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INTRODUCTION

The purpose of this study is to provide an understanding of the market potential for transit-oriented development (TOD) along the new Knowledge Corridor rail and BRT lines. In this introduction, the Study Team identifies the economic development benefits of transit, discusses the drivers of TOD demand nationally, and provides an introduction to concepts of real estate economics, in order to provide a context for the regional market study.

**ECONOMIC BENEFITS OF TRANSIT**

Public transit offers a number of economic benefits, including the reduced cost of transportation (in time and money) for both businesses and households; enhanced productivity through agglomeration; and more efficient use of facilities and land.\(^1\) These benefits can often translate into increased property values for properties near transit stations.\(^2\) The economic impacts of transit can vary significantly depending on a host of factors, including the following:

- **Quality of transit access and connectivity.** How well does the transit connect the region’s major destinations and employment centers?

- **Quality of transit service.** Does the system offer speed, comfort, and convenience to riders? How competitive is the transit compared to driving in terms of parking, gas prices, congestion, and highway access?

- **Neighborhood context.** What is the existing density and land use mix in the station area? Does the neighborhood have a strong network of roads, bike lanes, sidewalks, and other amenities to encourage walking and biking? Do the local jurisdictions have land use policies in place that will allow intensification to occur at the station areas?

The potential to achieve economic benefits is not contingent on any specific transit technologies. Both BRT and rail transit corridors have successfully generated transit-oriented development, though the examples of higher density development on busways are often from international contexts like Curitiba, Brazil and Ottawa, Canada.\(^3\) However, a recent study found that new BRT lines in the United States also had the potential to generate economic development benefits in their communities, including private sector investment on the corridors (totaling around $5 billion along Cleveland’s Health Line) and increased land values.\(^4\) The success of TOD on bus corridors was found to be related to design features and land use policies that maximize the value of BRT, including “physical BRT features that relay a sense of permanence to developers; key employment and activity centers located along the corridor; and local policies and incentives that encourage transit-oriented development.”\(^5\)

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2. CTOD, Capturing the Value of Transit, 2008.
5. Ibid.
Because this study is focused on transit-oriented development opportunities, CTOD has narrowed its analysis of economic development benefits to the market potential for new development on the NHHS and Busway corridors, including both residential and commercial uses.

In order to determine the TOD market potential in the Knowledge Corridor, it is important to first understand the national demand for development near transit. Since 2005, the Center for Transit-Oriented Development has conducted extensive research on TOD demand, including a review of literature on housing preferences as well as its own analysis of the composition of residents and businesses located near transit. This research has shed light on the types of households and industries that show a preference for TOD, which are highlighted below.

**Housing**

Trends in demographics and lifestyle preferences indicate an increasing demand for housing in compact, “walkable” neighborhoods near transit. Studies show that many households will consider living in a more compact housing unit if it is located in a pedestrian-oriented neighborhood with easy access to amenities, multiple transportation options, and faster commute times. A recent national survey found that 60 percent of respondents would choose a smaller home if it meant a commute time of 20 minutes or less, and two-thirds said that being within an easy walk of shops and services was an important factor in deciding where to live.6

According to these studies, there are two primary drivers of TOD demand in the coming decades: the 79 million Baby Boomers approaching retirement and the 85 million Echo Boomers entering the housing markets for the first time.7

Meanwhile, the even larger Echo Boom generation (born between 1981 and 2000) has also exhibited a preference for living in walkable mixed-use neighborhoods with short commutes.8 This generation may be more likely to prefer neighborhoods that offer alternative transportation options as a lifestyle choice. According to the Department of Transportation, the share of automobile miles driven by young people between 21 to 30 years old dropped by seven points from 1995 to 2009; the share of young people 19 and under with a driver’s license decreased from 64 percent to 46 percent in the same period.9

These findings are supported by CTOD’s own forecasts of national demand for

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7 Ibid. and Joint Center for Housing Studies of Harvard University. State of the Nation’s Housing, 2011.
9 Belden Russonello & Stewart, 2011.
10 Department of Transportation, Federal Highway Administration, National Household Travel Survey, 2010.
The methodology uses information about the current households living near transit, including household type and age, to project future demand. According to the analysis, smaller households without children and households over the age of 65 have a greater propensity to live near transit. Figures X and Y below show the breakdown of national TOD demand by age and household type. As shown in Figure X below, smaller households without children account for the largest share of future TOD demand. Figure Y illustrates TOD demand by age group; it is important to note that while householders over the age of 65 are projected to comprise 28 percent of households nationally, they make up 35 percent of demand for TOD. Older households, therefore, also have a greater propensity to live near transit.

