air toxins, low ownership tenure, and high job proximity. Many neighborhoods with these cross-cutting qualities also have better access to public transportation needed by those without a car.
- Opportunities differ across the Pioneer Valley. Pressure from housing costs in rural areas can result in low public transportation access and very little proximity to jobs.
- While segregation overall in the region, measured by the dissimilarity index, has slowly decreased since 2000, it is still at a very high level.
- Segregation has many causes at different levels of geography, including zoning laws and municipal individualism, which will require coordinated regional efforts to mitigate.

Segregation Background

Residential segregation happens across multiple dimensions, including race, ethnicity, and income. The causes of these different types of segregation are hard to differentiate because there is a lot of crossover between them in the United States, as race, class, and income can all be interrelated. Economic factors (e.g. jobs, cost of living, etc.), public policy decisions (e.g. exclusionary zoning, etc.) and sociocultural preferences all play roles in residential segregation patterns. This can mean that some communities may choose to live in more racially or ethnically homogeneous neighborhoods as well. The importance of agency and choice indicates that the ideal is not necessarily perfect integration of all tracts and neighborhoods in the entire region, but rather approaching equal *opportunity* for all people to live anywhere they prefer. However, choice and access to opportunity is far from equal in the present.

Communities benefit when there is more equal access to economic opportunity. Housing production that keeps up with demand at all affordability levels creates a healthy market where everyone faces prices they can afford. The middle-income population of the Pioneer Valley is facing a housing market where there is not enough stock at prices affordable to them. Meanwhile, extremely low-income households in the Pioneer Valley are facing an even tighter housing market than those with higher incomes. If more units were affordable to the lowest-income households, then fewer of them would be forced into housing that causes them to be cost-burdened and removes available housing from middle-income households that might be able to comfortably afford it. This will continue through all levels of income to relieve pressure throughout the market.

This section highlights historical and recent trends that have contributed to racial separation in the Pioneer Valley. It examines segregation and integration using analysis of spatial clustering and changes over time, as well as select segregation indices to understand important aspects of the region's characteristics around segregation and opportunity. It also explores how access to opportunity as measured by HUD opportunity indices and other measures affects, and is affected by, these trends.

Racism and income-based prejudice are both still critical issues with current, widespread impacts, and this section of the report will illuminate some of the impacts that are observable through data and qualitative analysis. Of course, there are effects of discrimination and segregation that are not easily quantified or detected through research. That said, we believe our analysis provides important context to the causes and consequence of discrimination associated with housing.

Residential segregation by race and ethnicity was caused and reinforced over many generations through purposeful action, and is still perpetuated today. It arose as the result of discriminatory practices in which the private housing industry and federal, state, and local governments were active participants. There is a substantial body of literature that details the history of residential segregation in the United States and the roles played by the real estate and homebuilding industries; lending and insurance institutions; federal, state and local governments; and others.[36] This project seeks to understand how residential segregation persists in the Pioneer Valley today, and what its specific consequences are to the wellbeing of the entire region.

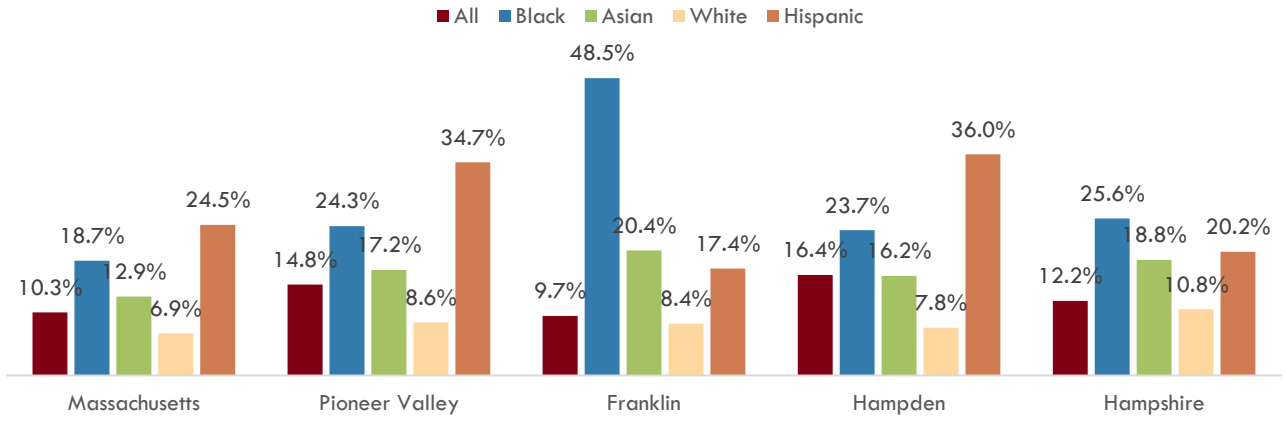
Opportunity Background

Access to Opportunity: Contextual Data

Municipal and neighborhood conditions directly impact social mobility and quality of life for families. This section will directly examine the relationship between place and access to opportunity. To do that, this section will look at residential segregation in the region and its role in limiting life chances, particularly for lower income residents and communities of color.

[36] Including Frey, William H., and Dowell Myers. 2005. "Racial Segregation in US Metropolitan Areas and Cities, 1990-2000: Patterns, Trends, and Explanations." PSC Research Report No. 05-573. 4 2005. From the Population Studies Center, University of Michigan Institute for Social Research, on the dissimilarity index; Rothstein, R. (2017). The Color of Law: A Forgotten History of How Our Government Segregated America. London and New York, NY: W.W. Norton/Liveright Publishing Corporation, on *de juris* segregation; and Metzger, M. W., & Webber, H. S. (Eds.). (2018). Facing segregation: Housing policy solutions for a stronger society. New York, NY: Oxford University Press.

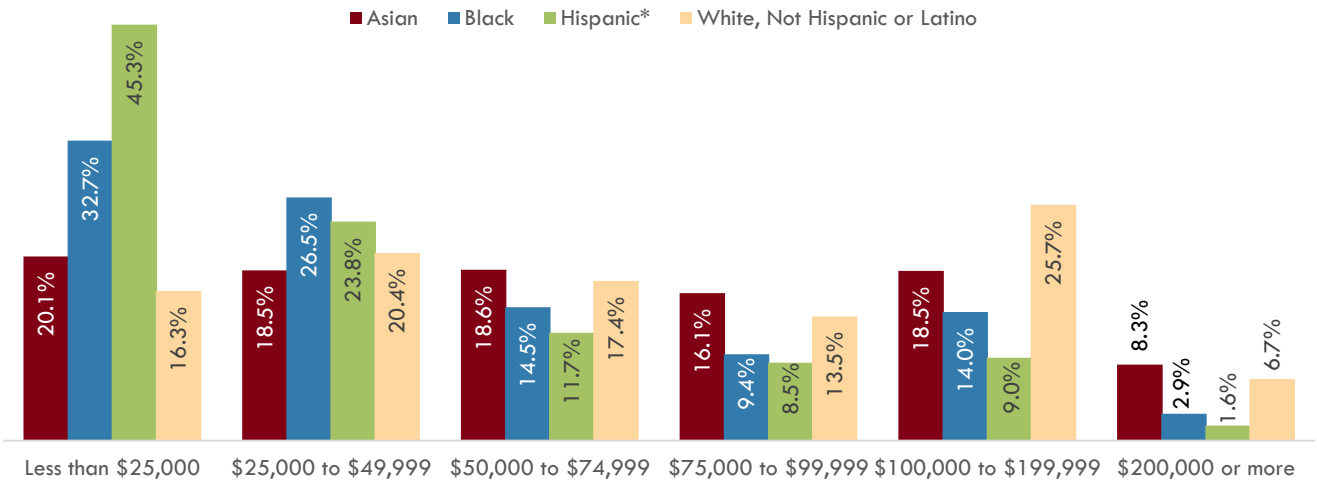
Figure 51. Percent of Population in Poverty by Race, 2019



Source: ACS 2015-2019 5-Year Estimates, Series B17001: B, D, H, I,

The Pioneer Valley has elevated poverty rates compared to the state overall and for each racial/ethnic group. Hampden and Hampshire Counties show similar patterns in poverty rates by race. The major difference is that Hampden County shows a higher overall rate of poverty that is driven by a much higher percentage of Hispanic people living under the poverty line. Franklin County has the lowest overall poverty rate, but also has a much higher Black population in poverty at almost 50 percent. That is the highest rate of poverty shown in any race group in any of the counties.

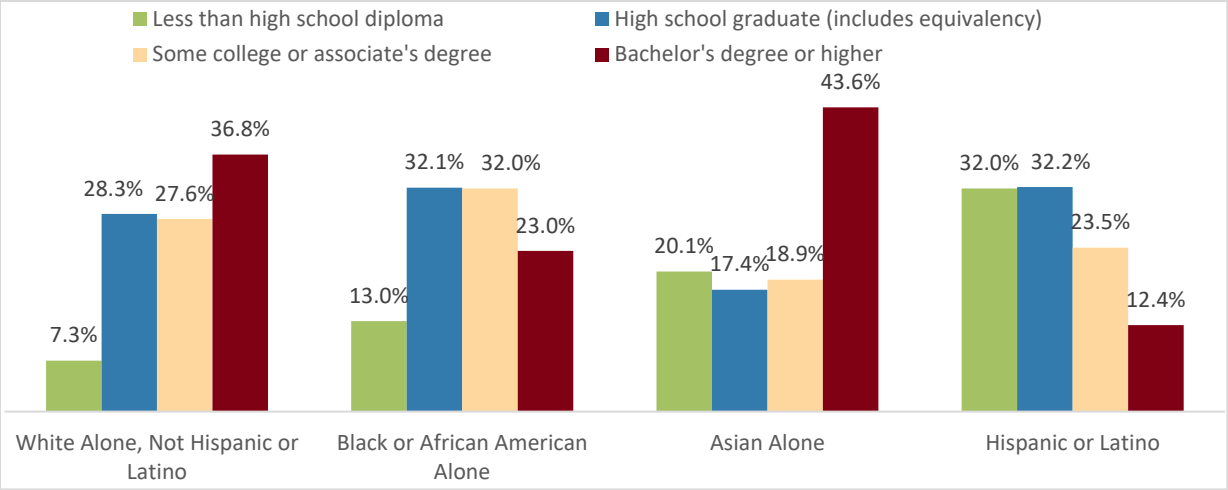
Figure 52. Pioneer Valley Household Income by Race, 2019



Source: ACS 2015-2019 5-Year Estimates, B19001B, D, H, I; *Hispanic people may be of any race.

Incomes across the Pioneer Valley are generally lower than Massachusetts overall. This is reflected in **Figure 51** on the previous page by relatively higher poverty rates in the Pioneer Valley as compared with Massachusetts. This trend is particularly notable for Black and Hispanic populations with 32.7 percent and 45.3 percent respectively. Asian and white populations more evenly represented, but show a relative skew toward the income brackets making $75,000 or more.

Figure 53. Educational Attainment by Race and Ethnicity



Source: ACS, 2015-2019 5-Year Estimates, C15002H, B, D, I; *Hispanic people may be of any race.

The most highly educated race groups in the Pioneer Valley are white and Asian. The race groups least likely to finish high school are Hispanic or Latino with 32 percent having less than a high school diploma. Black or African American people are likely to finish high school, but are less likely to obtain a Bachelor's degree or higher.

There is also a relationship between educational attainment and household income. The degree to which this is also linked with race highlight some of the overriding concerns about access to opportunity in this section, as education and income can be significant determinants to housing affordability and availability, especially for lower income households."

Table 8. Cost Burden by Race and Ethnicity and by Rented/Owned

Share of Owners with Cost Burden > 30%, 2013-2017		
	Massachusetts	**Pioneer Valley**
White	25%	23%
Black	38%	31%
Asian	26%	32%
Hispanic	36%	34%

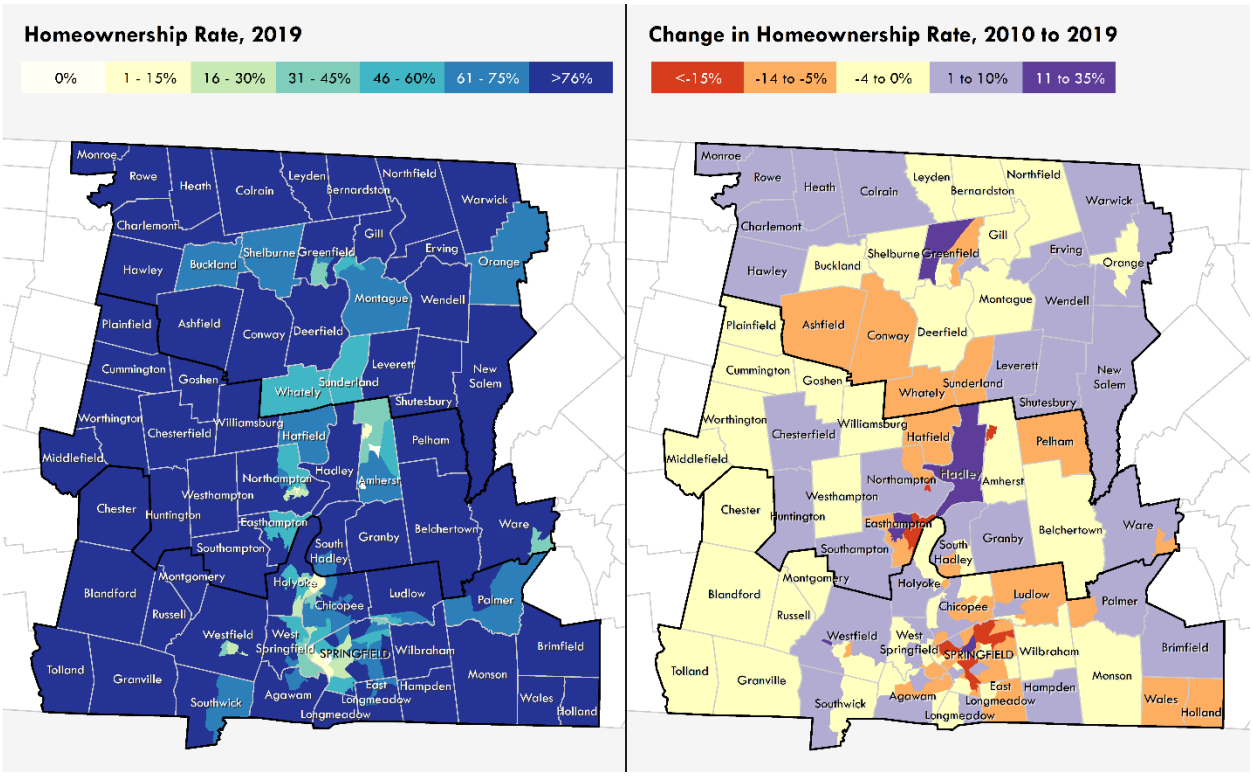
Share of Renters with Cost Burden > 30%, 2013-2017		
	Massachusetts	**Pioneer Valley**
White	42%	45%
Black	52%	53%
Asian	40%	43%
Hispanic	53%	56%

Source: HUD CHAS Data, 2013-2017 Table 9. White, Black and Asian categories do not include individuals identifying as Hispanic.

The general trends show that those who own a home in the Pioneer Valley are less like to be cost burdened than the Massachusetts average, and those who rent a home in the Pioneer Valley are more likely to be cost burdened than the Massachusetts average. There is also around a 20-percentage point increase in the likelihood of being housing cost burdened between owners and renters across most groups. This makes sense because those who own homes must have a certain level of capital and means in order to obtain a mortgage, where renters do not. The fact that the Pioneer Valley mostly shows an even wider gap between owners and renters than overall in Massachusetts means that there is a disproportionately large wealth gap in the Pioneer Valley, particularly when it comes to housing. This is supported by multiple interviewees, who identified the historical wealth gap between people of color and people who are white in the region and spoke of it as highly housing-relevant.

According to an interviewee who is a real estate agent in Hampden County, there is also a crucial race aspect to homeownership access through banks, the real estate industry and local residents. The informant stressed the importance of all people having an equal chance at buying a home, and that this is not currently the case. It is much more difficult for Black, Hispanic, and Asian households to become homeowners for a variety of reasons, including discrimination from credit score companies and lenders according to the interviewee.

Figure 54. Homeownership Rate, 2019 and Change since 2010 by Tract



Source: U.S Census Bureau, ACS 2015-2019 5-Year Estimates, 2006-2010 ACS 5-Year Estimates.

The majority of municipalities in the Pioneer Valley had homeownership rates of over 75 percent in 2019. The lowest homeownership rates are located in tracts in Springfield, Holyoke, Chicopee, Amherst, Northampton, and Greenfield. These represent mostly urban centers where there are higher rental rates. Amherst is the more rural exception, but the high population of students who mostly rent their housing is likely affecting those rates.

The change in homeownership rates since 2010 has been under 10 percentage points in most municipalities in the Pioneer Valley. The largest changes in homeownership rate were located in Greenfield, Hadley, Amherst, Easthampton, and Springfield. The largest increases are located next to the largest decreases in many cases.

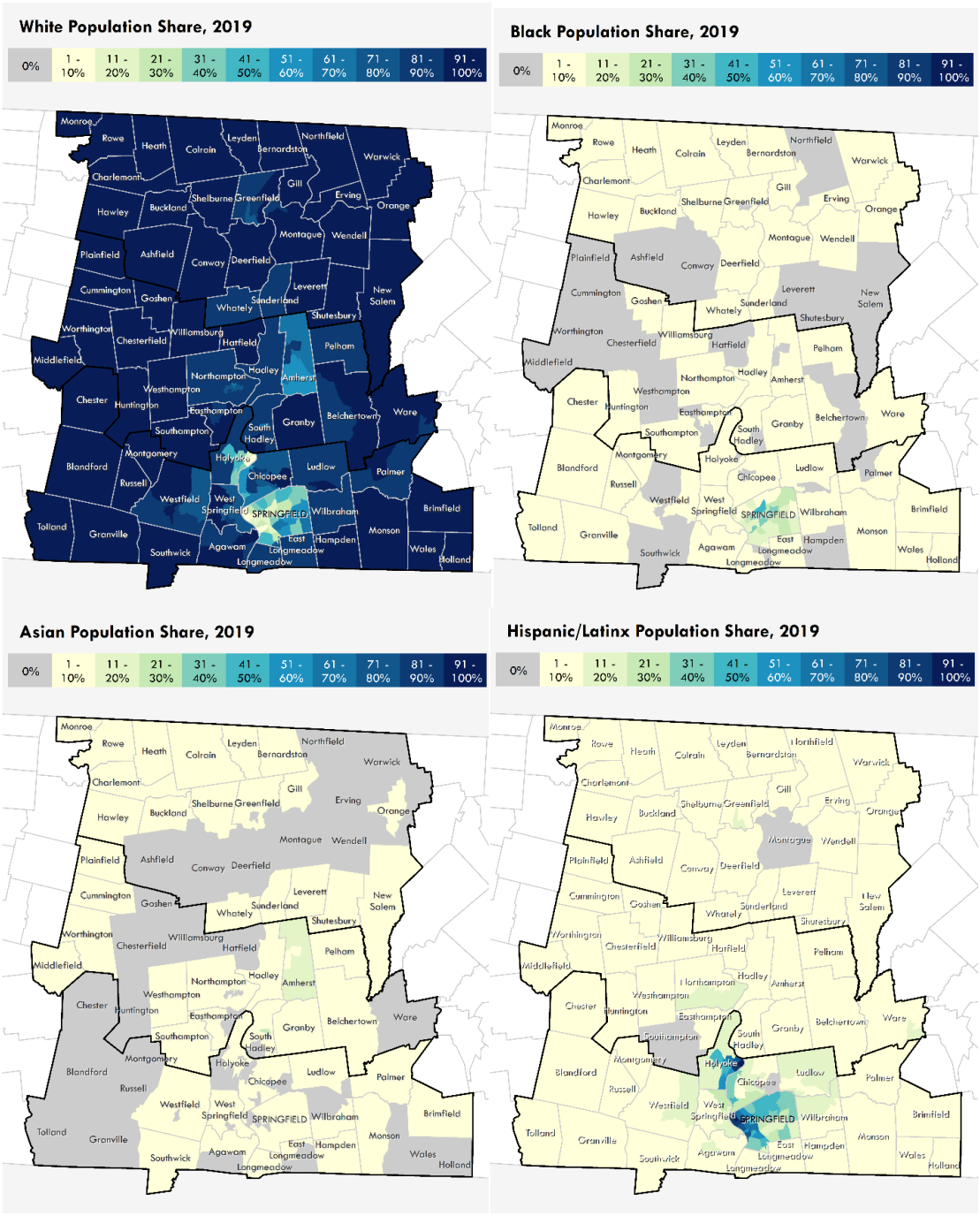
Maps by Race and Ethnicity

Next, we will examine the racial distribution of the Pioneer Valley through a series of maps. The white population is the largest, but there are many other populations that define the community. The region's population of color is distinguished by its large Hispanic/Latinx population, which comprises nearly 20 percent of the total population. Springfield and Holyoke, in particular, have some of the highest shares of Hispanic/Latinx residents in the state. From 2010 to 2019, the overall population shares for Asian and Black residents in the Valley remained unchanged, at around three percent and six percent, respectively. Over the same time period, the Hispanic/Latinx population grew three percentage points, and the White population shrunk by three percentage points. By specific origin, Puerto Ricans comprise the majority of the Hispanics/Latinxs in the region. Puerto Rican communities were initially established in Springfield and Holyoke in the 1940s and 50s, as Puerto Rican people living in New York moved north in search of more affordable housing, and employment in seasonal agriculture and blue-collar industries.[37]

The maps in **Figure 53** show the distribution of the largest race groups represented in the Pioneer Valley.

[37] See http://ourpluralhistory.stcc.edu/recentarrivals/puertoricans.html

Figure 55. Tract Level Population Shares by Race, 2019

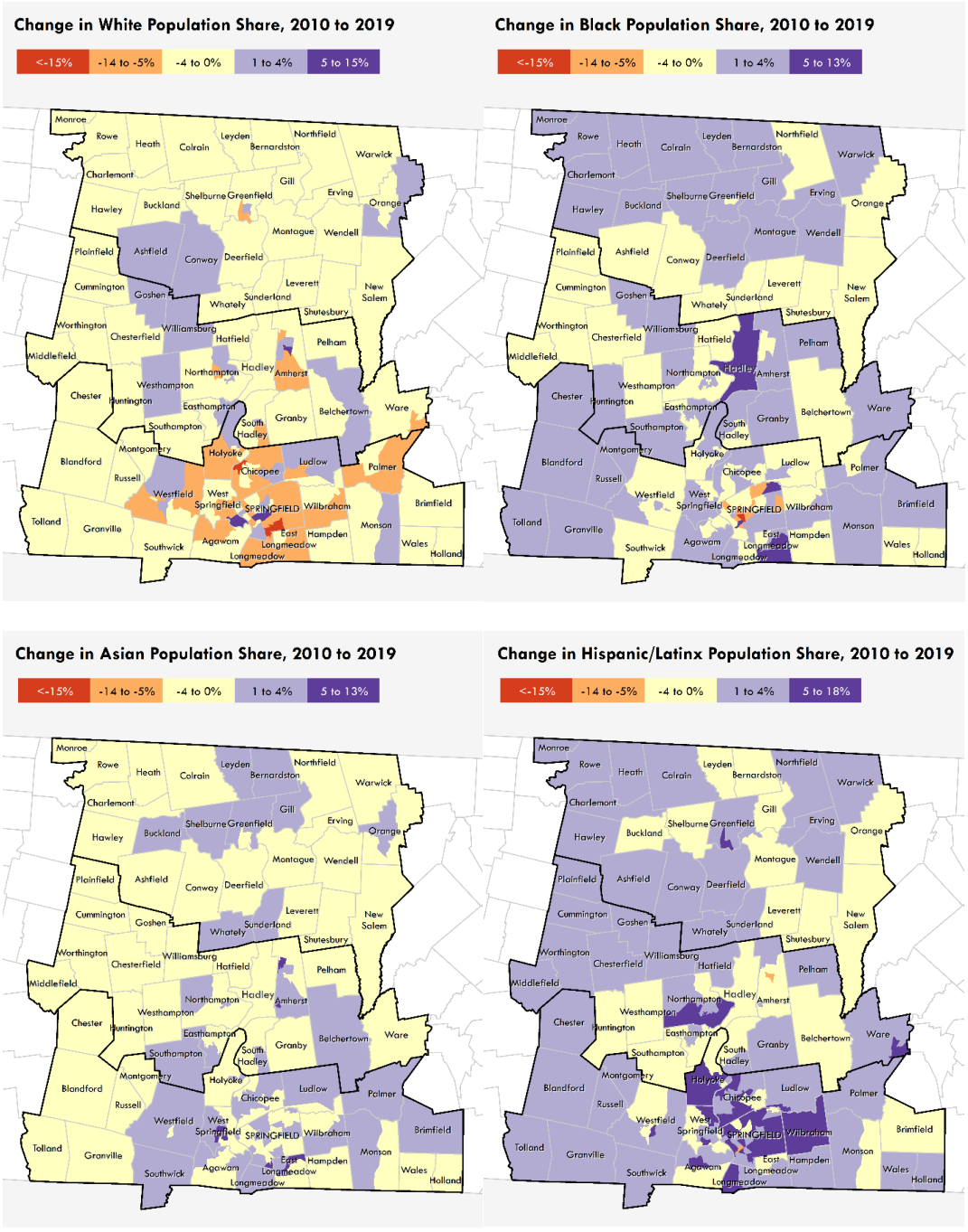


Source: U.S Census Bureau, ACS 2015-2019 5-Year Estimates, 2010 Decennial Census

The majority of tracts in the Pioneer Valley have white population shares over 90 percent. There are very few tracts that are less than half white, and all of them are contained within Springfield, Holyoke, and Chicopee. All the municipalities in the Pioneer Valley aside from Springfield have a black population share of ten percent or less. There are a significant number of municipalities, including some very near Springfield, that have a black population share of less than one percent. Springfield has the largest black population share in the Pioneer Valley, with some tracts that are between 20 and 40 percent black. Amherst is the only municipality in the region with an Asian population share over ten percent. The rest of the Pioneer Valley is split fairly evenly between municipalities with Asian population shares between one and ten percent, and those with a share less than one percent. The majority of the Pioneer Valley has a Hispanic/Latinx population share between one and ten percent. In Franklin and Hampshire Counties: Greenfield, Northampton, and Ware have tracts with Hispanic/Latinx populations above 11 percent. In Hampden County: Holyoke and Springfield have much higher Hispanic/Latinx population shares than the rest of the region. Large sections of both cities have Hispanic/Latinx population shares over 50 percent, and certain tracts over 90 percent.

While the Pioneer Valley in general has a high concentration of white residents, with all but 23 municipalities being over 91 percent white, these figures show that there are parts of the region that contain large population shares of Black and Hispanic/Latinx people. The fact that it is so unusual to find a value in these figures that is between 20 and 80 percent shows that Black and Hispanic/Latinx people are heavily represented within specific Census tracts and not well-represented elsewhere.

Figure 56. Tract Level Change in Population Share since 2010 by Race



Source: U.S Census Bureau, ACS 2015-2019 5-Year Estimates, 2010 Decennial Census

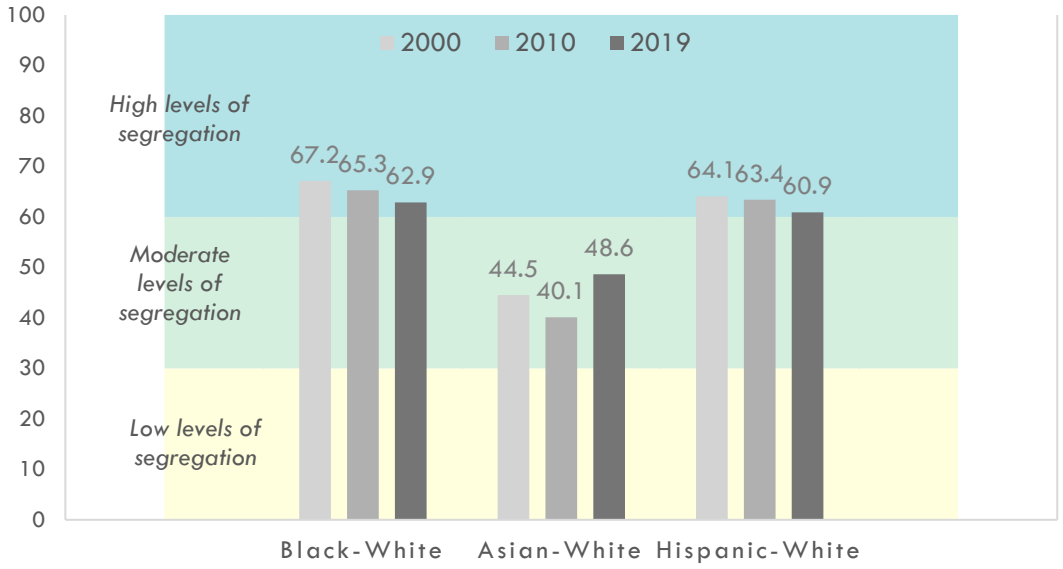
There has been little change in white population share in most of the region since 2010. Most changes outside of Springfield were an increase or decrease of less than five percentage points. There are decreases of over 15 percentage points in the white population share in sections of both Holyoke and Springfield. Springfield also contains tracts that experienced a 5-to-15 percentage point increase in the white population share. These shifts in white population share of equal magnitude in opposite directions may indicate that particular neighborhoods or sections of these municipalities are becoming more segregated as the white populations move into some neighborhoods and leave others. The majority of the region has experienced an increase in Black population share since 2010. Outside of Springfield and Hadley, the Black population share shifted less than five percentage points in all municipalities. Within Springfield there were larger changes, both increases and decreases, in Black population share. This indicates that the black population of Springfield lives mostly within certain neighborhoods. There are very few tracts in the region that experienced a change in Asian population share greater than four percentage points, either increase or decrease. Despite increases between five and 13 percentage points in some tracts in Greater Springfield, the Asian population share is still under ten percent of the total. The majority of the region has experienced an increase in Hispanic/Latinx population share since 2010. There are very few small areas of decrease greater than four percentage points. Greenfield, Northampton, Ware, And Greater Springfield all show notable increases of between five and 18 percentage points in Hispanic/Latinx population share. The trends in change over time do not indicate strong improvement in integration between racial groups. The majority of change was relatively small – between one and four percentage points – and where there are more dramatic shifts in population shares, they tended to be grouped together in a small area which could even mean further concentration within neighborhoods.

Dissimilarity Index, Pioneer Valley Region Level

Racial segregation in Massachusetts has declined somewhat over the past several decades but remains very high. Nationally, large metropolitan areas, including the Springfield Metropolitan Statistical Area (MSA--which in this case is the Pioneer Valley) are among the most segregated regions in the country. The Pioneer Valley's Black-white segregation is high and Hispanic-white segregation is one of the highest among all the nation's MSAs. One way to measure segregation is by evaluating the spatial distribution of different racial and ethnic groups within an area. The dissimilarity index is a measure of *evenness*, measuring whether one particular racial or ethnic group is distributed across census tracts in a city or region in the same way as another racial or ethnic group relative to the size of that particular population. It represents what percent of people would need to move to another place for all race groups to be evenly distributed throughout the region. This way of measuring evenness ultimately takes into account the relative size of racial and ethnic groups in a region and specifically considers how evenly that group is spread across the region. High dissimilarity index scores suggest less even spread and therefore are used as an indication that there is more segregation. It only be calculated at broad geographic levels (MSAs).

A high value on the dissimilarity index indicates that the two groups tend to live in different census tracts. Values range from 0 (complete integration) to 100 (complete segregation) with the value indicating the percentage of the racial/ethnic group that would need to move to be equally distributed. A value of 60 or greater is generally considered indicative of a very high level of segregation. It means that at least 60 percent of the members of the racial or ethnic minority group would need to move to a different census tract in order for the two groups to be equally distributed. Values of 40 to 50 are usually considered indicative of a moderate level of segregation, and values of 30 or below are considered to be relatively low.

Figure 57. Pioneer Valley Dissimilarity Index



Source: U.S Census Bureau, ACS 2015-2019 5-Year Estimates, 2010 and 2000 Decennial Census

Despite a modest decline over time, the dissimilarity index in the Pioneer Valley for Black-white and Hispanic-white segregation remains above 60, an indication of high segregation. This is largely because the vast majority of the region's people of color live in only a few tracts, implying that most areas in the region are racially homogenous, and do not evenly reflect the region's overall racial makeup. What this adds to the discussion of segregation in the Pioneer Valley is that it implies racial and ethnic segregation at the neighborhood level, within municipalities. The race maps clearly show the difference between municipalities in racial and ethnic population representation, but it is sometimes more difficult to see the clearly the differences within a municipality. This index shows that there are high levels of segregation at all levels of geography, and it is important to make efforts at a local, municipal, and regional scale in order to properly approach mitigating segregation.

Places and Levels of Opportunity (HUD Indices)

Place matters. The location of one's home corresponds with a wide range of opportunities that play an important role in residents' lives. Communities that provide access to high-quality education, a healthy and safe environment and sustainable employment increase the likelihood that residents will meet their full development potential, while the lack of opportunity associated with place can perpetuate poverty and social inequality. Low-income residents may remain in poverty due to low-performing educational systems, limited access to labor market opportunity, poor health, restricted transportation access, and networks limited to others in poverty. Often generational poverty, which is family poverty spanning more than one generation, is reinforced by lack of access to opportunity.

To support information on meeting its Affirmatively Furthering Fair Housing (AFFH) Rule of 2015, HUD shared several indices called opportunity indicators, to help jurisdictions assess how one neighborhood compares with another in each of five dimensions (poverty, education, employment, transportation, and health), and to identify whether there are significant disparities affecting people in particular racial and economic subgroups. The AFFH rule (24 C.F.R. § 5.152) defines "significant disparities in access to opportunity" as "substantial and measurable differences in access to educational, transportation, economic, and other opportunities in a community based on protected class related to housing."

The indices values range from 0 to 100 and are prepared for all census tracts in the U.S. Higher values for a particular demographic group within a census tract indicate a higher likelihood of "opportunity" within that measure. HUD publishes data for "opportunity indicator" in the following six categories:

- Labor Market Engagement Index (tract)
- Low Poverty Index (tract)
- Environmental Health Index (tract)
- Jobs Proximity Index (block group)
- School Proficiency Index (block group)
- Low Transportation Index (tract)
- Transit Trips Index (tract)

In order to evaluate these indices in an informative way, they will be discussed in three categories based on what aspect of the tract or block group they describe: the characteristics of people in the community ('person-based'), the characteristics of geography or place ('place-based'), and access to transportation.

Table 9 provides an overview of each of these HUD Opportunity Indices. As noted, a higher score signifies greater access to opportunity. Low index values represent challenging conditions, such as high proximity or exposure to others in poverty, high unemployment, lower educational attainment of households, low-scoring schools, elevated levels of air toxins, and remoteness from jobs and modes of transportation. Maps of the scores of each census tract areas in the Pioneer Valley in each of these individual indices follow.

Table 9. Understanding HUD Opportunity Indices

HUD Opportunity Index	Measures under Analysis	Interpretation (Index Values Range 0-100)
Low Poverty Index (Person)	Denotes the likelihood a neighbor is someone not in poverty to show possible networks with monetary resources	**High:** more likely that households in a neighborhood are *not* in poverty **Low:** less likely that households in a neighborhood *are* in poverty
Labor Market Engagement Index* **(Person)**	Estimates the local job market's engagement with households by combining educational attainment, unemployment and labor force participation equally	**High:** higher employment and human capital (education) in a neighborhood **Low:** lower employment and human capital (education) in a neighborhood
Jobs Proximity Index (Place)	Quantifies a block group's accessibility and distance to all job locations within the region per resident, with larger employment centers weighted more heavily	**High:** the better the access to employment opportunities for residents **Low:** the worse the access to employment opportunities for residents
Environmental Health Index (Place)	Measures the presence of air toxins for neighborhood-level risk factors associated with carcinogenic, respiratory and neurological threats to air quality	**High:** less exposure to air toxins in a neighborhood **Low:** more exposure to air toxins harmful to human health in a neighborhood
School Proficiency Index (Place)	Performance of schools in a given neighborhood, as measured by the performance of elementary school scores on standardized reading and math tests	**High:** higher performance of the school system in a neighborhood **Low:** lower performance of the school system in a neighborhood
Low Transportation Cost Index** **(Transportation)**	Evaluates household spending on all public and private transportation including cars, taxis, public buses, and trains	**High:** lower household spending on transportation in a neighborhood **Low:** higher household spending on transportation in a neighborhood
Transit Trips Index (Transportation)	Presents households' usage of public transit in a neighborhood, depends on both utilization and availability	**High:** more likely that households in a neighborhood utilize public transit **Low:** less likely that households in a neighborhood utilize public transit

Source: U.S. Department of Housing and Urban Development, Affirmatively Furthering Fair Housing Data and Mapping Tool (AFFH-T) Affirmatively Further Fair Housing Data and Mapping Tool February 2018 https://www.hudexchange.info/resource/4868/affh-raw-data/.

Notes:

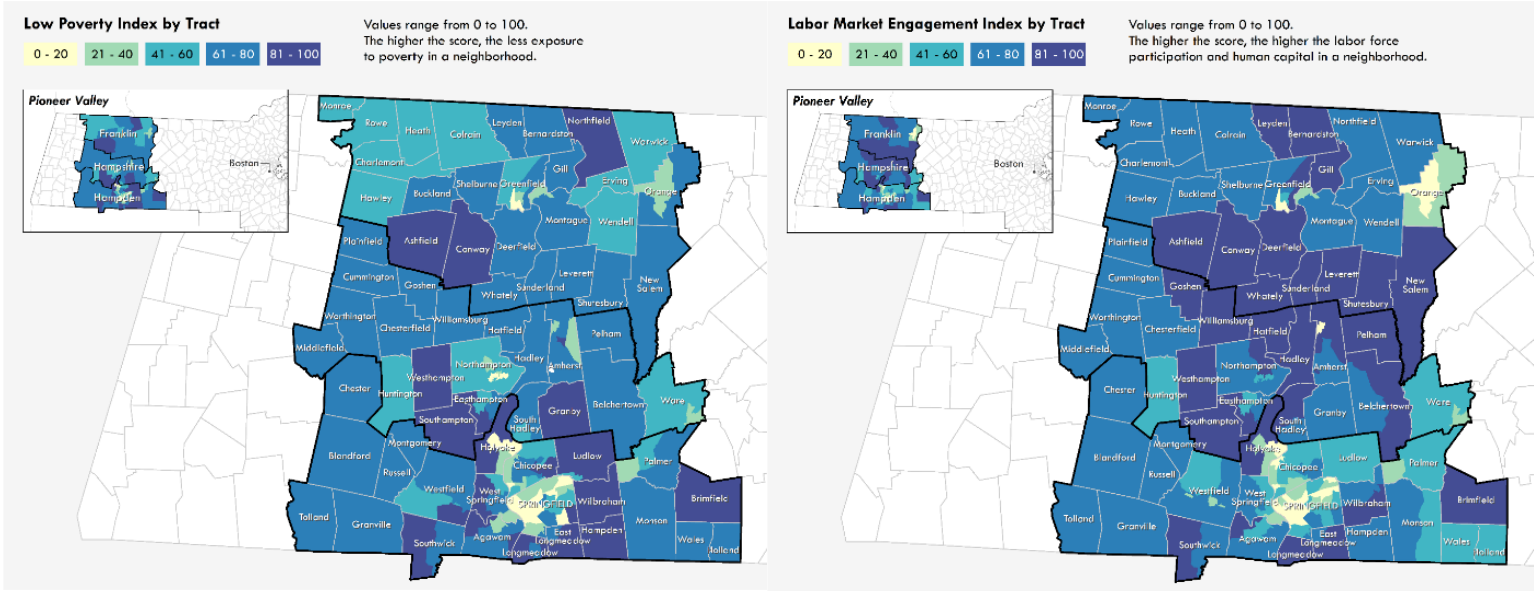
* Labor Market Engagement reflects the number of jobs locally available, the resources of the local population to complete higher education, and discrimination and participation in the job market

** Transportation costs may be low due to efficient transportation infrastructure or the heavy concentration of residences and employment opportunities in the neighborhood

Person-Based Opportunity

The two indices we will discuss in this category are the Labor Market Engagement Index and the Low Poverty Index. These indices give an idea about characteristics of the people in each tract. Both are reported at the tract level.

Figure 58. Low Poverty Index and Labor Market Engagement Index by Tract



Source: HUD, June 2020 Affirmatively Furthering Fair Housing Data and Mapping Tool, derived from 2010 Census data; UMDI mapping analysis.

The Labor Market Engagement Index is a three-way combination of educational attainment, unemployment rates, and labor force participation rates. These measures are weighted equally and are used to estimate the local job market's uptake of households, in other words employer's engagement with the local residents. A higher score indicates more employment and educational attainment in a tract. The Low Poverty Index measures how likely or unlikely it is for you to have neighbors in poverty. A high score means it's unlikely you will live near someone in poverty (regardless of if your own household is low income or not).