**Industries**

Just as households have different propensities to live near transit depending on demographic factors, the types of jobs that are likely to be in a TOD can also vary by industry. In 2010, CTOD studied the number and composition of existing jobs near transit for every transit region in the country, and found that there are specific industries that are more likely to locate near transit (within a half mile of station areas) than other types of jobs. These “TOD-supportive” industry groups include Knowledge-based, Educational and Health Services, and Government.

Knowledge-based industries include Information; Finance and Insurance; Real Estate; Professional, Scientific and Technical Services; and Management of Companies and Enterprises. In 2008, one third of knowledge-based jobs were located in station areas compared to 23 percent for all jobs. These industries benefit from agglomeration in many ways. First, they often draw from a shared pool of highly-skilled workers, and agglomeration allows them to have access to labor force while reducing the individual firm’s recruitment and training costs. In addition, agglomeration also allows industries to benefit from the “knowledge spillover” effects that occur when similar or complementary firms are geographically clustered. Thus, agglomerations can generate increased innovation, especially in higher density urban contexts.

Public administration – Public administration jobs were shown to have the greatest concentration in transit areas nationally; in 2008, 42 percent of government jobs were located in transit areas. These jobs often are clustered in central business districts or downtowns.

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12 For more about this methodology, please see Hidden in Plain Sight: Capturing the Demand for Housing Near Transit (2004), which is available at www.reconnectingamerica.org
13 To conduct this analysis, CTOD used employment data from 2008 US Census Longitudinal Employment-Housing Dynamics (LEHD) for 34 regions with existing fixed-guideway transit (including commuter rail, light rail, trolley, streetcar, and bus rapid transit (BRT) corridors with dedicated lanes). The LEHD employment data excludes Massachusetts, Connecticut, and Washington, D.C., which did not participate in the Census survey.
15 Includes NAICS codes 51, 52, 53, 54, and 55.
16 Ibid.
20 Includes NAICS code 92
Education and health services – In 2008, about 24 percent of jobs in education and health services\(^{21}\) were in transit areas. Universities and colleges can serve as institutional anchors in transit locations, and students can contribute significantly to ridership during off-peak hours.

**REAL ESTATE ECONOMICS**

Transit-Oriented Development is the result of a healthy-functioning real estate market, which converts demand by consumers and firms to locate near transit service into an increased supply of housing units and commercial space in transit areas. Transit-oriented development around transit rich areas is linked to the strength of the local market to support the economics for sustaining, revitalizing, or developing mixed-use, compact development. Developers, investors, and financial institutions are focused on the capacity of local markets to make renovations and new construction economically feasible. The following section will introduce two concepts of real estate economics that help explain the process by which new development occurs: The Supply / Demand model and the Filtering model.

**Supply / Demand Model**

New real estate development occurs when demand for a specific product - single-family house, townhouse or apartment in the housing market or new office/retail space in the commercial market - and scarcity of that product in the marketplace pushes up the price consumers are willing to pay for a housing unit or square foot of office/retail space beyond the point at which new construction or adaptive re-use of existing space is financially feasible. In order to understand how and why TOD occurs, it is important to understand how real estate markets function.

At a steady state, the supply of a real estate product is in balance with the demand for that product and little new construction occurs, because the supply is adequate to meet the needs of the consumer. However, there are a number of factors that influence the demand for different real estate products: Consumer preferences

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\(^{21}\) Includes NAICS codes 61 and 62
change; companies relocate, downsize or hire; population increases or decreases; and family sizes change, necessitating different types of housing. Additionally, supply of real estate decreases as buildings age and become vacant or abandoned due to obsolescence. Therefore, within a region, the overall demand for housing and commercial space may be close to a steady state, but demand for different segments of the real estate market may be increasing or decreasing independent of the broader market conditions due to external factors.

When demand for a real estate product increase, the existing supply first tightens, which is measured through vacancy rates, and consumers bid up the price of the existing supply due to scarcity. As the price is bid up, the real estate developers can earn a profit through construction of new supply that can be rented and/or sold at prices that exceed the cost of construction. The rent or sales level at which new development is financially feasible depends on a number of external factors, including material and labor costs of construction, land values, and the cost and availability of capital. This Study will build upon these concepts by analyzing the existing rents and sales prices for various real estate products at the Station Areas and comparing them to the costs of new construction to determine whether demand exists for new development at the Station Areas.

It is important to note that, within this context, zoning regulations play an important role in determining the supply of real estate. If there is already an adequate supply of a real estate product in a market to meet the demand, zoning to allow more of that product will not spur new development. However, if there is little available supply and demand exists for a product, then zoning could directly lead to new development by creating the conditions for new supply to be constructed. The effect that rezoning property will have on the value of that property is entirely dependent on the market demand for whatever product is zoned for.