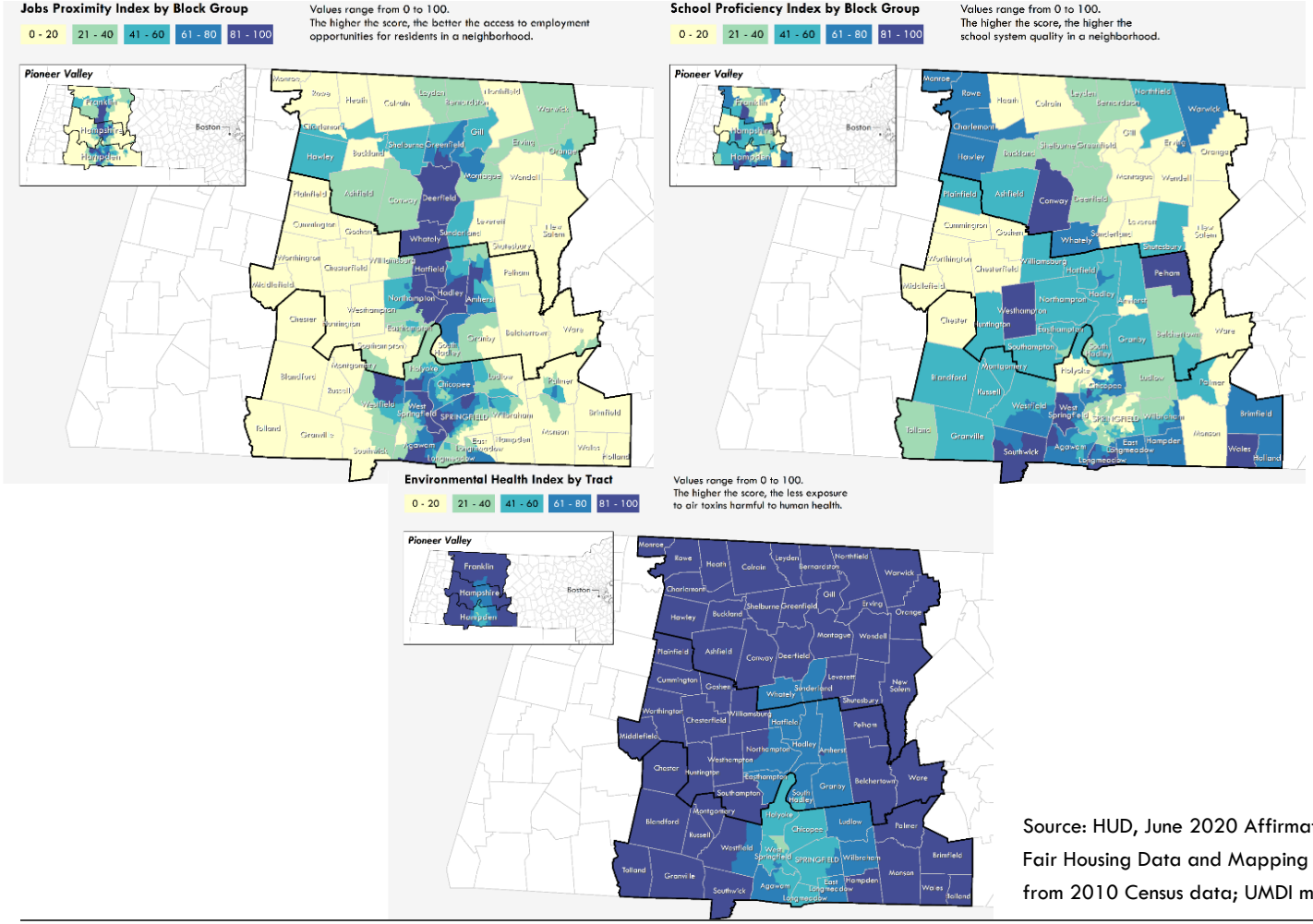
The majority of the Pioneer Valley shows high scores for this measure of employer's uptake of available workers. Most of the region mainly gets an index score in the highest two brackets, 61 to 80 and 81 to 100. Municipalities with high scores include both more affluent suburbs and less affluent rural areas, as well as some sections of specific cities. Strong exceptions where there are low labor market engagement scores, denoting low uptake in the labor market of the local residents, meaning that people in the neighborhood are not being hired at high rates, are notable in many of the larger urban centers, and some select rural areas. The lowest Labor Market Engagement Index scores are in Greenfield, Orange, Holyoke, and Springfield. There is a small part of Amherst with a very low Labor Market Engagement Index score, but that is likely due to the concentration of college students in that area of the town. The majority of the Pioneer Valley scores in the top two highest brackets of the Low Poverty Index, which means low incidence of poverty in those places. This is mainly in richer rural or suburban municipalities that also have high labor market engagement. The lowest scores (and highest poverty) are virtually exclusive to the urban centers of Greenfield, Northampton, Holyoke, and Springfield. This is likely because there tends to be better access to transportation, jobs, assistance, and naturally affordable and subsidized housing in these areas.

These indices follow a very similar trend, as Figure 56 shows. The lowest scores are especially correlated. They are clustered in neighborhoods of Greenfield, Holyoke, Springfield, and Orange for both indices. It makes sense that these two indices have a similar pattern. Lower educational attainment and higher unemployment rates, both of which are represented by the Labor Market Engagement Index, are correlated with lower incomes and therefore a higher likelihood of being in poverty, which would lower the score of the Low Poverty Index. The inverse is also true, so higher scores on both indices being located together also makes sense. When a community is underemployed, less income is available to its residents.

Location-Based Opportunity

The three indices we will discuss in this section are the School Proficiency Index, the Environmental Health Index, and the Jobs Proximity Index. The School Proficiency Index could have been grouped with the population characteristics indices, but we decided to discuss it here because people will often consider school performance when deciding where to live, so in that context it acts as an amenity of the location. The Jobs Proximity Index and the School Proficiency Index are reported at the block group level and the Environmental Health Index is reported at the tract level.

Figure 59. Jobs Proximity Index and School Proficiency Index by Block Group, and Environmental Health Index by Tract



Source: HUD, June 2020 Affirmatively Furthering Fair Housing Data and Mapping Tool, derived from 2010 Census data; UMDI mapping analysis.

The Jobs Proximity Index represents a block group's accessibility to nearby job locations. It quantifies the distance people in a neighborhood must travel to get to employment and employment centers. A high score indicates closer access to jobs. The Environmental Health Index measures risk factors associated with carcinogenic, respiratory, and neurological threats to air quality in a tract. Though it is called the Environmental Health Index, it only measures air quality as a proxy for overall environmental factors. A high score indicates better air quality in a tract. The School Proficiency Index measures school performance in a block group using elementary school scores on standardized reading and math tests. This is not a perfect measure as it only considers elementary schools and standardized tests, but it provides a comparable proxy across the region. A higher score indicates elementary school performing better on standardized test scores.

The majority of the Pioneer Valley has very low scores on the Jobs Proximity Index. This indicates that proportionate to the number of people living there, people live far from jobs outside of a very specific section of the Valley that runs along the Connecticut River north to south. The fact that the majority of places outside this job-rich area have relatively higher scores on the Labor Market Engagement Index suggests that many of the non-urban communities have proportionately very high concentrations of residents with cars who commute to jobs without public transportation, or in some cases that there is a higher concentration of retired residents. The highest Jobs Proximity Index scores are in Greenfield, Deerfield, Whately, Hatfield, Hadley, Northampton, Springfield and Holyoke, Westfield, and Agawam. Most of these municipalities are more urban or suburban with a city or town center that supports a more robust job market and allows for living near work. The more rural places with high scores (Deerfield, Whately, Hatfield, and Hadley) either share borders with an urban job center or are towns with few residents but have concentrated areas with large employers, such as Deerfield's Yankee Candle, and Route 9 in Hadley.

High and low scores on the HUD Environmental Health Index is closely associated with whether an area is urban, suburban, or rural. Not surprisingly, the Environmental Health Index scores were worse around the urban centers of Springfield, Holyoke, West Springfield, and Chicopee. It is important to note that the lowest scores and highest air toxin levels coincide with the largest populations of Black and Hispanic people, and those in poverty in the Pioneer Valley. Higher levels of air toxins correlate with lower rent prices. It is likely that this is a causal effect since air toxins have potential detrimental health effects for everyone, particularly children, so people may be disincentivized to live in places with more dangerous air pollution. The rural north and the east and west sides of the Pioneer Valley have much cleaner air.

The school proficiency index shows a more complex story than other indices, as shown in the scattered distribution of high and low scores around the Pioneer Valley. The scores have less of a clear geographic pattern and are not uneven across the Pioneer Valley, though the middle scores are most represented. Most of the lowest scores are represented in the more rural municipalities that likely have low populations of school age children, and low tax revenue to support school systems. Holyoke and Springfield also have low scores. In these cities there is a high population of low-income residents combined with a large total population. This implies lower tax support for a much higher student population. Lower income students are more likely to experience disruption or need to focus on life issues or supporting their families as they grow

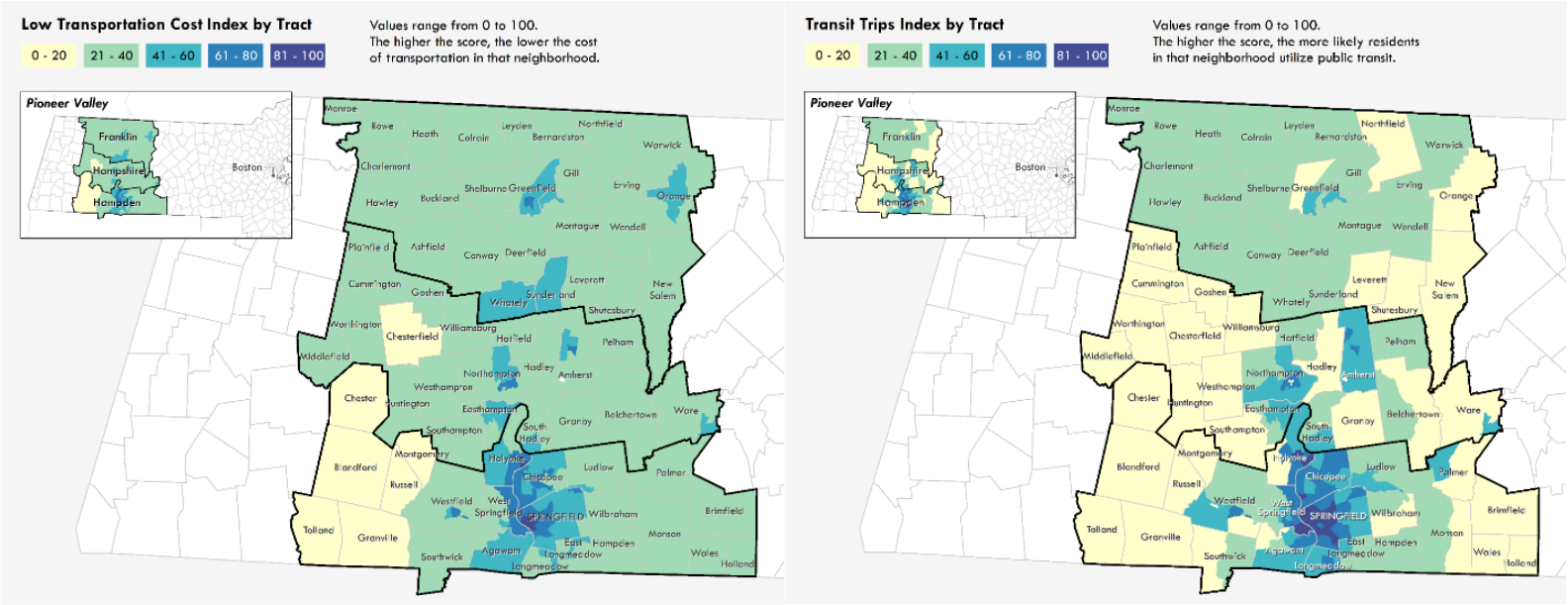
older. They are also more likely to live in place with less funding available per student. Low funding for schools and large populations of disrupted students contributes to a low index score, as do schools with more students who are learning English as a second language, particularly when those students' needs are not sufficiently met. Higher income communities with more revenue from property taxes that also have a population of school age children are most likely to have high scores, as represented by Pelham, Westhampton, and Conway.

These indices do not follow a similar pattern. There is some overlap between the lowest scores on the Jobs Proximity Index and the School Proficiency Index in the west side of Hampshire County and the southeast corner of Franklin County. There are very almost no tracts that have high scores on all of these indices, which means that when people are choosing where to live in the Pioneer Valley they tradeoff between proximity to job centers, high performing schools, and cleaner air.

Transportation Opportunity

The indices discussed in this section are the Low Transportation Cost Index and the Transit Trips Index. Both of these indices are reported at the tract level. Because they relate specifically to the use of public transportation and private transportation costs, they tend to vary together and also tend to differ from the other opportunity indices.

Figure 60. Low Transportation Cost Index and Transit Trips Index by Tract



Source: HUD, June 2020 Affirmatively Furthering Fair Housing Data and Mapping Tool, derived from 2010 Census data; UMDI mapping analysis.

The Low Transportation Cost Index evaluates spending on all forms of transportation, public and private, to measure how expensive transportation is in a tract. A higher score indicates *lower* spending on all forms of transportation. The Transit Trips Index assesses a tract's usage of mass public transport. It measures access and choice to use mass transit. A higher score indicates more usage of mass transit in a tract.

A large majority of the Pioneer Valley scores poorly, in the lowest or second lowest bracket, on the Low Transportation Cost Index. This means that it is relatively expensive to travel in most of the Valley. The fact that many of these municipalities score reasonably high on Labor Market Engagement and Low Poverty suggests that their populations have the means to commute to work at higher cost, or they are retired with enough money to live above the poverty line. Higher scores and lower transportation costs are mostly represented in urban areas, such as Greenfield, Holyoke, Chicopee, Springfield, West Springfield, and Agawam. This is probably due to wide availability to public transportation that is affordable. It makes sense that these areas would be more manageable for people living under the poverty line and at lower income levels because access to a car is less necessary.

Most of the Pioneer Valley has poor access to transit, so across most of the geography scores are within the two lowest brackets of the Transit Trips Index. This is mostly the more rural parts of the Valley where there are lower overall populations and little access to public transportation. Franklin County is the most rural county in the Pioneer Valley, and only parts of Greenfield and Montague score higher than 40 out of 100 on the index. Hampshire and Hampden Counties have more municipalities in the lowest bracket than Franklin County, but they also have more represented in the higher brackets. In Hampshire County, Amherst, Northampton, Easthampton, and South Hadley are in the middle and high brackets. Amherst and South Hadley are college towns, so it makes sense they would have better infrastructure for public transportation as many college students do not have access to cars. Northampton and Easthampton have larger populations and urban centers. In Hampden County Holyoke, Chicopee, Springfield, West Springfield, Agawam, and Longmeadow have most of the higher scoring tracts. These represent the largest population centers in the Pioneer Valley, so it makes sense that there would be good infrastructure for public transport. Lower income people will often choose to live in places with more access to public transportation because they do not always have the resources to support personal transportation. Black and Hispanic populations are disproportionately represented in the lower income brackets, so it makes sense that the largest representations of these populations are in municipalities with more public transport access. This is supported by Franklin Regional Council of Governments Senior Planner, Alyssa Larose: "Concentration of poverty and concentration of low-income housing is mainly found in the few communities that have the transit resources in our region."

There is a very similar pattern across these indices. The highest scores are contained mostly in Springfield, Holyoke, Chicopee, Northampton, Amherst, and Greenfield. Aside from Amherst these are urban centers that have good mass transit infrastructure. It makes sense that people living in these cities with access to mass transit would use it more often and that their transportation costs would be lower than those who must use a car. Amherst's multiple higher-education institutions and large student population causes more transit infrastructure and use of mass transit as students often do not have their own car.

Summary: Opportunity and Social Mobility in Community

There are many indicators that must all be taken into account when trying to understand the intricate effects of the housing market on the population of the Pioneer Valley. Segregation based on race and ethnic identity, income level, educational attainment level, and other demographic groupings is caused, and even measured, across several dimensions including cost of living, access to resources and transportation, availability of jobs, local and regional laws, historical prejudice and racism, and many other things. While it is not possible for us to understand the individual effects of all of these elements, we can consider the outcome and present possible reasons for differences in demographic representation and access to opportunity across the Pioneer Valley.

The opportunity data shows substantial crossover between the places with the lowest low poverty index and the places with the lowest environmental health index, perhaps because worse air quality makes an area less desirable to live in due to the increased risk of detrimental health effects, driving down prices. People living below the poverty line then bear this risk because that's where there are prices that they can afford. Low Poverty and low Environmental Health index scores also correlate with low home ownership rates. Although not everyone is interested in homeownership, it is a way to grow generational and familial wealth as the money you spend on housing is stored in the equity of the home, as opposed to renting where that money goes to another entity and the person living there no longer owns it. A comparatively low homeownership rate in an area may be due to high costs compared to income and/or the inability to obtain financing. This can perpetuate poverty through lifetimes and generations because people are not able to access an important strategy of building wealth, and must instead spend a large portion of their income on housing with no return. There is also an inverted relationship between these and high job proximity. This is likely due to the fact that people living near the poverty line need to live close to their jobs to reliably commute often without cars. This pattern of job proximity follows the geography of the Connecticut River valley and where jobs have historically been located. The density of the white population follows the same general pattern as these indices, meaning that white people are less likely to live in areas with more poverty, lower air quality, lower homeownership rates, and high job proximity. Previous data shows that white residents are more likely to have higher income and educational attainment levels than Black or Hispanic residents of the Pioneer Valley. This means that, on average, white residents have comparatively more choice for where to live because they can afford to live in places where they face higher costs of living for transportation (car ownership) and housing.

It is also clear looking at all the maps that individual effort from municipalities, while key to improving equal access to affordable housing for everyone, is not sufficient. There must be a coordinated effort across municipal boundaries so that everyone is contributing well to regional growth and access to opportunity of the region. One municipality is never going to be able to provide all the subsidized and naturally affordable housing, affordable transportation, job proximity, and other amenities needed in a region. If municipalities work together to create a network of transportation and housing development that allows everyone access in more places, there is a much higher chance that the housing shortage and segregation will be readdressed. Housing across communities contributes to their economic sustainability, tax base, and community wellbeing, for all cost levels of housing, including housing which is affordable.

Policy Intuitions

This report provides an extensive guide to how existing housing shortages, cost burden, and inequalities in the housing market persisted through the COVID pandemic. In many cases, these critical issues have been exacerbated by public health and economic effects, disproportionately felt in low and moderate-income communities. At the same time, the housing price pressures compared to local earning potential have affected almost all residents of the region. In some rural and urban areas, the cost of housing relative to job prospects has the potential to cause dramatic depopulation, eroding both the tax base and the presence of economically vital segments of the population. In suburban areas, housing pressure can cause prices to skyrocket as well and also threatens community wellbeing with stagnation and out-of-reach homes. Economic housing cost pressure has also resulted in extremely high present-day levels of segregation across the region. These housing-related challenges are increasing throughout the region and will need collaboration across municipal lines to create a secure, prosperous, and dynamic future for each city and town. To generate affordability across middle, moderate- and low-income households as the Pioneer Valley begins to rebuild in the wake of the pandemic, there are several policies that community stakeholders can work towards that could correct continuing and present-day issues in the housing market. Several angles of approach are needed at the same time: first to redress the current differences between price and affordability, and meanwhile to increase housing supply enough and at the right prices in varied places to 'build our way out of the problem'. In addition, because the place where one lives has become deeply linked with life chances, a broad view of housing will collaborate to build up town and neighborhood resources to bring opportunities to places where it has been underserved in critical resources including jobs employing local residents, clean air, infrastructure, transportation, and education. Specific policy intuitions for action to restore more equity include increased rent and construction resources as well as support to first time and lower-income buyers, shared regional building goals, infrastructure resources for roads and sewers in addition to broadband, increased state-level policy flexibility and resources, and updating each municipality's bylaws while reinvigorating resident support for inclusive regulations and growth, for the benefit of all our communities across the income spectrum:

Zoning and other policy reforms: Continued local zoning reform to allow more homes in more places across urban, suburban and rural communities, especially to allow higher density, multi-family structures and accessory dwelling units (known as ADUs, or in-law apartments). The housing choice legislation passed in 2021 is a step in the right direction. Development challenges in rural areas presents special challenges, needing additional support and flexibility related to infrastructure, just as building in urban areas requires flexibility due to space constraints. These challenges can hamper buildout, but local governance can lower the barriers to new residential construction. In addition to tailoring regulations to fit each place, articulating specific urban and rural needs can also help secure financial resources from Federal, state and other sources. In addition to local policy change, flexibility and continued and added resources from the state level will continue to be critical, including expanding the SNO Mass pilot everywhere, creating tailored Small Area Fair Market Rents for every location, and continued and increased rental support.

The areas must build more and employ shared goals. There is a housing cost crisis in the Pioneer Valley that demands local, state, and national attention. Middle income families in the majority of the Pioneer Valley's cities and towns cannot afford to buy a median-priced home where they live. In addition, at the same time the Pioneer Valley's residents account for 15 percent of the affordable rental need of the state overall. The simple price and income math in the region does not add up to a future that works for all residents across the income spectrum. Construction of additional 'naturally' affordable housing as well as deliberately affordable units for rent and for ownership in and outside the urban centers in each county is needed to maximize more affordability across all income levels, to make more communities accessible to a wider variety of people, to decrease regional segregation, and hopefully increase place-based opportunities to wider group of community members. Once built, continuation on and enhancements to first-time and lower-income homebuyers will also increase access.