In short, there exists a relationship between the housing demand curve, rent/value levels, and the number of housing starts. If demand for a segment of housing increases, the market responds either by increasing the number of housing starts or increasing rent/value levels to the point where housing starts increase.

**Housing Filtering Model**

A second, relevant concept of real estate economics specific to the housing market is the filtering model. According to this theory, as household income grows, households will continue to seek higher-priced housing. In most U.S. urban areas, Hartford and Springfield included, housing values increase with distance from the urban core, because the housing is larger and newer. At the urban fringe, house values are generally the highest and the housing stock is the newest. As upper-income populations move into newly-constructed houses at the urban fringe, the existing older, more obsolete housing closer to the urban center “filters” to lower income populations. Each successive move enables lower income populations to move up into newer and less obsolete housing than had been previously available to them. Some units filter so much that they become abandoned or demolished. The classic example of this model is the Victorian mansion located close to the urban center, which was originally built for high-income occupants but now has been divided into apartments for low-income occupants.22

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The housing filtering model helps explain several trends:

- New housing is generally built for higher-income populations that have reached the maximum value of housing available within the existing housing stock.

- The growth of new housing in many metropolitan areas exceeds the growth of households, which implies that housing growth is dependent in part on the abandonment of some existing housing stock.

- The extent to which new housing in the region is constructed at the urban fringe and the quantity of new housing constructed compared to growth of households predicts the decline and/or abandonment of housing within the urban core.

The following sections will discuss how these models can be applied to determining the feasibility of new development at the Station Areas. The report will introduce factors influencing demand for new housing units and/or commercial space in the Region, Corridor and Station Area, describe existing real estate market conditions, and identify which demand factors may lead to new development at the Station Areas.

**REPORT ORGANIZATION**

This report is focused on the potential for attracting the TOD-supportive industries and households described above along the new rail and BRT corridors. It is organized into four sections. Section II summarizes the key findings of the analysis. Section III describes regional economic trends and implications for attracting employment in transit locations as well as a summary of the existing conditions of the regional commercial real estate market. Section IV discusses the long term housing and population trends, forecasts demand for housing near transit and provides a summary of the existing conditions of the regional residential real estate market.
KEY FINDINGS

Five critical findings at the regional scale were generated as a result of this research.

There is opportunity to capitalize on the modest demand for TOD-supportive commercial space in the region. The region has significant strengths in TOD-supportive industries, including Knowledge-based, Health Care Services, Educational Services, and Public Administration, and a significant share of them are already located in the transit corridors. The corridor is particularly strong in attracting public administration and knowledge-based jobs, capturing 34 percent and 21 percent of jobs in those sectors, respectively. Assuming modest job growth in the region, it is estimated that there will be demand to accommodate approximately 50,000 new TOD-supportive jobs during the next 25-year period.

The Government Sector and Anchor Institutions together represent a significant source of employment and real estate activity in the region. Many of these institutions are located close to transit, but there is a need to improve the linkages from existing Anchor Institutions to the new transit corridors for full utilization. These sectors also represent an important source of potential new commercial demand in the Station Areas, either through the expansion of hospitals and associated outpatient facilities or the relocation of leased government offices to Station Areas. Opportunities may exist in the Hartford / Springfield region to leverage its Anchor Institutions by encouraging private development of student or employee housing in and around universities and hospitals, improving transit service to and from Anchor Institutions, or spurring development of research facilities linked to universities.

Demographic shifts in the region could help to support TOD housing demand in future years. These trends include the large aging Baby Boomers, a concentration of young adults in cities, and growth in smaller, non-family households. During the next three decades, the region is projecting slow population growth corresponding to an estimated 60,000 households. If recent trends continue, many of these new households will be small, non-family households (single professionals, seniors, empty-nesters) that could be attracted to a “walkable” urban lifestyle.

Though there is demand for TOD housing and commercial space, real estate dynamics in the short term do not currently favor new development on the corridors. In the near term, the recent economic crisis has exacerbated negative impacts on real estate market dynamics, resulting in high office and retail commercial vacancy rates, minimum rental housing growth, and very low levels of new construction activity and development financing availability. However, despite the near-term difficulties experienced in the market segments investigated in this report, there are promising signs that real estate market conditions are improving. Multifamily vacancy is down and rents are up, single-family values appear to be stabilizing and transaction volume is increasing, and commercial transaction volume is significantly up from 2011. If these trends continue as the national and state-wide economies recover, market conditions may improve in the next few years to the point where new construction becomes more broadly financially feasible.
Regional trends of population and employment moving away from the transit corridors must be reversed for TOD to occur. Regionally, residential and commercial new construction is occurring primarily in communities that are not connected to the new transit services, while communities connected to the transit services have lost employment and, in some cases, population, which are both long-term trends. Due to the slow-growth nature of this region, it is likely that these trends will need to be reversed in order for Transit-Oriented Development to occur on a large scale.
REGIONAL ECONOMIC AND COMMERCIAL REAL ESTATE TRENDS