It can sometimes be easier to build a large amount of 'naturally' affordable and subsidized housing in areas where the people who need it the most already live, but increasing access to opportunity also calls for wide-spread production in each community. Equally shared, each municipality needs to increase its amount of rental housing which costs under $500 by 18 percent to add to what exists in each city and town today. Housing units built outside the Pioneer Valley's urban core creates positive change in more expensive communities by preventing community decline in rural areas and economic stagnation of suburbs, meanwhile improving access to opportunity. As job centers and well-connected hubs, urban places also must meet this same need. Aging or economically-slowing communities will be able to reverse the shrinking of their local resources by revitalizing their businesses and tax base. Within urban centers, as well as rural and suburban areas, effort and resources to increase affordable rental housing, build naturally affordable homeownership opportunities, and meanwhile help low-income homeowners remain in place and maintain aging properties should be paired with ensuring unused properties are developed for housing with prices within reach[38] is essential. In some cities, the number of available urban lots is shrinking as the cities in the region are becoming more built up. Transforming the work of affordable housing into a regional effort more people can be housed in more places. A shared goal of 20 percent increases to affordable rental housing on the existing community base, while also building single family homes in the region in economic reach, represents the necessary level of shared effort to stop and reverse the housing cost pressures binding our local families and communities to less prosperous futures.

Continued construction of housing on different parts of the affordability spectrum is needed due to area income levels. As noted earlier, all but households in the highest income brackets see direct positive effects from accessible housing. People on the higher end of the income spectrum have more options for housing, but in some areas they are being housed in units that middle, moderate, and lower income individuals could afford or in larger units that might better fit larger households. By constructing a variety of sizes and prices of units, pressure can be taken off of units affordable to everyone, and the strong price increases

[38] There is growing concern about private companies buying properties in vulnerable places, converting them into rental properties run for investors. This phenomenon is worth tracking despite the challenges: definitive study would require case by case analysis of deed transfers. However, reassuringly, it seems it currently affects a small portion of most markets for now.

seen now which could stymie local growth can be mitigated. This is an 'everybody-in' imperative: middle income households are also in strong need of greater production across the Pioneer Valley.

Building a positive understanding of housing will be necessary to break new ground and secure the state and Federal resources needed for the task. Internal pressures and views will also need to be channeled constructively. New housing development can face local opposition and built on the incorrect idea that people who need affordable housing are not good neighbors, when in reality the people who need affordable housing already living in the area, have a wide variety of income levels, and are contributing parts of their community to both the tax base and the economy but are often struggling to get by in large part due to the high cost of housing. Housing costs are affecting people of middle and moderate income in addition to the need for low income housing. Furthermore, low-income residents have been proven to cause net positive effects on local taxes and businesses.[39] To ensure the region is on track to reversing the current cost trap, conversations must combat prior stigma of lower-cost, denser, and subsidized affordable housing particularly in single-family focused, higher income and less diverse parts of the Pioneer Valley.

Regional collaboration and action can combat segregation while strengthening community fabric for all members. Communities with low density, amenities, and/or higher prices building more 'naturally' affordable units as well as housing with help to be attainable, can help existing residents thrive and bring in new people who otherwise would never have had a chance to move to that area. Building affordable rental and single-family homes for ownership will relieve the market from the bottom and rebuild a system most are currently locked out of due to economic constraints. These policy approaches can build healthier communities in the Pioneer Valley that are livable, affordable, diverse and capable of continued growth through the coming decades.

At the same time, housing is not a singular issue it is the nexus of access to all aspects of place. In addition to rallying regionally around building local housing resources, interconnecting with other improvements to increase 'life chances' Valley-wide can create opportunity in-place and bring change to rural and suburban towns and urban neighborhoods in need. The opportunity data highlights the deep interrelationships between housing and jobs, transportation for access to jobs, access to quality elementary and secondary education, and air quality, while certainly there is more that is not measured. Improving economic access to housing everywhere will be of great economic benefit across the valley for households at all income levels, yet at the same time price-attainable housing in neighborhoods of choice, where people have established networks, can be met with new resources where it already is located. Bringing opportunity to all places and people not currently well-served with local hiring, workforce training, early education and care, elementary and secondary education, access to transportation across the valley, and environmental justice will increase opportunities and life chances for all of the Pioneer Valley's residents where they currently live.

[39] UMDI's 2010 study "Economic Contributions of Housing Permitted through Chapter 40B" found positive economic contribution in 2000-2010 from new housing permitted under Sections 20-23 of Chapter 40B of the Massachusetts General Laws.

Appendix A: Municipal-Level HUD Opportunity Index Tables

Municipal-Level HUD Opportunity Index Tables

Appendix A-1: Labor Market Engagement Index by Race and Municipality

Municipality	County	Total	White	Black	Asian/PI	Hispanic	Foreign Born	Limited English
Springfield	Hampden	24	36	21	28	15	23	15
Holyoke	Hampden	31	49	26	38	13	29	13
Northampton	Hampshire	42	42	38	40	38	43	42
Ware	Hampshire	42	42	36	43	34	41	40
Montague	Franklin	43	43	35	42	32	41	37
Greenfield	Franklin	47	48	39	43	41	40	33
Amherst	Hampshire	50	49	51	50	53	50	48
Orange	Franklin	50	50	46	60	44	70	71
Chicopee	Hampden	51	53	47	53	41	47	43
Monroe	Franklin	55	55	55	55	55	55	55
Rowe	Franklin	55	55	55	55	55	55	55
Heath	Franklin	55	55	55	55	55	55	55
Charlemont	Franklin	55	55	55	55	55	55	55
Hawley	Franklin	55	55	55	55	55	55	55
Colrain	Franklin	55	55	55	55	55	55	55
Huntington	Hampshire	56	56	56	56	56	56	56
Palmer	Hampden	56	56	57	61	57	52	43
Erving	Franklin	57	57	57	57	57	57	57
Wendell	Franklin	57	57	57	57	57	57	57
Warwick	Franklin	57	57	57	57	57	57	57
West Springfield	Hampden	61	64	49	54	49	50	49
Westfield	Hampden	63	64	60	62	57	59	57
South Hadley	Hampshire	64	64	67	70	65	70	68
Monson	Hampden	65	65	65	65	65	66	67
Leverett	Franklin	68	68	68	68	68	68	68
Shutesbury	Franklin	68	68	68	68	68	68	68
New Salem	Franklin	68	68	68	68	68	68	68
Sunderland	Franklin	68	68	68	68	68	68	68
Whately	Franklin	68	68	68	68	68	68	68

UMass Donahue Institute
Economic and Public Policy Research

Buckland	Franklin	68	68	68	68	68	68	68
Shelburne	Franklin	68	68	68	68	68	68	68
Easthampton	Hampshire	69	69	61	66	62	70	70
Goshen	Hampshire	70	70	70	70	70	70	70
Williamsburg	Hampshire	70	70	70	70	70	70	70
Agawam	Hampden	71	71	68	68	67	68	62
Gill	Franklin	71	71	71	71	71	71	71
Leyden	Franklin	71	71	71	71	71	71	71
Bernardston	Franklin	71	71	71	71	71	71	71
Holland	Hampden	71	71	71	71	71	71	71
Wales	Hampden	71	71	71	71	71	71	71
Chesterfield	Hampshire	71	71	71	71	71	71	71
Belchertown	Hampshire	71	72	71	71	70	71	68
Deerfield	Franklin	72	72	72	72	72	72	72
Hatfield	Hampshire	72	72	72	72	72	72	72
Plainfield	Hampshire	73	73	73	73	73	73	73
Cummington	Hampshire	73	73	73	73	73	73	73
Middlefield	Hampshire	73	73	73	73	73	73	73
Worthington	Hampshire	73	73	73	73	73	73	73
Hadley	Hampshire	77	77	77	77	77	77	77
Montgomery	Hampden	78	78	78	78	78	78	78
Russell	Hampden	78	78	78	78	78	78	78
Tolland	Hampden	78	78	78	78	78	78	78
Chester	Hampden	78	78	78	78	78	78	78
Granville	Hampden	78	78	78	78	78	78	78
Blandford	Hampden	78	78	78	78	78	78	78
Pelham	Hampshire	78	78	78	78	78	78	78
Southwick	Hampden	79	79	82	81	82	76	72
East Longmeadow	Hampden	81	81	80	80	78	82	81
Hampden	Hampden	81	81	81	81	81	81	81
Southampton	Hampshire	82	82	82	82	82	82	82
Conway	Franklin	83	83	83	83	83	83	83
Ashfield	Franklin	83	83	83	83	83	83	83
Longmeadow	Hampden	85	85	86	83	86	82	83
Ludlow	Hampden	85	85	86	83	84	78	76
Northfield	Franklin	86	86	86	86	86	86	N/A
Wilbraham	Hampden	87	87	85	86	86	86	84

Granby	Hampshire	90	90	90	90	90	90	90
Brimfield	Hampden	94	94	94	94	94	94	94
Westhampton	Hampshire	94	94	94	94	94	94	94

Appendix A-2: Jobs Proximity Index by Race and Municipality

Municipality	County	Total	White	Black	Hispanic	Asian/PI
Wales	Hampden	0	0	0	0	0
Holland	Hampden	0	0	0	0	0
Shutesbury	Franklin	1	1	1	1	1
Chester	Hampden	1	1	1	1	1
Plainfield	Hampshire	1	1	1	1	1
Worthington	Hampshire	1	1	1	1	1
Brimfield	Hampden	1	1	1	1	1
Blandford	Hampden	2	2	2	2	2
Chesterfield	Hampshire	2	2	2	2	2
New Salem	Franklin	3	3	3	3	3
Granville	Hampden	3	3	3	3	3
Cummington	Hampshire	3	3	3	3	3
Huntington	Hampshire	4	4	4	4	4
Leverett	Franklin	4	4	4	4	4
Russell	Hampden	4	4	4	4	4
Westhampton	Hampshire	5	5	5	5	5
Belchertown	Hampshire	6	6	6	6	6
Rowe	Franklin	7	7	7	7	7
Monson	Hampden	8	8	8	7	8
Goshen	Hampshire	8	8	8	8	8
Hampden	Hampden	8	8	8	9	8
Pelham	Hampshire	10	10	10	10	10
Colrain	Franklin	10	10	10	9	12
Northfield	Franklin	10	10	11	10	10
Ware	Hampshire	11	11	9	11	14
Tolland	Hampden	12	12	12	12	12
Southwick	Hampden	12	12	12	13	14
Wendell	Franklin	15	15	15	15	15
Montgomery	Hampden	17	17	N/A	17	17
Southampton	Hampshire	19	19	18	20	20

Erving	Franklin	23	23	23	23	23
Granby	Hampshire	25	25	21	24	25
Warwick	Franklin	25	25	N/A	25	25
Palmer city	Hampden	26	26	31	27	35
Conway	Franklin	26	26	26	26	26
Easthampton city	Hampshire	26	26	30	32	27
Buckland	Franklin	26	26	35	34	30
Wilbraham	Hampden	27	26	36	32	29
Ashfield	Franklin	27	27	26	26	27
Williamsburg	Hampshire	30	30	37	31	33
Orange	Franklin	30	30	30	31	31
East Longmeadow	Hampden	30	30	31	31	35
Longmeadow	Hampden	34	34	33	34	32
Bernardston	Franklin	34	34	35	34	35
South Hadley	Hampshire	35	34	45	36	50
Ludlow	Hampden	36	35	48	45	37
Westfield city	Hampden	37	37	37	41	38
Charlemont	Franklin	46	46	46	46	46
Shelburne	Franklin	50	50	53	48	46
Sunderland	Franklin	52	52	52	52	52
Holyoke city	Hampden	52	52	54	53	55
Montague	Franklin	56	55	60	58	53
Chicopee city	Hampden	57	56	58	59	56
Gill	Franklin	58	58	58	58	58
Agawam city	Hampden	60	60	68	61	64
Springfield city	Hampden	62	49	65	73	47
Amherst	Hampshire	69	69	74	72	67
West Springfield city	Hampden	72	70	85	84	82
Greenfield city	Franklin	75	75	77	76	77
Northampton city	Hampshire	81	80	86	85	83
Hatfield	Hampshire	84	84	84	85	84
Hadley	Hampshire	84	83	91	89	88
Deerfield	Franklin	95	95	95	94	94
Whately	Franklin	98	98	98	98	98

Appendix A-3: Low Poverty Index by Race and Municipality

Municipality	County	Total	White	Black	Asian/PI	Hispanic	Foreign Born	Limited English
Orange	Franklin	22	22	20	25	20	29	30
Springfield	Hampden	25	37	21	31	16	23	17
Holyoke	Hampden	33	49	29	39	17	31	15
Chicopee	Hampden	39	40	37	40	32	38	35
Palmer	Hampden	45	45	45	47	45	43	37
Ware	Hampshire	48	48	45	48	44	48	47
Montague	Franklin	48	49	41	48	38	46	43
Ludlow	Hampden	50	50	45	50	46	50	49
West Springfield	Hampden	51	53	44	45	42	41	41
Holland	Hampden	51	51	51	51	51	51	51
Wales	Hampden	51	51	51	51	51	51	51
Huntington	Hampshire	58	58	58	58	58	58	58
Amherst	Hampshire	59	59	57	58	65	61	61
Monson	Hampden	61	61	61	61	60	61	63
Monroe	Franklin	61	61	61	61	61	61	61
Rowe	Franklin	61	61	61	61	61	61	61
Heath	Franklin	61	61	61	61	61	61	61
Charlemont	Franklin	61	61	61	61	61	61	61
Hawley	Franklin	61	61	61	61	61	61	61
Colrain	Franklin	61	61	61	61	61	61	61
Westfield	Hampden	62	62	57	61	58	60	59
Erving	Franklin	62	62	62	62	62	62	62
Wendell	Franklin	62	62	62	62	62	62	62
Warwick	Franklin	62	62	62	62	62	62	62
Greenfield	Franklin	62	63	49	59	53	49	40
Agawam	Hampden	65	65	64	64	64	64	62
Montgomery	Hampden	66	66	66	66	66	66	66
Russell	Hampden	66	66	66	66	66	66	66
Tolland	Hampden	66	66	66	66	66	66	66
Chester	Hampden	66	66	66	66	66	66	66
Granville	Hampden	66	66	66	66	66	66	66
Blandford	Hampden	66	66	66	66	66	66	66
Chesterfield	Hampshire	68	68	68	68	68	68	68
Easthampton	Hampshire	70	70	65	68	66	71	71
Buckland	Franklin	72	72	72	72	72	72	72

Shelburne	Franklin	72	72	72	72	72	72	72
Southwick	Hampden	75	75	76	75	76	74	72
South Hadley	Hampshire	76	75	81	86	78	85	84
Northfield	Franklin	76	76	76	76	76	76	N/A
Granby	Hampshire	76	76	76	76	76	76	76
Plainfield	Hampshire	76	76	76	76	76	76	76
Cummington	Hampshire	76	76	76	76	76	76	76
Middlefield	Hampshire	76	76	76	76	76	76	76
Worthington	Hampshire	76	76	76	76	76	76	76
Hampden	Hampden	78	78	78	78	78	78	78
Northampton	Hampshire	78	78	78	81	75	83	79
Belchertown	Hampshire	82	82	82	82	81	82	80
Westhampton	Hampshire	82	82	82	82	82	82	82
East Longmeadow	Hampden	83	83	81	81	80	84	82
Gill	Franklin	83	83	83	83	83	83	83
Leyden	Franklin	83	83	83	83	83	83	83
Bernardston	Franklin	83	83	83	83	83	83	83
Southampton	Hampshire	83	83	83	83	83	83	83
Goshen	Hampshire	84	84	84	84	84	84	84
Williamsburg	Hampshire	84	84	84	84	84	84	84
Wilbraham	Hampden	84	85	82	84	83	84	81
Deerfield	Franklin	87	87	87	87	87	87	87
Brimfield	Hampden	87	87	87	87	87	87	87
Pelham	Hampshire	89	89	89	89	89	89	89
Hatfield	Hampshire	91	91	91	91	91	91	91
Sunderland	Franklin	92	92	92	92	92	92	92
Whately	Franklin	92	92	92	92	92	92	92
Leverett	Franklin	93	93	93	93	93	93	93
Shutesbury	Franklin	93	93	93	93	93	93	93
New Salem	Franklin	93	93	93	93	93	93	93
Longmeadow	Hampden	94	94	94	93	94	93	92
Conway	Franklin	94	94	94	94	94	94	94
Ashfield	Franklin	94	94	94	94	94	94	94
Hadley	Hampshire	94	94	94	94	94	94	94

Appendix A-4: Environmental Health Index by Race and Municipality

Municipality	County	Total	White	Black	Asian/PI	Hispanic	Foreign Born	Limited English
West Springfield	Hampden	52	53	46	51	48	51	50
Chicopee	Hampden	52	53	52	53	51	52	52
Springfield	Hampden	53	56	53	55	51	53	51
Holyoke	Hampden	54	53	53	53	54	53	54
Longmeadow	Hampden	57	57	56	57	56	58	58
Agawam	Hampden	61	61	60	60	61	60	59
South Hadley	Hampshire	61	61	64	66	62	66	64
East Longmeadow	Hampden	64	64	64	64	63	64	64
Ludlow	Hampden	66	66	68	66	68	66	66
Hadley	Hampshire	71	71	71	71	71	71	71
Granby	Hampshire	72	72	72	72	72	72	72
Wilbraham	Hampden	74	74	73	74	74	74	73
Easthampton	Hampshire	75	75	75	75	75	74	74
Hatfield	Hampshire	75	75	75	75	75	75	75
Northampton	Hampshire	77	77	76	75	76	76	77
Amherst	Hampshire	77	77	77	77	78	77	77
Sunderland	Franklin	80	80	80	80	80	80	80
Whately	Franklin	80	80	80	80	80	80	80
Westfield	Hampden	81	81	81	80	80	80	80
Southampton	Hampshire	82	82	82	82	82	82	82
Deerfield	Franklin	83	83	83	83	83	83	83
Hampden	Hampden	83	83	83	83	83	83	83
Montague	Franklin	84	84	84	84	83	84	84
Greenfield	Franklin	85	85	85	84	85	84	84
Southwick	Hampden	86	86	86	86	86	85	85
Gill	Franklin	86	86	86	86	86	86	86
Leyden	Franklin	86	86	86	86	86	86	86
Bernardston	Franklin	86	86	86	86	86	86	86
Belchertown	Hampshire	86	86	86	86	86	86	86
Palmer	Hampden	86	86	86	86	86	86	86
Northfield	Franklin	87	87	87	87	87	87	N/A
Erving	Franklin	87	87	87	87	87	87	87
Wendell	Franklin	87	87	87	87	87	87	87
Warwick	Franklin	87	87	87	87	87	87	87
Pelham	Hampshire	87	87	87	87	87	87	87

Leverett	Franklin	88	88	88	88	88	88	88
Shutesbury	Franklin	88	88	88	88	88	88	88
New Salem	Franklin	88	88	88	88	88	88	88
Monson	Hampden	88	88	88	88	88	88	88
Orange	Franklin	89	89	89	88	89	88	88
Ware	Hampshire	89	89	90	89	90	89	89
Holland	Hampden	91	91	91	91	91	91	91
Wales	Hampden	91	91	91	91	91	91	91
Brimfield	Hampden	91	91	91	91	91	91	91
Buckland	Franklin	92	92	92	92	92	92	92
Shelburne	Franklin	92	92	92	92	92	92	92
Conway	Franklin	93	93	93	93	93	93	93
Ashfield	Franklin	93	93	93	93	93	93	93
Goshen	Hampshire	93	93	93	93	93	93	93
Williamsburg	Hampshire	93	93	93	93	93	93	93
Montgomery	Hampden	94	94	94	94	94	94	94
Russell	Hampden	94	94	94	94	94	94	94
Tolland	Hampden	94	94	94	94	94	94	94
Chester	Hampden	94	94	94	94	94	94	94
Granville	Hampden	94	94	94	94	94	94	94
Blandford	Hampden	94	94	94	94	94	94	94
Huntington	Hampshire	94	94	94	94	94	94	94
Westhampton	Hampshire	94	94	94	94	94	94	94
Monroe	Franklin	95	95	95	95	95	95	95
Rowe	Franklin	95	95	95	95	95	95	95
Heath	Franklin	95	95	95	95	95	95	95
Charlemont	Franklin	95	95	95	95	95	95	95
Hawley	Franklin	95	95	95	95	95	95	95
Colrain	Franklin	95	95	95	95	95	95	95
Chesterfield	Hampshire	95	95	95	95	95	95	95
Plainfield	Hampshire	96	96	96	96	96	96	96
Cummington	Hampshire	96	96	96	96	96	96	96
Middlefield	Hampshire	96	96	96	96	96	96	96
Worthington	Hampshire	96	96	96	96	96	96	96

Appendix A-5: School Proficiency Index by Race and Municipality

Municipality	County	Total	White	Black	Hispanic	Asian/PI
Gill	Franklin	1	1	1	1	1
Orange	Franklin	2	2	3	2	2
Holyoke	Hampden	4	5	5	3	7
New Salem	Franklin	6	6	6	6	6
Wendell	Franklin	6	6	6	6	6
Ware	Hampshire	7	7	7	7	7
Colrain	Franklin	9	9	9	9	9
Montague	Franklin	9	9	10	11	7
Leverett	Franklin	11	11	11	11	11
Chesterfield	Hampshire	12	12	12	12	12
Cummington	Hampshire	12	12	12	12	12
Goshen	Hampshire	12	12	12	12	12
Chester	Hampden	16	16	16	16	16
Worthington	Hampshire	16	16	16	16	16
Erving	Franklin	17	17	17	17	17
Sunderland	Franklin	18	18	18	17	17
Monson	Hampden	19	19	19	19	19
Bernardston	Franklin	22	22	22	22	22
Springfield	Hampden	26	27	26	24	30
Greenfield	Franklin	28	28	27	28	28
Deerfield	Franklin	28	28	28	28	28
Ludlow	Hampden	29	29	30	29	29
Wilbraham	Hampden	35	35	30	32	32
Belchertown	Hampshire	36	36	35	34	34
Tolland	Hampden	36	36	36	36	36
Buckland	Franklin	39	39	39	39	39
Shelburne	Franklin	39	39	39	39	39
Chicopee	Hampden	40	40	34	37	38
Williamsburg	Hampshire	42	42	42	42	42
Northfield	Franklin	43	43	43	43	43
South Hadley	Hampshire	45	45	45	42	48
Ashfield	Franklin	46	46	46	46	46
Granby	Hampshire	46	46	46	46	46
Plainfield	Hampshire	46	46	46	46	46
Shutesbury	Franklin	46	46	46	46	46

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Economic and Public Policy Research

Southampton	Hampshire	46	46	47	47	46
Palmer	Hampden	47	46	49	47	47
Granville	Hampden	47	47	47	47	47
Russell	Hampden	47	47	47	47	47
Hatfield	Hampshire	47	47	44	46	49
Northampton	Hampshire	49	49	49	49	50
Amherst	Hampshire	49	49	51	51	50
Hadley	Hampshire	51	51	51	50	51
Easthampton	Hampshire	51	51	52	51	52
Blandford	Hampden	57	57	57	57	57
Huntington	Hampshire	57	57	57	57	57
Montgomery	Hampden	57	57	N/A	57	57
Westfield	Hampden	62	62	62	62	64
Holland	Hampden	63	63	63	63	63
Agawam	Hampden	63	64	59	63	61
East Longmeadow	Hampden	64	64	65	64	65
Warwick	Franklin	66	66	N/A	66	66
Hampden	Hampden	67	67	68	67	68
Charlemont	Franklin	70	70	70	70	70
Rowe	Franklin	70	70	70	70	70
West Springfield	Hampden	71	72	62	62	65
Whately	Franklin	75	75	75	75	75
Brimfield	Hampden	78	78	78	78	78
Longmeadow	Hampden	78	78	78	79	78
Southwick	Hampden	79	79	78	79	77
Pelham	Hampshire	82	82	82	82	82
Wales	Hampden	85	85	85	85	85
Conway	Franklin	95	95	95	95	95
Westhampton	Hampshire	97	97	97	97	97

Appendix A-6: Low Transportation Cost Index by Race and Municipality

Municipality	County	Total	White	Black	Asian/PI	Hispanic	Foreign Born	Limited English
Montgomery	Hampden	20	20	20	20	20	20	20
Russell	Hampden	20	20	20	20	20	20	20
Tolland	Hampden	20	20	20	20	20	20	20
Chester	Hampden	20	20	20	20	20	20	20
Granville	Hampden	20	20	20	20	20	20	20
Blandford	Hampden	20	20	20	20	20	20	20
Chesterfield	Hampshire	20	20	20	20	20	20	20
Brimfield	Hampden	22	22	22	22	22	22	22
Pelham	Hampshire	23	23	23	23	23	23	23
Westhampton	Hampshire	24	24	24	24	24	24	24
Plainfield	Hampshire	24	24	24	24	24	24	24
Cummington	Hampshire	24	24	24	24	24	24	24
Middlefield	Hampshire	24	24	24	24	24	24	24
Worthington	Hampshire	24	24	24	24	24	24	24
Holland	Hampden	26	26	26	26	26	26	26
Wales	Hampden	26	26	26	26	26	26	26
Conway	Franklin	27	27	27	27	27	27	27
Ashfield	Franklin	27	27	27	27	27	27	27
Hampden	Hampden	27	27	27	27	27	27	27
Monson	Hampden	27	27	27	27	27	26	25
Goshen	Hampshire	28	28	28	28	28	28	28
Williamsburg	Hampshire	28	28	28	28	28	28	28
Southampton	Hampshire	29	29	29	29	29	29	29
Gill	Franklin	30	30	30	30	30	30	30
Leyden	Franklin	30	30	30	30	30	30	30
Bernardston	Franklin	30	30	30	30	30	30	30
Leverett	Franklin	30	30	30	30	30	30	30
Shutesbury	Franklin	30	30	30	30	30	30	30
New Salem	Franklin	30	30	30	30	30	30	30
Huntington	Hampshire	30	30	30	30	30	30	30
Longmeadow	Hampden	31	31	30	31	30	32	34
Belchertown	Hampshire	31	31	31	31	32	31	33
Erving	Franklin	31	31	31	31	31	31	31
Wendell	Franklin	31	31	31	31	31	31	31

UMass Donahue Institute
Economic and Public Policy Research

Warwick	Franklin	31	31	31	31	31	31	31
Southwick	Hampden	31	31	31	31	31	32	32
Granby	Hampshire	32	32	32	32	32	32	32
Monroe	Franklin	33	33	33	33	33	33	33
Rowe	Franklin	33	33	33	33	33	33	33
Heath	Franklin	33	33	33	33	33	33	33
Charlemont	Franklin	33	33	33	33	33	33	33
Hawley	Franklin	33	33	33	33	33	33	33
Colrain	Franklin	33	33	33	33	33	33	33
Northfield	Franklin	34	34	34	34	34	34	N/A
Deerfield	Franklin	34	34	34	34	34	34	34
Palmer	Hampden	34	34	35	35	35	35	36
Hatfield	Hampshire	35	35	35	35	35	35	35
Ware	Hampshire	36	35	39	35	41	36	37
Hadley	Hampshire	36	36	36	36	36	36	36
Wilbraham	Hampden	37	37	37	37	37	37	37
Buckland	Franklin	39	39	39	39	39	39	39
Shelburne	Franklin	39	39	39	39	39	39	39
Sunderland	Franklin	41	41	41	41	41	41	41
Whately	Franklin	41	41	41	41	41	41	41
Ludlow	Hampden	41	41	38	42	40	44	45
Westfield	Hampden	41	41	42	44	47	47	50
East Longmeadow	Hampden	41	41	41	41	41	41	41
Orange	Franklin	42	42	42	41	42	40	40
South Hadley	Hampshire	42	42	40	38	41	38	38
Easthampton	Hampshire	46	46	48	47	49	47	46
Amherst	Hampshire	47	47	48	47	46	46	45
Agawam	Hampden	47	47	49	48	48	49	50
Montague	Franklin	48	48	51	48	53	49	50
Northampton	Hampshire	48	47	51	51	51	50	45
Greenfield	Franklin	51	51	54	55	54	53	57
West Springfield	Hampden	55	54	65	59	63	61	62
Chicopee	Hampden	58	57	59	57	63	59	61
Springfield	Hampden	62	56	62	60	67	63	68
Holyoke	Hampden	64	56	65	60	71	65	72

Appendix A-7: Transit Trips Index by Race and Municipality

Municipality	County	Total	White	Black	Asian/PI	Hispanic	Foreign Born	Limited English
Brimfield	Hampden	0	0	0	0	0	0	0
Plainfield	Hampshire	0	0	0	0	0	0	0
Cummington	Hampshire	0	0	0	0	0	0	0
Middlefield	Hampshire	0	0	0	0	0	0	0
Worthington	Hampshire	0	0	0	0	0	0	0
Holland	Hampden	9	9	9	9	9	9	9
Wales	Hampden	9	9	9	9	9	9	9
Southampton	Hampshire	10	10	10	10	10	10	10
Westhampton	Hampshire	11	11	11	11	11	11	11
Huntington	Hampshire	13	13	13	13	13	13	13
Leverett	Franklin	17	17	17	17	17	17	17
Shutesbury	Franklin	17	17	17	17	17	17	17
New Salem	Franklin	17	17	17	17	17	17	17
Montgomery	Hampden	17	17	17	17	17	17	17
Russell	Hampden	17	17	17	17	17	17	17
Tolland	Hampden	17	17	17	17	17	17	17
Chester	Hampden	17	17	17	17	17	17	17
Granville	Hampden	17	17	17	17	17	17	17
Blandford	Hampden	17	17	17	17	17	17	17
Goshen	Hampshire	17	17	17	17	17	17	17
Williamsburg	Hampshire	17	17	17	17	17	17	17
Orange	Franklin	17	17	17	17	17	16	16
Granby	Hampshire	18	18	18	18	18	18	18
Chesterfield	Hampshire	18	18	18	18	18	18	18
Wilbraham	Hampden	18	18	23	20	21	20	27
Northfield	Franklin	19	19	19	19	19	19	N/A
Hadley	Hampshire	19	19	19	19	19	19	19
Belchertown	Hampshire	20	20	20	21	22	20	23
Southwick	Hampden	21	21	20	21	20	22	24
Ware	Hampshire	22	21	28	21	30	22	24
Conway	Franklin	22	22	22	22	22	22	22
Ashfield	Franklin	22	22	22	22	22	22	22
Monson	Hampden	24	24	25	25	23	27	34
Pelham	Hampshire	24	24	24	24	24	24	24

Hatfield	Hampshire	24	24	24	24	24	24	24
Erving	Franklin	25	25	25	25	25	25	25
Wendell	Franklin	25	25	25	25	25	25	25
Warwick	Franklin	25	25	25	25	25	25	25
Buckland	Franklin	26	26	26	26	26	26	26
Shelburne	Franklin	26	26	26	26	26	26	26
Hampden	Hampden	26	26	26	26	26	26	26
Palmer	Hampden	27	27	26	23	26	28	32
Gill	Franklin	29	29	29	29	29	29	29
Leyden	Franklin	29	29	29	29	29	29	29
Bernardston	Franklin	29	29	29	29	29	29	29
Sunderland	Franklin	29	29	29	29	29	29	29
Whately	Franklin	29	29	29	29	29	29	29
Monroe	Franklin	35	35	35	35	35	35	35
Rowe	Franklin	35	35	35	35	35	35	35
Heath	Franklin	35	35	35	35	35	35	35
Charlemont	Franklin	35	35	35	35	35	35	35
Hawley	Franklin	35	35	35	35	35	35	35
Colrain	Franklin	35	35	35	35	35	35	35
East Longmeadow	Hampden	37	37	38	38	40	36	37
Ludlow	Hampden	38	39	32	40	34	42	41
Montague	Franklin	38	38	43	39	45	39	42
Westfield	Hampden	39	38	37	42	47	47	50
Deerfield	Franklin	40	40	40	40	40	40	40
Greenfield	Franklin	41	40	43	44	42	43	47
South Hadley	Hampshire	43	44	35	28	41	28	32
Easthampton	Hampshire	44	43	47	45	48	46	46
Northampton	Hampshire	46	47	42	39	46	43	45
Agawam	Hampden	49	49	53	51	50	51	53
Amherst	Hampshire	53	53	56	54	52	52	53
Longmeadow	Hampden	53	53	53	53	53	53	50
West Springfield	Hampden	62	61	70	67	70	70	71
Chicopee	Hampden	66	66	67	65	69	67	68
Holyoke	Hampden	67	56	70	64	78	66	78
Springfield	Hampden	76	70	77	76	81	77	80

Appendix B: Race and Ethnicity Share Trends by Census Tract

Appendix B-1: Race and Ethnicity Shares by Census Tract, 2019 and Change from 2010

Census Tract	Municipality	2019 SHARES				CHANGE IN SHARE FROM 2010			
		White *non-Hispanic*	Black *non-Hispanic*	Asian *non-Hispanic*	Hispanic /Latinx	White *non-Hispanic*	Black *non-Hispanic*	Asian *non-Hispanic*	Hispanic /Latinx
25013813204	Agawam	89.6%	1.9%	1.4%	4.5%	-5.9%	1.2%	0.4%	2.7%
25013813205	Agawam	92.5%	3.0%	0.0%	1.6%	-0.5%	1.8%	-1.4%	-1.9%
25013813206	Agawam	85.6%	1.2%	0.9%	11.6%	-7.6%	0.2%	-0.5%	8.4%
25013813207	Agawam	83.8%	1.6%	1.2%	9.7%	-5.8%	-0.2%	-1.4%	5.0%
25013813208	Agawam	87.3%	2.7%	5.9%	1.9%	-4.4%	1.2%	3.7%	-0.9%
25013813209	Agawam	91.4%	2.0%	2.0%	4.6%	-0.8%	0.2%	0.1%	1.7%
25015820300	Amherst	67.4%	6.0%	12.6%	8.9%	-5.0%	2.5%	-1.1%	2.4%
25015820400	Amherst	68.7%	3.4%	17.3%	7.6%	-6.4%	-1.7%	6.1%	2.6%
25015820500	Amherst	84.0%	0.2%	9.0%	4.5%	1.8%	-2.4%	2.8%	-1.6%
25015820600	Amherst	68.1%	8.1%	11.7%	7.2%	10.8%	-3.2%	-1.2%	-5.7%
25015820700	Amherst	67.6%	8.3%	11.1%	8.4%	-0.7%	3.5%	-1.9%	-1.3%
25015820801	Amherst	58.9%	8.4%	13.6%	7.7%	-8.5%	2.0%	2.8%	-3.3%
25015820802	Amherst	69.6%	6.6%	12.6%	7.8%	-9.9%	2.6%	7.3%	0.9%
25015820203	Belchertown	88.6%	0.9%	5.9%	1.8%	-2.6%	-0.4%	3.6%	-1.5%
25015820204	Belchertown	96.0%	0.1%	2.5%	0.9%	2.4%	-1.2%	0.8%	-0.8%
25013813802	Brimfield	92.0%	3.9%	0.5%	2.2%	-2.9%	3.1%	0.0%	0.0%
25011041502	Buckland and Shelburne	92.7%	1.4%	4.0%	0.5%	-3.1%	1.0%	3.0%	-0.4%
25015822605	Chesterfield	96.7%	0.0%	0.0%	2.6%	-0.6%	-0.1%	-0.4%	1.1%
25013810601	Chicopee	70.0%	4.5%	6.8%	17.5%	-12.3%	1.6%	4.6%	6.6%
25013810602	Chicopee	98.8%	0.5%	0.0%	0.3%	4.4%	-0.3%	-1.4%	-2.0%
25013810700	Chicopee	68.9%	5.0%	1.1%	21.5%	-14.2%	2.6%	-0.1%	10.1%
25013810800	Chicopee	68.0%	2.3%	0.0%	28.9%	-8.5%	-0.9%	-0.6%	10.9%
25013810901	Chicopee	48.5%	5.3%	1.5%	44.1%	-10.9%	1.0%	0.6%	12.0%
25013810902	Chicopee	69.9%	1.9%	0.4%	27.1%	-6.4%	-0.9%	-0.3%	8.5%
25013811000	Chicopee	85.0%	0.8%	3.7%	9.2%	-4.4%	-0.6%	2.6%	2.3%
25013811101	Chicopee	52.1%	7.1%	0.1%	38.4%	-15.9%	4.8%	-1.2%	11.6%
25013811102	Chicopee	55.9%	6.0%	5.4%	32.7%	-8.1%	3.1%	4.3%	2.3%

25013811200	Chicopee	85.4%	0.0%	2.7%	10.9%	-2.5%	-1.6%	1.0%	4.0%
25013811301	Chicopee	77.9%	3.9%	1.0%	17.2%	-7.5%	1.8%	-0.8%	7.9%
25013811302	Chicopee	75.9%	9.0%	3.7%	8.5%	-7.6%	2.8%	2.3%	1.1%
25011041501	Conway and Ashfield	95.6%	0.0%	0.3%	2.7%	0.4%	-0.2%	-0.3%	1.0%
25011040900	Deerfield	90.3%	2.8%	0.4%	3.9%	-3.0%	2.1%	-1.5%	1.4%
25013813401	East Longmeadow	87.9%	1.6%	6.5%	2.2%	-3.1%	-0.1%	3.7%	-0.8%
25013813403	East Longmeadow	85.2%	2.8%	8.9%	1.8%	-9.5%	2.0%	7.2%	-0.3%
25013813404	East Longmeadow	83.3%	8.0%	0.4%	6.2%	-10.2%	6.5%	-2.0%	4.5%
25015822300	Easthampton	92.6%	1.8%	0.0%	3.4%	1.6%	0.9%	-2.3%	-0.8%
25015822401	Easthampton	91.2%	0.0%	3.4%	1.6%	-2.9%	-0.6%	1.5%	-0.4%
25015822402	Easthampton	83.8%	4.0%	0.9%	8.8%	-4.7%	2.5%	-2.0%	3.7%
25011040400	Erving, Wendell and Warwick	92.2%	1.8%	0.3%	2.3%	-3.7%	1.4%	-0.2%	0.5%
25011040200	Gill, Leyden and Bernardston	95.7%	2.0%	1.1%	0.5%	-1.1%	1.6%	0.2%	-0.3%
25015822606	Goshen and Williamsburg	96.4%	0.7%	0.0%	3.0%	0.5%	0.4%	-0.7%	1.2%
25015820900	Granby	92.2%	1.0%	0.8%	3.9%	-3.0%	0.6%	-0.3%	1.8%
25011041000	Greenfield	86.9%	1.4%	2.1%	6.4%	-3.6%	0.2%	1.3%	1.3%
25011041100	Greenfield	92.9%	0.8%	2.2%	3.1%	-1.7%	0.1%	1.2%	0.8%
25011041200	Greenfield	88.7%	0.4%	1.8%	8.2%	-3.4%	-0.8%	0.6%	4.6%
25011041300	Greenfield	88.6%	2.2%	0.0%	5.7%	0.5%	0.7%	-1.9%	0.5%
25011041400	Greenfield	72.7%	5.4%	0.6%	18.7%	-10.2%	2.1%	-1.0%	9.8%
25015821400	Hadley	84.6%	7.9%	3.4%	2.3%	-4.9%	6.1%	-0.6%	-0.8%
25013813500	Hampden	93.9%	0.2%	0.7%	3.7%	-1.6%	-0.3%	-0.6%	2.3%
25015821500	Hatfield	95.4%	0.4%	0.3%	3.2%	-1.2%	-0.3%	-0.2%	1.8%
25013813801	Holland and Wales	94.8%	0.6%	0.0%	3.8%	-0.6%	-0.1%	-0.3%	1.8%
25013811400	Holyoke	3.4%	2.7%	0.0%	93.1%	-4.3%	1.7%	0.0%	2.9%
25013811500	Holyoke	4.3%	3.6%	0.0%	88.1%	-1.6%	0.8%	0.0%	-2.4%
25013811600	Holyoke	7.9%	2.6%	0.0%	89.0%	-1.7%	-0.3%	-0.5%	2.9%
25013811700	Holyoke	18.2%	0.2%	1.6%	79.0%	-6.6%	-1.4%	0.5%	7.9%
25013811800	Holyoke	33.5%	1.3%	0.2%	64.0%	-4.3%	-1.4%	-0.4%	6.9%
25013811900	Holyoke	84.4%	3.6%	1.2%	10.7%	0.1%	2.0%	-0.5%	-0.2%
25013812001	Holyoke	35.6%	4.6%	1.3%	57.5%	-7.1%	1.4%	0.1%	6.1%
25013812002	Holyoke	43.6%	3.9%	0.8%	49.9%	-9.1%	1.0%	-0.2%	7.4%

25013812101	Holyoke	83.5%	0.5%	0.0%	16.0%	-5.6%	-1.0%	-0.7%	8.8%
25013812103	Holyoke	34.0%	7.2%	0.0%	58.3%	-12.5%	3.7%	-1.8%	12.0%
25013812104	Holyoke	49.2%	1.9%	1.6%	43.3%	-7.8%	-0.4%	-0.1%	6.0%
25015822601	Huntington	95.7%	0.8%	0.0%	1.0%	-0.2%	0.6%	-0.1%	-0.9%
25011040600	Leverett, Shutesbury and New Salem	91.6%	0.4%	1.4%	2.2%	-0.1%	-0.9%	-0.1%	0.0%
25013813301	Longmeadow	85.8%	1.5%	3.2%	9.4%	-5.8%	0.4%	0.1%	6.7%
25013813303	Longmeadow	82.8%	0.3%	8.3%	5.8%	-7.6%	-0.5%	2.4%	3.8%
25013813304	Longmeadow	83.6%	0.7%	8.2%	3.3%	-6.0%	-0.4%	1.9%	1.4%
25013810403	Ludlow	84.8%	1.2%	0.0%	13.5%	-4.7%	-0.2%	-0.8%	7.8%
25013810404	Ludlow	92.1%	0.0%	0.0%	5.3%	-0.8%	-0.8%	-0.9%	1.4%
25013810412	Ludlow	89.0%	0.7%	2.2%	5.4%	-7.0%	0.3%	1.3%	3.9%
25013810414	Ludlow	84.6%	1.8%	1.2%	10.5%	0.9%	-3.2%	0.5%	0.8%
25011040100	Monroe, Rowe, Heath, Charlemont, Hawley and Colrain	95.1%	0.4%	0.5%	2.2%	-0.8%	0.0%	-0.2%	1.1%
25013813701	Monson	97.6%	0.9%	0.0%	1.0%	1.9%	0.1%	-0.7%	-0.9%
25013813702	Monson	94.7%	1.2%	0.9%	1.9%	-0.6%	0.5%	0.3%	0.2%
25011040701	Montague	84.0%	3.0%	0.1%	8.8%	-2.2%	1.6%	-0.6%	0.6%
25011040702	Montague	93.2%	1.0%	0.3%	0.2%	-1.2%	0.5%	-0.6%	-2.0%
25013813000	Montgomery, Russell, Tolland, Chester, Granville and Blandford	95.1%	0.7%	0.2%	2.2%	-1.5%	0.3%	-0.1%	0.5%
25015821601	Northampton	81.2%	1.9%	6.0%	7.2%	2.0%	-1.3%	-0.4%	-2.1%
25015821602	Northampton	80.1%	1.4%	1.5%	9.9%	-5.1%	-0.7%	-0.2%	1.3%
25015821700	Northampton	89.7%	2.1%	2.0%	4.2%	-1.3%	0.2%	0.2%	1.3%
25015821901	Northampton	82.4%	3.2%	4.9%	6.0%	-4.1%	0.9%	0.7%	2.1%
25015821903	Northampton	77.7%	4.5%	0.0%	13.1%	-2.7%	1.2%	-2.7%	1.7%
25015821904	Northampton	87.3%	1.6%	2.0%	5.6%	0.5%	0.0%	-0.9%	0.3%
25015822000	Northampton	69.8%	3.0%	14.2%	8.9%	3.9%	-3.6%	-0.6%	1.2%
25015822200	Northampton	84.8%	0.6%	0.6%	12.0%	-2.8%	-0.7%	-2.6%	6.2%
25011040300	Northfield	94.6%	0.3%	0.2%	4.1%	-1.5%	-0.2%	-0.1%	2.2%
25011040501	Orange	92.6%	0.5%	1.7%	2.9%	-0.6%	-0.7%	1.4%	-0.5%
25011040502	Orange	96.9%	0.7%	0.0%	2.0%	3.6%	0.0%	-1.7%	-0.1%
25013810100	Palmer	86.6%	2.3%	2.6%	4.0%	-7.2%	1.1%	1.5%	1.4%

25013810200	Palmer	93.1%	0.0%	1.9%	5.1%	-2.3%	-0.6%	1.5%	3.0%
25013810300	Palmer	84.9%	3.3%	0.9%	5.2%	-9.4%	2.3%	0.0%	2.8%
25015820202	Pelham	89.5%	4.4%	0.9%	3.3%	-2.0%	2.7%	-0.8%	0.2%
25015822700	Plainfield, Cummington, Middlefield and Worthington	96.0%	0.2%	0.8%	1.5%	-0.2%	-0.4%	-0.1%	0.4%
25015821000	South Hadley	85.8%	0.3%	3.6%	6.6%	-7.9%	-0.7%	2.4%	3.6%
25015821100	South Hadley	90.2%	1.0%	0.2%	7.8%	-0.3%	-0.4%	-1.5%	3.5%
25015821200	South Hadley	62.7%	5.6%	20.9%	5.2%	1.2%	-2.2%	1.9%	-1.4%
25015821300	South Hadley	87.4%	2.3%	2.3%	4.6%	-1.6%	0.8%	-0.7%	-0.1%
25015822500	Southampton	95.6%	0.4%	2.3%	0.0%	-0.9%	0.1%	1.8%	-1.5%
25013813101	Southwick	94.4%	0.1%	0.8%	2.3%	-1.1%	-0.6%	0.0%	0.6%
25013813102	Southwick	90.4%	0.0%	3.1%	5.4%	-3.8%	-1.1%	2.3%	2.8%
25013800101	Springfield	36.4%	24.4%	1.6%	33.2%	-12.7%	9.2%	0.0%	1.4%
25013800102	Springfield	32.2%	26.2%	2.3%	37.2%	-9.5%	10.3%	1.0%	-0.7%
25013800201	Springfield	38.6%	8.4%	4.4%	47.6%	-9.5%	-2.0%	2.6%	10.7%
25013800202	Springfield	49.2%	5.5%	0.7%	42.5%	-9.0%	-5.3%	-1.0%	15.6%
25013800300	Springfield	44.9%	10.0%	2.2%	36.7%	-1.6%	-0.7%	1.1%	-2.5%
25013800400	Springfield	34.4%	5.5%	0.5%	57.8%	-1.2%	-4.9%	-0.7%	7.3%
25013800500	Springfield	23.7%	4.0%	0.0%	69.8%	-5.9%	-5.2%	-1.7%	11.5%
25013800600	Springfield	1.2%	2.2%	0.0%	96.0%	-2.8%	-1.1%	-0.3%	5.6%
25013800700	Springfield	2.7%	11.4%	0.6%	85.2%	-1.4%	4.1%	0.2%	-2.3%
25013800800	Springfield	8.8%	8.6%	0.0%	82.1%	0.0%	-0.7%	-0.2%	1.0%
25013800900	Springfield	7.1%	10.0%	0.0%	82.5%	-5.5%	-3.0%	-0.9%	10.6%
25013801101	Springfield	11.8%	13.7%	0.8%	70.7%	-4.4%	0.0%	-1.5%	5.0%
25013801102	Springfield	24.7%	13.8%	3.1%	55.0%	-13.7%	-3.8%	1.1%	15.7%
25013801200	Springfield	10.9%	23.0%	0.2%	64.9%	-6.7%	3.1%	-0.5%	4.9%
25013801300	Springfield	12.6%	37.4%	0.5%	42.4%	-1.3%	-6.6%	0.1%	4.1%
25013801401	Springfield	10.1%	42.7%	3.9%	42.6%	0.9%	-1.6%	3.5%	-0.9%
25013801402	Springfield	23.4%	26.0%	3.2%	47.4%	-3.3%	-8.1%	-1.1%	15.6%
25013801501	Springfield	26.7%	31.6%	0.5%	34.0%	-6.1%	-1.4%	-0.8%	4.4%
25013801502	Springfield	20.0%	28.7%	4.7%	46.5%	-7.4%	-0.6%	3.8%	8.9%
25013801503	Springfield	34.3%	23.3%	2.0%	38.8%	-7.2%	1.8%	-0.2%	6.7%
25013801601	Springfield	56.6%	20.0%	1.5%	19.6%	-6.9%	0.8%	-0.8%	7.7%
25013801602	Springfield	51.0%	18.2%	1.9%	25.6%	-8.2%	0.4%	0.5%	6.6%
25013801603	Springfield	55.7%	8.2%	3.7%	30.1%	-6.5%	-7.5%	0.7%	13.9%

25013801604	Springfield	67.2%	10.4%	1.3%	16.8%	-9.2%	0.5%	-0.9%	7.6%
25013801605	Springfield	39.8%	22.1%	2.3%	32.1%	-13.4%	1.9%	-0.4%	11.1%
25013801700	Springfield	31.3%	36.7%	1.4%	29.0%	5.4%	-9.5%	0.6%	4.7%
25013801800	Springfield	14.0%	19.4%	0.1%	61.5%	5.2%	-21.4%	-0.1%	14.1%
25013801901	Springfield	9.8%	36.5%	1.2%	47.0%	-2.3%	12.3%	-0.1%	-12.8%
25013801902	Springfield	23.0%	10.8%	0.7%	62.1%	6.0%	-8.3%	-0.7%	2.2%
25013802000	Springfield	7.7%	10.0%	4.2%	77.8%	-5.6%	-2.6%	3.0%	6.3%
25013802100	Springfield	49.4%	12.0%	3.6%	33.4%	2.4%	-2.9%	0.8%	0.9%
25013802200	Springfield	20.1%	12.5%	6.5%	57.0%	1.6%	-5.8%	-1.8%	5.1%
25013802300	Springfield	13.1%	23.6%	6.5%	55.1%	-6.9%	4.7%	-2.0%	4.5%
25013802400	Springfield	66.2%	12.7%	2.3%	15.1%	-11.5%	4.9%	-1.8%	6.6%
25013802500	Springfield	52.5%	11.3%	8.3%	21.9%	-19.6%	1.7%	4.2%	9.7%
25013802601	Springfield	28.1%	19.8%	4.1%	46.9%	-15.4%	2.9%	-2.4%	16.3%
25013802602	Springfield	70.4%	8.1%	8.6%	11.2%	-12.3%	3.5%	5.2%	3.6%
25011040800	Sunderland and Whately	84.3%	0.8%	5.0%	4.5%	-3.7%	-1.2%	1.2%	0.5%
25015820101	Ware	93.5%	0.7%	0.4%	3.4%	-1.2%	0.0%	-0.3%	1.2%
25015820102	Ware	82.5%	2.3%	0.0%	14.6%	-5.4%	0.9%	-0.7%	7.7%
25013812201	West Springfield	72.6%	3.3%	4.8%	14.2%	-6.9%	0.1%	-0.8%	4.7%
25013812202	West Springfield	71.9%	3.5%	2.6%	20.1%	-2.3%	-3.3%	-2.0%	7.5%
25013812300	West Springfield	77.6%	2.0%	5.3%	13.9%	8.2%	-2.6%	-1.4%	-2.6%
25013812401	West Springfield	91.1%	2.7%	2.4%	0.9%	-3.1%	2.2%	0.5%	-1.4%
25013812403	West Springfield	82.3%	3.0%	0.0%	11.6%	-6.0%	1.0%	-3.2%	6.6%
25013812404	West Springfield	76.8%	2.7%	9.5%	7.3%	-10.3%	1.5%	5.4%	1.6%
25013812500	Westfield	78.1%	1.2%	5.6%	12.7%	-7.9%	-0.4%	4.3%	3.4%
25013812600	Westfield	89.3%	0.2%	2.4%	7.2%	-3.5%	-0.9%	0.8%	4.1%
25013812701	Westfield	81.1%	0.5%	0.3%	18.1%	-3.3%	-0.5%	-1.3%	7.1%
25013812702	Westfield	72.3%	2.4%	6.0%	19.1%	-5.1%	0.3%	3.6%	2.7%
25013812800	Westfield	93.3%	0.0%	1.1%	4.7%	1.9%	-0.8%	0.5%	-1.6%
25013812901	Westfield	93.4%	0.0%	0.9%	2.8%	0.7%	-0.4%	0.2%	-2.4%
25013812902	Westfield	89.2%	3.9%	2.4%	3.1%	-5.3%	3.2%	1.5%	0.1%
25013812903	Westfield	87.8%	5.6%	1.0%	5.2%	-2.2%	2.2%	0.2%	1.4%
25015822603	Westhampton	97.2%	0.0%	0.4%	1.8%	0.3%	-0.1%	-0.1%	0.0%
25013813601	Wilbraham	87.9%	1.4%	0.1%	10.6%	-3.0%	-1.1%	-2.1%	7.5%
25013813602	Wilbraham	81.8%	4.6%	2.0%	8.4%	-12.1%	3.4%	0.2%	6.2%

Appendix B-2: Race and Ethnicity Shares by Municipality, 2019 and Change from 2010

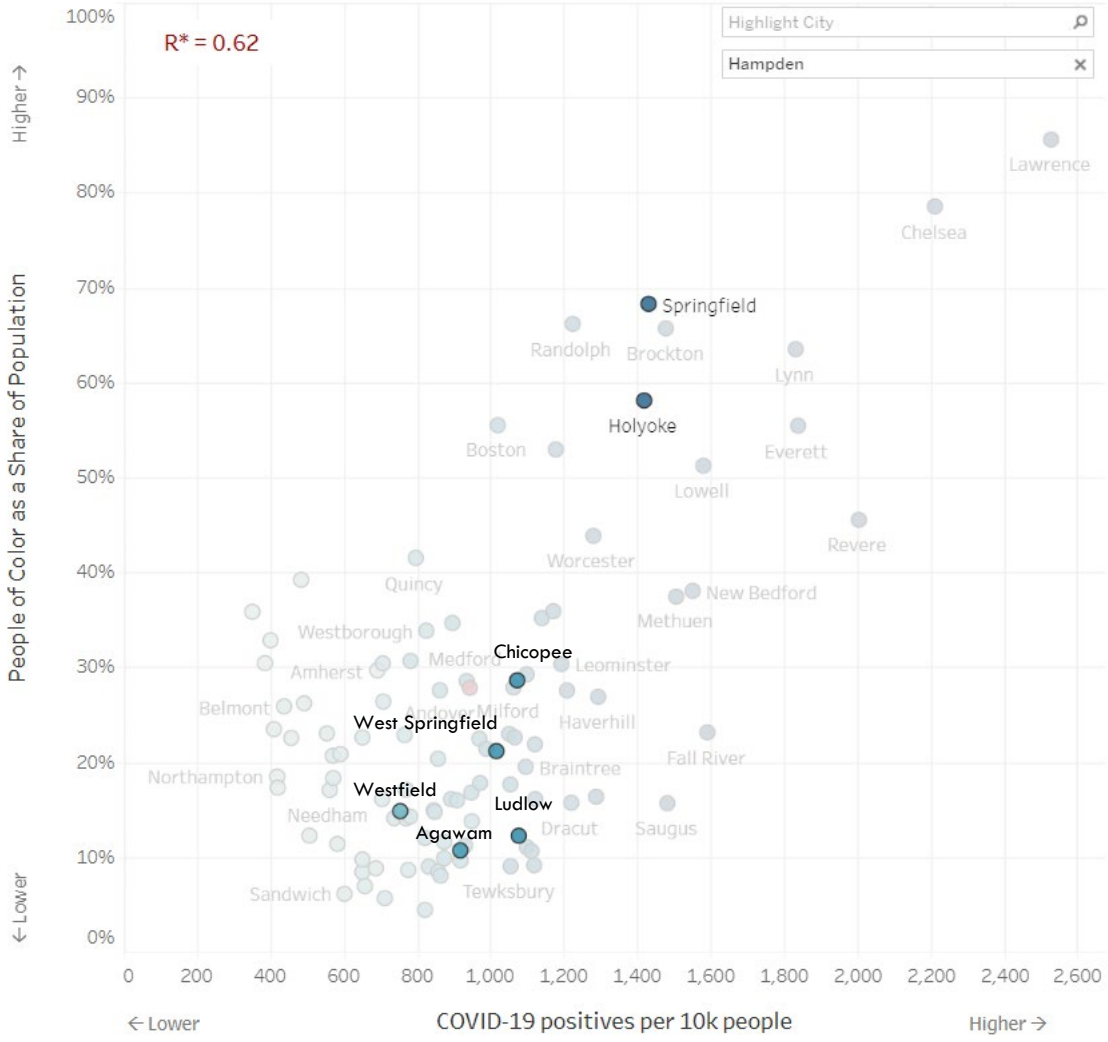
	2019 Shares				Change in Shares from 2010			
Municipality	White non-Hispanic	Black non-Hispanic	Asian non-Hispanic	Hispanic /Latinx	White non-Hispanic	Black non-Hispanic	Asian non-Hispanic	Hispanic /Latinx
Agawam	88.9%	2.1%	1.6%	5.4%	-3.5%	0.8%	-0.2%	2.1%
Amherst	69.4%	5.0%	13.5%	7.5%	-3.9%	0.2%	2.7%	0.2%
Ashfield	94.0%	0.1%	0.5%	2.7%	-1.0%	-0.3%	0.0%	0.9%
Belchertown	91.9%	0.6%	4.4%	1.4%	-0.3%	-0.7%	2.3%	-1.2%
Bernardston	99.0%	0.0%	0.0%	0.4%	1.8%	-0.2%	-0.5%	-0.4%
Blandford	97.2%	0.0%	0.0%	1.6%	0.0%	-0.3%	-0.3%	0.3%
Brimfield	92.0%	3.9%	0.5%	2.2%	-2.9%	3.1%	0.0%	0.0%
Buckland	90.2%	2.2%	4.9%	0.4%	-6.0%	1.9%	4.2%	-0.9%
Charlemont	91.7%	0.0%	0.9%	2.5%	-3.7%	-0.2%	0.1%	1.5%
Chester	99.0%	0.3%	0.0%	0.3%	0.8%	0.2%	-0.1%	-0.8%
Chesterfield	96.7%	0.0%	0.0%	2.6%	-0.6%	-0.1%	-0.4%	1.1%
Chicopee	71.2%	4.1%	2.4%	21.0%	-8.3%	1.4%	1.1%	6.1%
Colrain	97.0%	0.5%	0.0%	1.6%	1.2%	0.0%	-0.8%	0.9%
Conway	96.8%	0.0%	0.2%	2.6%	1.4%	-0.2%	-0.4%	1.2%
Cummington	96.4%	0.0%	0.6%	1.7%	-0.3%	-0.3%	0.5%	0.3%
Deerfield	90.3%	2.8%	0.4%	3.9%	-3.0%	2.1%	-1.5%	1.4%
East Longmeadow	85.3%	4.7%	4.4%	3.9%	-7.7%	3.3%	2.0%	1.6%
Easthampton	89.2%	1.9%	1.5%	4.5%	-2.2%	0.9%	-0.8%	0.9%
Erving	92.8%	1.4%	0.0%	2.9%	-3.2%	1.1%	-0.2%	1.2%
Gill	89.8%	5.5%	3.0%	0.6%	-6.1%	4.6%	1.7%	-0.2%
Goshen	94.3%	0.0%	0.0%	5.7%	-2.7%	-0.3%	-0.3%	4.6%
Granby	92.2%	1.0%	0.8%	3.9%	-3.0%	0.6%	-0.3%	1.8%
Granville	95.5%	0.0%	0.2%	3.6%	-0.8%	-0.3%	-0.1%	1.8%
Greenfield	86.9%	1.9%	1.3%	7.7%	-2.9%	0.4%	-0.1%	2.8%
Hadley	84.6%	7.9%	3.4%	2.3%	-4.9%	6.1%	-0.6%	-0.8%
Hampden	93.9%	0.2%	0.7%	3.7%	-1.6%	-0.3%	-0.6%	2.3%
Hatfield	95.4%	0.4%	0.3%	3.2%	-1.2%	-0.3%	-0.2%	1.8%
Hawley	91.6%	1.6%	3.0%	3.8%	-4.2%	1.3%	1.8%	2.3%
Heath	95.4%	0.0%	0.0%	2.4%	-0.9%	-0.4%	0.0%	1.0%

Holland	95.9%	0.8%	0.0%	2.5%	0.9%	0.2%	-0.4%	0.2%
Holyoke	41.3%	2.9%	0.6%	53.9%	-5.4%	0.5%	-0.4%	5.5%
Huntington	95.7%	0.8%	0.0%	1.0%	-0.2%	0.6%	-0.1%	-0.9%
Leverett	94.6%	0.3%	2.1%	1.2%	3.3%	-0.9%	0.5%	-0.9%
Leyden	99.2%	0.0%	0.0%	0.8%	1.7%	0.0%	-1.1%	-0.3%
Longmeadow	84.4%	0.9%	5.9%	6.8%	-6.3%	0.0%	1.2%	4.5%
Ludlow	87.3%	1.1%	1.0%	8.6%	-2.6%	-1.2%	0.2%	3.0%
Middlefield	94.4%	0.0%	1.2%	0.0%	-2.6%	0.0%	-0.9%	-0.4%
Monroe	100.0%	0.0%	0.0%	0.0%	5.0%	0.0%	-2.5%	-2.5%
Monson	95.9%	1.1%	0.5%	1.5%	0.4%	0.3%	-0.1%	-0.2%
Montague	88.9%	1.9%	0.2%	4.2%	-1.5%	1.0%	-0.6%	-1.0%
Montgomery	94.6%	0.5%	1.3%	1.4%	-1.5%	0.5%	0.9%	0.2%
New Salem	92.1%	0.0%	0.3%	0.4%	-3.3%	-0.1%	-1.8%	-0.6%
Northampton	82.2%	2.1%	3.3%	8.7%	-1.9%	-0.3%	-0.8%	2.0%
Northfield	94.6%	0.3%	0.2%	4.1%	-1.5%	-0.2%	-0.1%	2.2%
Orange	94.7%	0.6%	0.9%	2.5%	1.5%	-0.4%	-0.1%	-0.4%
Palmer	87.4%	2.1%	2.0%	4.5%	-6.9%	1.1%	1.1%	2.1%
Pelham	89.5%	4.4%	0.9%	3.3%	-2.0%	2.7%	-0.8%	0.2%
Plainfield	92.1%	0.3%	2.3%	3.9%	-3.1%	-1.9%	1.7%	2.5%
Rowe	96.8%	1.1%	0.0%	2.0%	0.1%	0.1%	0.0%	1.0%
Russell	89.5%	2.9%	0.0%	4.2%	-6.3%	2.2%	-0.3%	1.6%
Shelburne	95.6%	0.6%	2.9%	0.5%	0.2%	0.1%	1.6%	0.0%
Shutesbury	88.0%	0.7%	1.2%	4.4%	-2.0%	-1.3%	0.1%	1.3%
South Hadley	84.8%	1.8%	4.3%	6.4%	-2.6%	-0.4%	0.3%	2.1%
Southampton	95.6%	0.4%	2.3%	0.0%	-0.9%	0.1%	1.8%	-1.5%
Southwick	92.8%	0.1%	1.7%	3.5%	-2.2%	-0.8%	0.9%	1.4%
Springfield	31.2%	18.5%	2.5%	45.0%	-5.5%	-1.0%	0.2%	6.1%
Sunderland	79.5%	1.2%	6.9%	4.9%	-5.1%	-1.3%	1.8%	0.0%
Tolland	94.5%	0.0%	0.0%	0.4%	-0.1%	-1.2%	-0.2%	-0.9%
Wales	93.3%	0.3%	0.0%	5.5%	-2.5%	-0.6%	-0.2%	3.9%
Ware	89.3%	1.3%	0.2%	7.7%	-2.9%	0.4%	-0.5%	3.7%
Warwick	95.1%	0.0%	0.5%	2.0%	-1.6%	0.0%	-0.4%	1.0%
Wendell	88.2%	4.4%	0.8%	1.3%	-6.6%	3.2%	0.1%	-1.1%
West Springfield	79.6%	2.8%	4.0%	10.6%	-2.5%	-0.2%	-0.3%	1.9%

Westfield	85.0%	1.4%	2.8%	9.5%	-3.4%	0.1%	1.5%	2.0%
Westhampton	97.2%	0.0%	0.4%	1.8%	0.3%	-0.1%	-0.1%	0.0%
Whately	95.3%	0.0%	0.6%	3.5%	-0.9%	-0.8%	0.2%	1.7%
Wilbraham	85.3%	2.8%	0.9%	9.7%	-6.9%	0.8%	-1.1%	6.9%
Williamsburg	97.1%	0.9%	0.0%	2.0%	1.6%	0.6%	-0.8%	0.0%
Worthington	98.2%	0.3%	0.0%	0.7%	2.0%	0.2%	-1.0%	-0.5%

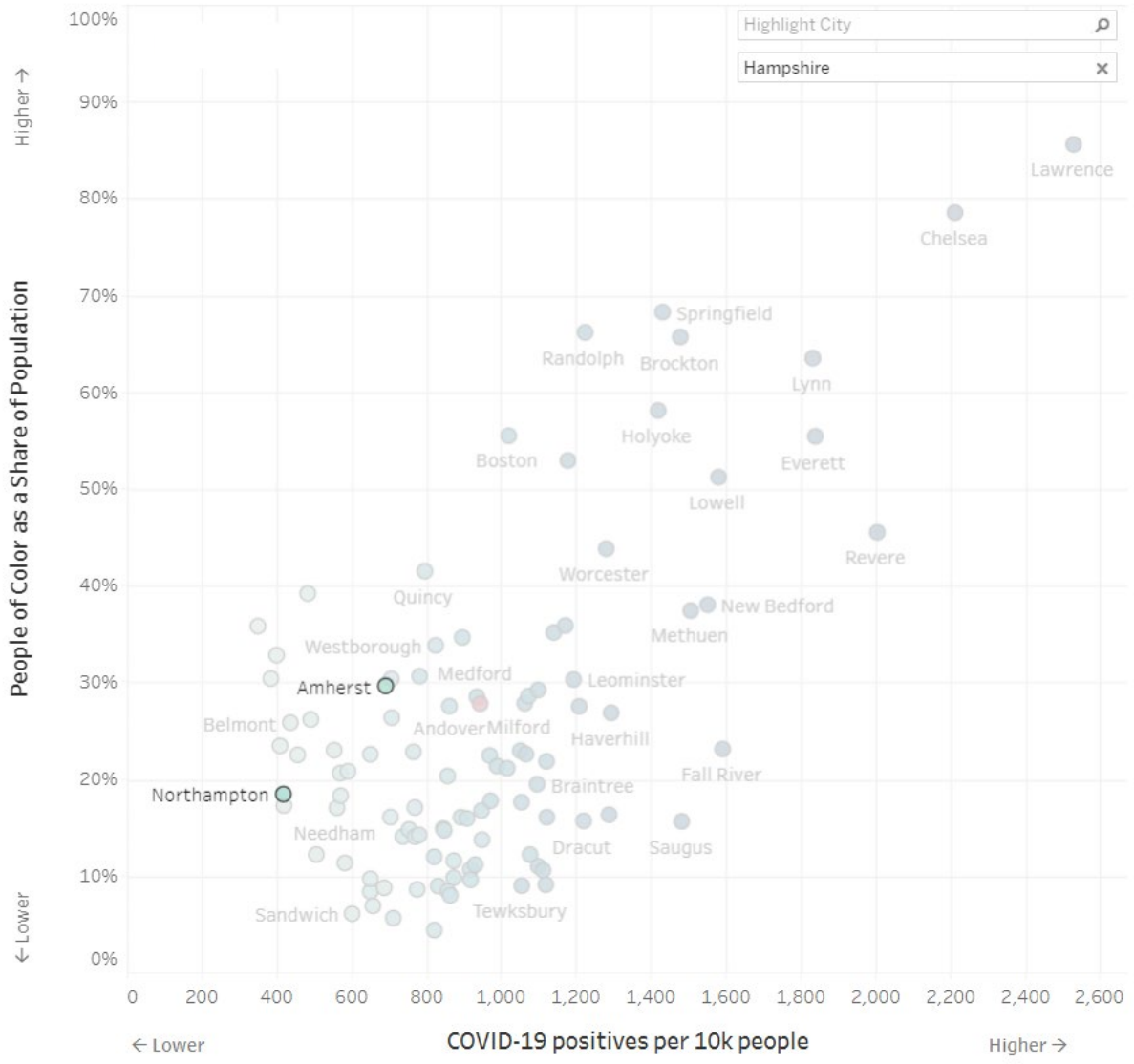
Appendix C: Positive COVID Tests by Municipality

Appendix C-1: Positive COVID Tests per 10,000 People by Share People of Color, Hampden County Focus



Source: Massachusetts DPH June 2021 COVID-19 Reporting Data, ACS 2019 5-Year Estimates, UMDI Analysis; * R is a measure of correlation, a correlation of 1 means perfect linear relationship, 0 means no relationship, and -1 denotes a perfect negative relationship. Cities in Hampden County are highlighted.

Appendix C-2: Positive COVID Tests per 10,000 People by Share People of Color, Hampshire County Focus



Source: Massachusetts DPH June 2021 COVID-19 Reporting Data, ACS 2019 5-Year Estimates, UMDI Analysis; Cities in Hampshire County are highlighted.

Appendix D: Projections Methodology

Household Projections Background Information and Methodology

When projecting future housing needs for a community, established projections methods tend to focus on households rather than housing units. UMDI's housing unit demand projections follow this general approach and also considers vacancies. This projection method draws on methods from two household projections performed for other organizations. For clarity, each occupied housing unit is considered a household, with one person in that household being identified as the head-of-household, or householder. As such, the number of housing units needed are modeled as equal to the number of households plus the number of vacant housing units.

UMDI's model of housing demand is based on population trends. There are other potential demand factors which this approach does not utilize: The development of individual physical housing units is subject to financial conditions, local land-use restrictions, and changes in desirability of certain communities. The desirability of a community to prospective homebuyers or renters itself is the function of employment opportunity, local amenities, public safety, and the quality of transportation infrastructure, and many other socioeconomic factors. It would be difficult to predict how any, let alone all, of these factors will change in the state or its constituent counties or municipalities in the coming years. Therefore this model leverages our existing UMDI population projections combined with data on current household formation patterns and vacancy rates to estimate the number of housing units which would be needed to house this future population, at least in the absence of a major shift in any of those trends.

The first step of UMDI's method first combines population by sex and age and tenure of homeowners by age from the 2014-2018 American Community Survey at the state, county, and municipal levels. Sex and tenure are not present in both datasets, so they are aggregated into two tables, population by age and householders by age. The age categories in the population by age table are then aggregated up to match the level of detail given in the householders by age table. Age groups younger than 16, the youngest age in the householders by age table, are dropped. From there, headship rates are calculated by age by dividing the number of householders in each age group by the number of total people in that age group for Massachusetts and all of its constituent counties and municipalities.

In some cases, the American Community Survey reported that there were zero householders, either homeowners or renters, within a certain age cohort. While some of those zeroes could be accurate (they tended to occur among younger age cohorts and in either very small communities or communities with very high housing costs), they also could be the result of data suppression, as the ACS does not report household-level data if there are less than three households that would fit that description in order to avoid identifying individuals according to the US Census Bureau, who UMDI contacted about this issue. In these cases, UMDI opted to use the midpoint between zero and two and assume one householder in cells showing zeroes.

The resulting headship rates are then applied to UMDI's population projections. Again, age and sex categories over the age of 16 were aggregated to match the age cohorts in the ACS householders by age table. Headship rates are then applied to projected population estimates by age at the state, county, and municipal levels.

To project housing units from households, the number of vacant units are estimated by taking the number of housing units, also from the 2014-2018 American Community Survey, and dividing the number of housing units by the number of households. Projected households for each age and year were then multiplied by this ratio. As in the case of headship rates, the assumption being made here is that vacancy rates in future years will be comparable to those observed in the 2014-2018 dataset.

UMDI county projections were then controlled to the state projection by calculating the each county's share of projected county-level housing unit demand and applying those shares to the state-level projection. A similar process was then followed for each of the municipalities within Massachusetts' counties. The logic for controlling smaller geographies to larger ones is that larger estimates for both projections and survey data are likely to be more robust. Controlling in this fashion also ensures internal consistency across geographical levels. County level results were then aggregated up to metropolitan statistical areas (MSAs). In cases where the MSAs crossed state lines, only the Massachusetts portions were included.

Appendix E: Cost Burden by Tenure

Housing Cost Burden by Tenure

Owned*	Percent of Units with 30% or more of Household Income Spent on Housing		Percent of Units with 50% or more of Household Income Spent on Housing	
	2010	2019	2010	2019
Massachusetts	36%	27%	14%	11%
Pioneer Valley	32%	25%	12%	9%
Franklin	34%	25%	12%	9%
Hampshire	29%	24%	9%	9%
Hampden	32%	25%	12%	10%

Rented	2010	2019	2010	2019
Massachusetts	51%	49%	26%	25%
Pioneer Valley	54%	54%	29%	28%
Franklin	49%	52%	28%	26%
Hampshire	52%	54%	28%	26%
Hampden	56%	55%	29%	28%

Source: ACS, 2006-2010, 2015-2019 5-Year Estimates, Table B25070 and B25091, *Owned units include all units, both with and without mortgages

While housing burden for rented households has remained mostly the same since 2010, a smaller share of Pioneer Valley households, both renters and owners are spending 50 percent or more of their income on housing costs than in 2010.

Appendix F: Movers

Appendix F-1: Most Common Destinations for Movers from the Pioneer Valley

	Movers to Pioneer Valley	Share of Total	Margin of Error
Pioneer Valley	65,035	71%	±2,846
Rest of Massachusetts	13,000	14%	±1,084
New York	2,847	3%	±570
Connecticut	2,825	3%	±551
California	932	1%	±299
Florida	887	1%	±311
Pennsylvania	749	1%	±276
New Jersey	646	1%	±249
New Hampshire	631	1%	±259
Maine	500	1%	±213
North Carolina	397	0%	±211

Source: IPUMS, 2015-2019 ACS PUMS 5-Year Estimates

Appendix F-2: Most Common Origins for Movers to the Pioneer Valley from Other Parts of Massachusetts

	People Moving to Pioneer Valley from MA	Share of Total	Margin of Error
Pioneer Valley	65,035	83%	±2,846
Rest of Massachusetts	**10,744**	**14%**	**±982**
Boston	986	1%	±330
Berkshires	733	1%	±229
Cape & Islands	537	1%	±224

Source: IPUMS, 2015-2019 ACS PUMS 5-Year Estimates

Appendix F-3: Net Movers to and From the Pioneer Valley, Rest of Massachusetts

	Net Movers	Margin of Error
Rest of Massachusetts	**4,891**	**±619**
Berkshires	436	±135
Cape & Islands	19	±158
Boston	-284	±229

Source: IPUMS, 2015-2019 ACS PUMS 5-Year Estimates

Appendix G: Frontline Occupations and Crowding by Race

Appendix G-1: Share of Workforce Employed in Frontline Occupations, by Race, Pioneer Valley

	Frontline	Not Frontline
White	40%	60%
Black	55%	45%
Hispanic/Latinx	56%	44%
Asian	42%	58%

Source: IPUMS, 2015-2019 ACS PUMS 5-Year Estimates
Note: 'Frontline Occupations' are defined with these SOC Categories: Building and Grounds Cleaning and Maintenance; Community and Social Assistance; Food Perpetration and Serving; Healthcare Practitioners; Healthcare Support; Protective Services; Sales and Related; Transportation and Material Moving. White, Black, and Asian are non-Hispanic/Latinx. Hispanic/Latinx can be of any race group.

Appendix G-2: Share of Workforce Employed in Frontline Occupations, by Race, Pioneer Valley

	Building and Grounds Cleaning and Maintenance	Community and Social Assistance	Food Preparation and Serving	Healthcare Practitioners	Healthcare Support	Protective Service Occupations	Sales and Related	Transportation and Material Moving	Not Frontline
White	3%	2%	5%	8%	4%	2%	9%	6%	60%
Black	3%	7%	4%	7%	14%	5%	7%	9%	45%
Hispanic/ Latinx	6%	3%	9%	4%	13%	2%	10%	9%	44%
Asian	4%	2%	12%	10%	3%	1%	8%	3%	58%

Source: IPUMS, 2015-2019 ACS PUMS 5-Year Estimates

Note: White, Black, and Asian are non-Hispanic/Latinx. Hispanic/Latinx can be of any race group.

Appendix G-3: Rate of Crowding by Race and Ethnicity, Pioneer Valley

	Percent of Households that are Crowded
White	0.8%
Black	4.1%
Asian	6.1%
Hispanic/Latinx	4.6%

Source: IPUMS, 2015-2019 ACS PUMS 5-Year Estimates
Note: White, Black, and Asian are non-Hispanic/Latinx. Hispanic/Latinx can be of any race group. Estimate is based on race/ethnicity of the head of household. Crowded is defined as having greater than 1 person per room.

Appendix H: Percent SHI

Share of All Housing Units That are Subsidized (Source: Mass.gov "Subsidized Housing Inventory (SHI)")

Community	County	2010 Census Year Round Housing Units	Total Development Units	Subsidized Housing Inventory (SHI) Units	% SHI
Ashfield	Franklin	793	2	2	0%
Bernardston	Franklin	930	22	22	2%
Buckland	Franklin	866	3	3	0%
Charlemont	Franklin	615	3	3	1%
Colrain	Franklin	731	0	0	0%
Conway	Franklin	803	0	0	0%
Deerfield	Franklin	2,154	33	33	2%
Erving	Franklin	778	0	0	0%
Gill	Franklin	591	24	24	4%
Greenfield	Franklin	8,325	1,301	1,284	15%
Hawley	Franklin	137	0	0	0%
Heath	Franklin	334	0	0	0%
Leverett	Franklin	792	2	2	0%
Leyden	Franklin	300	0	0	0%
Monroe	Franklin	64	0	0	0%
Montague	Franklin	3,926	407	375	10%
New Salem	Franklin	433	0	0	0%
Northfield	Franklin	1,290	27	27	2%
Orange	Franklin	3,461	410	410	12%
Rowe	Franklin	177	0	0	0%
Shelburne	Franklin	893	46	46	5%
Shutesbury	Franklin	758	4	4	1%
Sunderland	Franklin	1,718	183	183	11%
Warwick	Franklin	363	0	0	0%
Wendell	Franklin	419	5	5	1%
Whately	Franklin	654	4	4	1%
Agawam	Hampden	12,090	618	618	5%
Blandford	Hampden	516	0	0	0%
Brimfield	Hampden	1,491	59	59	4%
Chester	Hampden	585	3	3	1%
Chicopee	Hampden	25,074	2,662	2,623	11%
East Longmeadow	Hampden	6,072	532	464	8%

Granville	Hampden	630	0	0	0%
Hampden	Hampden	1,941	60	60	3%
Holland	Hampden	1,051	4	4	0%
Holyoke	Hampden	16,320	3,189	3,189	20%
Longmeadow	Hampden	5,874	276	276	5%
Ludlow	Hampden	8,337	292	292	4%
Monson	Hampden	3,406	120	120	4%
Montgomery	Hampden	337	0	0	0%
Palmer	Hampden	5,495	307	266	5%
Russell	Hampden	687	2	2	0%
Southwick	Hampden	3,852	131	131	3%
Springfield	Hampden	61,556	10,307	10,041	16%
Tolland	Hampden	222	0	0	0%
Wales	Hampden	772	25	25	3%
Westfield	Hampden	16,001	1,173	1,170	7%
West Springfield	Hampden	12,629	426	426	3%
Wilbraham	Hampden	5,442	306	305	6%
Amherst	Hampshire	9,621	1,262	1,215	13%
Belchertown	Hampshire	5,771	416	390	7%
Chesterfield	Hampshire	524	14	14	3%
Cummington	Hampshire	426	14	14	3%
Easthampton	Hampshire	7,567	1,036	537	7%
Goshen	Hampshire	440	0	0	0%
Granby	Hampshire	2,451	79	79	3%
Hadley	Hampshire	2,200	275	275	13%
Hatfield	Hampshire	1,549	47	47	3%
Huntington	Hampshire	919	32	32	4%
Middlefield	Hampshire	230	2	2	1%
Northampton	Hampshire	12,604	1,506	1,441	11%
Pelham	Hampshire	564	3	3	1%
Plainfield	Hampshire	283	0	0	0%
Southampton	Hampshire	2,310	44	44	2%
South Hadley	Hampshire	7,091	424	424	6%
Ware	Hampshire	4,539	363	363	8%
Westhampton	Hampshire	635	17	17	3%
Williamsburg	Hampshire	1,165	55	55	5%
Worthington	Hampshire	553	22	22	4%
Pioneer Valley		**284,127**	**28,579**	**27,475**	**10%**

Appendix I: Median Income, Median Rent, and Median Price

Appendix I-1: Median Family Income, Gross Rent, and Upfront Move-in Costs by Municipality

Municipality	Median Gross Rent (Annual)	Median Family Income (Annual)	Price-to-Income Ratio	First, Last and Security	Payment-to-Income Ratio
Agawam	$13,176	$92,404	14%	$3,294	4%
Amherst	$16,512	$95,101	17%	$4,128	4%
Ashfield	$9,744	$89,107	11%	$2,436	3%
Belchertown	$11,700	$105,997	11%	$2,925	3%
Bernardston	$10,596	$72,500	15%	$2,649	4%
Blandford	N/A	$91,667	N/A	N/A!	N/A
Brimfield	$8,436	$100,038	8%	$2,109	2%
Buckland	$10,440	$72,500	14%	$2,610	4%
Charlemont	$11,280	$67,000	17%	$2,820	4%
Chester	$12,480	$80,313	16%	$3,120	4%
Chesterfield	$14,400	$82,500	17%	$3,600	4%
Chicopee	$11,076	$64,570	17%	$2,769	4%
Colrain	$11,436	$70,938	16%	$2,859	4%
Conway	$13,500	$123,958	11%	$3,375	3%
Cummington	$10,260	$83,214	12%	$2,565	3%
Deerfield	$12,240	$101,801	12%	$3,060	3%
East Longmeadow	$11,340	$106,591	11%	$2,835	3%
Easthampton	$11,940	$84,216	14%	$2,985	4%
Erving	$9,300	$86,908	11%	$2,325	3%
Gill	$13,320	$75,417	18%	$3,330	4%
Goshen	$15,684	$106,719	15%	$3,921	4%
Granby	$10,116	$114,279	9%	$2,529	2%
Granville	$12,756	$91,667	14%	$3,189	3%
Greenfield	$11,112	$78,218	14%	$2,778	4%
Hadley	$15,024	$102,083	15%	$3,756	4%
Hampden	$13,452	$109,886	12%	$3,363	3%
Hatfield	$12,828	$89,861	14%	$3,207	4%
Hawley	$9,300	$83,750	11%	$2,325	3%
Heath	N/A	$64,306	N/A	N/A	N/A

Holland	$15,336	$90,774	17%	$3,834	4%
Holyoke	$10,056	$49,481	20%	$2,514	5%
Huntington	$11,280	$80,417	14%	$2,820	4%
Leverett	$16,716	$98,942	17%	$4,179	4%
Leyden	$19,128	$90,313	21%	$4,782	5%
Longmeadow	$16,236	$142,121	11%	$4,059	3%
Ludlow	$12,324	$86,864	14%	$3,081	4%
Middlefield	N/A	$74,886	N/A	N/A	N/A
Monroe	$11,052	$26,250	42%	$2,763	11%
Monson	$10,416	$107,708	10%	$2,604	2%
Montague	$11,016	$72,500	15%	$2,754	4%
Montgomery	N/A	$101,875	N/A	N/A	N/A
New Salem	$12,960	$71,563	18%	$3,240	5%
Northampton	$13,896	$96,973	14%	$3,474	4%
Northfield	$9,300	$93,261	10%	$2,325	2%
Orange	$10,740	$72,667	15%	$2,685	4%
Palmer	$11,544	$78,576	15%	$2,886	4%
Pelham	$17,748	$105,625	17%	$4,437	4%
Plainfield	$9,600	$73,056	13%	$2,400	3%
Rowe	$15,996	$76,250	21%	$3,999	5%
Russell	$12,120	$77,404	16%	$3,030	4%
Shelburne	$10,896	$87,708	12%	$2,724	3%
Shutesbury	$16,500	$98,958	17%	$4,125	4%
South Hadley	$12,156	$92,183	13%	$3,039	3%
Southampton	$10,836	$132,333	8%	$2,709	2%
Southwick	$13,260	$95,882	14%	$3,315	3%
Springfield	$10,524	$47,362	22%	$2,631	6%
Sunderland	$17,472	$66,862	26%	$4,368	7%
Tolland	$16,800	$120,313	14%	$4,200	3%
Wales	$9,804	$74,539	13%	$2,451	3%
Ware	$11,460	$78,769	15%	$2,865	4%
Warwick	$12,504	$75,000	17%	$3,126	4%
Wendell	$11,460	$71,250	16%	$2,865	4%
West Springfield	$10,536	$73,658	14%	$2,634	4%
Westfield	$11,628	$86,843	13%	$2,907	3%
Westhampton	$14,052	$100,375	14%	$3,513	3%
Whately	$18,900	$86,964	22%	$4,725	5%
Wilbraham	$7,992	$121,766	7%	$1,998	2%

Williamsburg	$12,720	$107,500	12%	$3,180	3%
Worthington	$9,888	$91,667	11%	$2,472	3%

Source: 2019 ACS 5-Year Estimates, Table S1903, S1901& B25064; The Warren Group 2020

Appendix 1-2: Median Family Income, Median Home Price, and Down Payments by Municipality

Municipality	Median Home Price	Median Family Income (Annual)	Price-to-Income Ratio	Down Payment (20%)	Payment-to-Income Ratio
Agawam	$230,322	$92,404	249%	$46,064	50%
Amherst	$375,000	$95,101	394%	$75,000	79%
Ashfield	$283,080	$89,107	318%	$56,616	64%
Belchertown	$316,000	$105,997	298%	$63,200	60%
Bernardston	$249,500	$72,500	344%	$49,900	69%
Blandford	$225,000	$91,667	245%	$45,000	49%
Brimfield	$276,500	$100,038	276%	$55,300	55%
Buckland	$230,500	$72,500	318%	$46,100	64%
Charlemont	$178,750	$67,000	267%	$35,750	53%
Chester	$120,950	$80,313	151%	$24,190	30%
Chesterfield	$296,888	$82,500	360%	$59,378	72%
Chicopee	$210,000	$64,570	325%	$42,000	65%
Colrain	$198,900	$70,938	280%	$39,780	56%
Conway	$283,500	$123,958	229%	$56,700	46%
Cummington	$201,600	$83,214	242%	$40,320	48%
Deerfield	$301,400	$101,801	296%	$60,280	59%
East Longmeadow	$297,250	$106,591	279%	$59,450	56%
Easthampton	$285,000	$84,216	338%	$57,000	68%
Erving	$177,450	$86,908	204%	$35,490	41%
Gill	$292,250	$75,417	388%	$58,450	78%
Goshen	$225,000	$106,719	211%	$45,000	42%
Granby	$230,000	$114,279	201%	$46,000	40%
Granville	$240,000	$91,667	262%	$48,000	52%
Greenfield	$214,000	$78,218	274%	$42,800	55%
Hadley	$395,000	$102,083	387%	$79,000	77%
Hampden	$285,000	$109,886	259%	$57,000	52%
Hatfield	$307,450	$89,861	342%	$61,490	68%
Hawley	$320,000	$83,750	382%	$64,000	76%

Heath	$152,500	$64,306	237%	$30,500	47%
Holland	$237,000	$90,774	261%	$47,400	52%
Holyoke	$205,050	$49,481	414%	$41,010	83%
Huntington	$197,345	$80,417	245%	$39,469	49%
Leverett	$352,500	$98,942	356%	$70,500	71%
Leyden	$302,500	$90,313	335%	$60,500	67%
Longmeadow	$348,500	$142,121	245%	$69,700	49%
Ludlow	$235,000	$86,864	271%	$47,000	54%
Middlefield	$222,500	$74,886	297%	$44,500	59%
Monroe	$142,500	$26,250	543%	$28,500	109%
Monson	$255,000	$107,708	237%	$51,000	47%
Montague	$200,000	$72,500	276%	$40,000	55%
Montgomery	$281,000	$101,875	276%	$56,200	55%
New Salem	$240,000	$71,563	335%	$48,000	67%
Northampton	$315,000	$96,973	325%	$63,000	65%
Northfield	$229,450	$93,261	246%	$45,890	49%
Orange	$185,000	$72,667	255%	$37,000	51%
Palmer	$200,000	$78,576	255%	$40,000	51%
Pelham	$370,000	$105,625	350%	$74,000	70%
Plainfield	$251,000	$73,056	344%	$50,200	69%
Rowe	$98,950	$76,250	130%	$19,790	26%
Russell	$230,000	$77,404	297%	$46,000	59%
Shelburne	$350,000	$87,708	399%	$70,000	80%
Shutesbury	$282,450	$98,958	285%	$56,490	57%
South Hadley	$250,038	$92,183	271%	$50,008	54%
Southampton	$317,500	$132,333	240%	$63,500	48%
Southwick	$264,000	$95,882	275%	$52,800	55%
Springfield	$190,000	$47,362	401%	$38,000	80%
Sunderland	$310,750	$66,862	465%	$62,150	93%
Tolland	$243,000	$120,313	202%	$48,600	40%
Wales	$219,000	$74,539	294%	$43,800	59%
Ware	$201,300	$78,769	256%	$40,260	51%
Warwick	$276,500	$75,000	369%	$55,300	74%
Wendell	$225,000	$71,250	316%	$45,000	63%
West Springfield	$240,450	$73,658	326%	$48,090	65%
Westfield	$244,900	$86,843	282%	$48,980	56%
Westhampton	$292,000	$100,375	291%	$58,400	58%
Whately	$310,000	$86,964	356%	$62,000	71%

Wilbraham	$309,500	$121,766	254%	$61,900	51%
Williamsburg	$362,250	$107,500	337%	$72,450	67%
Worthington	$250,000	$91,667	273%	$50,000	55%

Source: 2019 ACS 5-Year Estimates, Table S1903, S1901& B25064; The Warren Group 2020

Municipalities were removed from the graphic if the margin of error for Median Family Income or Gross Rent was greater than 30 percent and/or due to sample sizes smaller than municipalities at the 25th percentile of population size, using ACS table DP05 for population calculations.

Appendix J: Town-Level Change in Housing Unit Stock

Change in Housing Unit Stock 2010 to 2020, by Municipality

Municipality	2010 Housing Units	2020 Housing Units	Change	Percent Change
Agawam	12,139	12,361	222	2%
Amherst	9,711	10,748	1,037	11%
Ashfield	877	880	3	0%
Belchertown	5,839	6,357	518	9%
Bernardston	948	967	19	2%
Blandford	574	576	2	0%
Brimfield	1,598	1,672	74	5%
Buckland	888	906	18	2%
Charlemont	681	644	(37)	-5%
Chester	645	622	(23)	-4%
Chesterfield	591	618	27	5%
Chicopee	25,140	25,544	404	2%
Colrain	797	796	(1)	0%
Conway	830	825	(5)	-1%
Cummington	485	477	(8)	-2%
Deerfield	2,181	2,292	111	5%
East Longmeadow	6,106	6,371	265	4%
Easthampton	7,615	7,849	234	3%
Erving	807	703	(104)	-13%
Gill	608	700	92	15%
Goshen	598	593	(5)	-1%
Granby	2,460	2,498	38	2%
Granville	647	656	9	1%
Greenfield	8,377	8,646	269	3%
Hadley	2,230	2,336	106	5%
Hampden	1,949	2,008	59	3%
Hatfield	1,563	1,634	71	5%
Hawley	198	188	(10)	-5%

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Municipality	2010 Housing Units	2020 Housing Units	Change	Percent Change
Heath	670	578	(92)	-14%
Holland	1,365	1,405	40	3%
Holyoke	16,384	16,874	490	3%
Huntington	1,014	1,030	16	2%
Leverett	811	827	16	2%
Leyden	325	340	15	5%
Longmeadow	5,948	5,967	19	0%
Ludlow	8,383	8,755	372	4%
Middlefield	279	215	(64)	-23%
Monroe	77	80	3	4%
Monson	3,438	3,554	116	3%
Montague	3,958	4,112	154	4%
Montgomery	343	351	8	2%
New Salem	465	460	(5)	-1%
Northampton	12,728	13,668	940	7%
Northfield	1,391	1,407	16	1%
Orange	3,593	3,544	(49)	-1%
Palmer	5,534	5,854	320	6%
Pelham	570	574	4	1%
Plainfield	329	335	6	2%
Rowe	227	245	18	8%
Russell	699	703	4	1%
Shelburne	931	1,001	70	8%
Shutesbury	866	853	(13)	-2%
South Hadley	7,156	7,439	283	4%
Southampton	2,337	2,551	214	9%
Southwick	3,916	4,115	199	5%
Springfield	61,706	62,782	1,076	2%
Sunderland	1,729	1,771	42	2%
Tolland	510	501	(9)	-2%
Wales	882	896	14	2%
Ware	4,590	4,755	165	4%

Municipality	2010 Housing Units	2020 Housing Units	Change	Percent Change
Warwick	426	405	(21)	-5%
Wendell	436	448	12	3%
West Springfield	12,697	12,885	188	1%
Westfield	16,075	16,869	794	5%
Westhampton	696	747	51	7%
Whately	661	727	66	10%
Wilbraham	5,497	5,712	215	4%
Williamsburg	1,183	1,196	13	1%
Worthington	629	625	(4)	-1%

Source; U.S. Decennial Census 2010 and Census 2020 PL94 Data

Appendix K: Population Change by Municipality

Change in Population 2010 to 2020, by Municipality

Municipality	2010 Population	2020 Population	Change	Percent Change
Agawam	28,438	28,692	254	0.89%
Amherst	37,819	39,263	1,444	3.82%
Ashfield	1,737	1,695	-42	-2.42%
Belchertown	14,649	15,350	701	4.79%
Bernardston	2,129	2,102	-27	-1.27%
Blandford	1,233	1,215	-18	-1.46%
Brimfield	3,609	3,694	85	2.36%
Buckland	1,902	1,816	-86	-4.52%
Charlemont	1,266	1,185	-81	-6.40%
Chester	1,337	1,228	-109	-8.15%
Chesterfield	1,222	1,186	-36	-2.95%
Chicopee	55,298	55,560	262	0.47%
Colrain	1,671	1,606	-65	-3.89%
Conway	1,897	1,761	-136	-7.17%
Cummington	872	829	-43	-4.93%
Deerfield	5,125	5,090	-35	-0.68%
East Longmeadow	15,720	16,430	710	4.52%
Easthampton	16,053	16,211	158	0.98%
Erving	1,800	1,665	-135	-7.50%
Gill	1,500	1,551	51	3.40%
Goshen	1,054	960	-94	-8.92%
Granby	6,240	6,110	-130	-2.08%
Granville	1,566	1,538	-28	-1.79%
Greenfield	17,456	17,768	312	1.79%
Hadley	5,250	5,325	75	1.43%
Hampden	5,139	4,966	-173	-3.37%
Hatfield	3,279	3,352	73	2.23%
Hawley	337	353	16	4.75%

Municipality	2010 Population	2020 Population	Change	Percent Change
Heath	706	723	17	2.41%
Holland	2,481	2,603	122	4.92%
Holyoke	39,880	38,238	-1,642	-4.12%
Huntington	2,180	2,094	-86	-3.95%
Leverett	1,851	1,865	14	0.76%
Leyden	711	734	23	3.24%
Longmeadow	15,784	15,853	69	0.44%
Ludlow	21,103	21,002	-101	-0.48%
Middlefield	521	385	-136	-26.10%
Monroe	121	118	-3	-2.48%
Monson	8,560	8,150	-410	-4.79%
Montague	8,437	8,580	143	1.70%
Montgomery	838	819	-19	-2.27%
New Salem	990	983	-7	-0.71%
Northampton	28,549	29,571	1,022	3.58%
Northfield	3,032	2,866	-166	-5.48%
Orange	7,839	7,569	-270	-3.44%
Palmer	12,140	12,448	308	2.54%
Pelham	1,321	1,280	-41	-3.10%
Plainfield	648	633	-15	-2.32%
Rowe	393	424	31	7.89%
Russell	1,775	1,643	-132	-7.44%
Shelburne	1,893	1,884	-9	-0.48%
Shutesbury	1,771	1,717	-54	-3.05%
South Hadley	17,514	18,150	636	3.63%
Southampton	5,792	6,224	432	7.46%
Southwick	9,502	9,232	-270	-2.84%
Springfield	153,060	155,929	2,869	1.87%
Sunderland	3,684	3,663	-21	-0.57%
Tolland	485	471	-14	-2.89%
Wales	1,838	1,832	-6	-0.33%
Ware	9,872	10,066	194	1.97%
Warwick	780	780	0	0.00%

Municipality	2010 Population	2020 Population	Change	Percent Change
Wendell	848	924	76	8.96%
West Springfield	28,391	28,835	444	1.56%
Westfield	41,094	40,834	-260	-0.63%
Westhampton	1,607	1,622	15	0.93%
Whately	1,496	1,607	111	7.42%
Wilbraham	14,219	14,613	394	2.77%
Williamsburg	2,482	2,504	22	0.89%
Worthington	1,156	1,193	37	3.20%

Source: U.S. Decennial Census 2010 and Census 2020 PL94 Data

Appendix L: Eviction Filings and Rental Assistance Distribution, by Municipality

Municipality	Renter-Occupied Housing Units	Total Eviction Filings to Date	Eviction Filings per 1,000 Renter Units	Households Receiving Rental Assistance	Total Rental Assistance Payments	Rental Assistance Payout per Renter Household	Households Receiving Assistance per 1,000 Renter Households
Ashfield	122	Less than 5	8.2	5	$26,065	$214	41.0
Bernardston	194	0	0	5	$29,977	$155	25.8
Buckland	229	0	0	8	$63,979	$279	34.9
Charlemont	98	Less than 5	10.2	8	$75,992	$775	81.6
Colrain	128	0	0	5	$31,350	$245	39.1
Conway	123	0	0	Less than 5	$7,997	$65	Less than 5
Deerfield	431	Less than 5	2.3	7	$95,210	$221	16.2
Erving	118	0	0	7	$65,233	$553	59.3
Gill	106	0	0	Less than 5	$7,997	$75	Less than 5
Greenfield	3,520	24	6.8	309	$1,762,693	$501	87.8
Hawley	9	0	0	0	$0	$0	0
Heath	4	0	0	0	$0	$0	0
Leverett	87	0	0	Less than 5	$7,997	$92	Less than 5
Leyden	17	0	0	0	$0	$0	0
Monroe	13	0	0	Less than 5	$7,997	$615	Less than 5
Montague	1,583	8	5.1	93	$495,656	$313	58.8
New Salem	62	0	0	Less than 5	$7,997	$129	Less than 5
Northfield	200	Less than 5	5.0	5	$35,449	$177	25.0
Orange	946	22	23.3	74	$470,922	$498	78.2
Rowe	18	Less than 5	55.6	0	$0	$0	0
Shelburne	295	0	0	10	$75,537	$256	33.9
Shutesbury	74	Less than 5	13.5	Less than 5	$7,997	$108	Less than 5
Sunderland	1,002	Less than 5	2.0	31	$219,880	$219	31
Warwick	23	0	0	Less than 5	$7,997	$348	Less than 5
Wendell	79	Less than 5	12.7	Less than 5	$7,997	$101	Less than 5
Whately	109	Less than 5	9.2	Less than 5	$7,997	$73	Less than 5
Agawam	2,866	19	6.6	193	$1,366,752	$477	67.3
Blandford	24	0	0	Less than 5	$7,997	$333	Less than 5

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Economic and Public Policy Research

Brimfield	173	0	0	Less than 5	$7,997	$46	Less than 5
Chester	111	0	0	Less than 5	$7,997	$72	Less than 5
Chicopee	9,557	87	9.1	976	$5,629,703	$589	102.1
East Longmeadow	1,034	6	5.8	26	$257,151	$249	25.2
Granville	37	0	0	Less than 5	$7,997	$216	Less than 5
Hampden	173	0	0	9	$115,475	$667	52.0
Holland	126	0	0	Less than 5	$7,997	$63	Less than 5
Holyoke	9,064	79	8.7	1,054	$5,971,781	$659	116.3
Longmeadow	555	Less than 5	3.6	7	$124,275	$224	12.6
Ludlow	2,147	7	3.3	79	$560,237	$261	36.8
Monson	610	Less than 5	5	24	$114,799	$188	39.3
Montgomery	8	0	0	0	$0	$0	0
Palmer	1,382	11	8.0	109	$732,891	$530	78.9
Russell	82	Less than 5	48.8	5	$55,353	$675	61.0
Southwick	710	Less than 5	1.4	25	$110,478	$156	35.2
Springfield	30,067	408	13.6	4,304	$27,817,238	$925	143.2
Tolland	26	0	0	0	$0	$0	0
Wales	154	0	0	Less than 5	$7,997	$52	Less than 5
Westfield	5,028	31	6.2	318	$1,888,316	$376	63.3
West Springfield	5,199	47	9.0	359	$2,371,820	$456	69.1
Wilbraham	622	Less than 5	6.4	17	$110,110	$177	27.3
Amherst	4,869	8	1.6	110	$721,821	$148	22.6
Belchertown	1,032	18	17.4	48	$276,589	$268	46.5
Chesterfield	54	0	0	Less than 5	$7,997	$148	Less than 5
Cummington	98	0	0	0	$0	$0	0
Easthampton	2,821	14	5.0	76	$522,978	$185	26.9
Goshen	50	Less than 5	20.0	0	$0	$0	0
Granby	336	Less than 5	3.0	12	$99,032	$295	35.7
Hadley	496	5	10.1	15	$111,402	$225	30.2
Hatfield	416	Less than 5	4.8	14	$87,512	$210	33.7
Huntington	163	Less than 5	6.1	5	$37,807	$232	30.7
Middlefield	5	0	0	0	$0	$0	0
Northampton	5,025	5	1.0	169	$942,632	$188	33.6
Pelham	152	0	0	0	$0	$0	0
Plainfield	54	0	0	0	$0	$0	0
Southampton	219	0	0	14	$81,883	$374	63.9

South Hadley	1,806	11	6.1	96	$723,015	$400	53.2
Ware	1,437	22	15.3	94	$663,990	$462	65.4
Westhampton	63	0	0	0	$0	$0	0
Williamsburg	329	Less than 5	3.0	Less than 5	$7,997	$24	Less than 5
Worthington	72	0	0	0	$0	$0	0

Source: Massachusetts Trial Court via Massachusetts Housing Partnership; Department of Housing and Community Development via Massachusetts Housing Partnership; ACS 5-Year Estimates

Note: Eviction filings data are for the period from the end of the statewide eviction moratorium on October 17th, 2020 to November 13th, 2021. Rent relief disbursement data are for the period beginning March 10th, 2020 and ending November 9th, 2021. This data represents rent relief dollars paid out by RAFT, ERAP, and ERMA rental assistance programs across each community