In this section, the Study Team examines employment patterns in the combined CRCOG and PVPC region (“the region”). The Study Team analyzed historical employment growth, identifying industries of strength in the region and focusing on TOD-supportive industries. In addition, the Study Team also mapped the spatial patterns of different TOD-supportive industries in the region to understand the extent to which the new transit corridors aligned with these important sectors. This employment data is supplemented with commercial market information gathered for the corridors to provide insight on the market potential for office development along both alignments.

DATA SOURCES AND METHODOLOGY

To conduct the analysis, CTOD relied on the following sources of data:

Employment data:

Quarterly Census of Employment and Wages, U.S. Bureau of Labor Statistics – Regional employment data presented in this report is based on annual average data from the US Bureau of Economic Analysis’ Quarterly Census of Employment and Wages. The geography of this regional employment data roughly corresponds to the CRCOG and PVPC regions, including Hampden and Hampshire Counties in Massachusetts and the Connecticut North Central Workforce Investment Area. This data is considered highly reliable for gauging employment distribution and trends because it is one of the most comprehensive, directly-reported, and geographically diverse sources of employment data since it is based on businesses’ reporting for unemployment insurance purposes. One limitation of the data is that – since it only includes workers covered by unemployment insurance – it does not include self-employed workers, armed forces personnel, sole proprietors, domestic workers, unpaid family workers, and workers covered by the railroad unemployment insurance system. Furthermore, the data is useful for analyzing high-level employment trends, but is unavailable below the city level due to suppressions to safeguard employer privacy.

Longitudinal Employer-Household Dynamics, U.S. Census – Industry-level location-based data presented for Connecticut in this report – such as that presented in maps and station area or corridor profiles – comes from the U.S. Census’ Longitudinal Employer-Household Dynamics (LEHD) database. The data is produced via statistical modeling incorporating numerous existing government data sources. LEHD’s advantages are that the data is easily-accessible, available at small geographies, and includes a variety of outputs such as total employment, commute flows, worker incomes, etc. Its disadvantages are that the data becomes less reliable at the smallest geographies, outputs are presented in broad categories (such as 2-digit NAICS code industries only), and changes in the modeling methodology over time limit its usefulness for constructing comparative time-series.

ReferenceUSA – Industry-level location-based data presented for Massachusetts in this report – such as that presented in maps and station area or corridor profiles – comes from ReferenceUSA data purchased by the Pioneer Valley Planning Commission (PVPC) from Infogroup. This data was used because Massachusetts does not provide data to the U.S. Census for the LEHD due to strict confidentiality laws in the state. Infogroup collects data on businesses nationwide, primarily...
for the purpose of selling data to business-to-business marketers seeking specific sales targets. Infogroup’s data collection process incorporates telephone directories, public resources, internet research, and direct calling of businesses. The ReferenceUSA data provided by PVPC was further reviewed and “cleaned” by PVPC and CTOD staff. ReferenceUSA data’s advantages are that it is available at the business-level geography, is available when other sources do not exist, and contains significant business-level detail beyond just location and employment counts. Its disadvantages are that it suffers from lower accuracy than its precision implies, although these errors average out at larger geographies.

**CRCOG, CCRPA, and PVPC Projections** – Projections from PVPC, the Capitol Region Council of Governments (CRCOG) and Central Connecticut Regional Planning Association (CCRPA) were used to estimate anticipated total growth in employment and population to 2040. These projections are the official source used for planning purposes by the respective metropolitan planning organizations.

**Woods & Poole Projections** – Woods & Poole projections were used to better understand past and future trends in demographics and industry-level data. Woods & Poole is an economic forecasting service, with detailed employment and demographic data available at the national, state, metropolitan area, and county level. This data was examined because the projections from the metropolitan planning organizations – which are designed for use in traffic modeling – did not contain sufficient detail on industry and demographic trends. The Woods & Poole projections are based on a macroeconomic “export-base” model which estimates growth based on the presence of industries which export to other regions and generate incidental growth in other support industries. Woods & Poole uses a national model which accounts for shifts in economic activity between all metropolitan areas of the United States.

**Population and housing:**

**Regional data from the U.S. Census** – Regional demographic data is based on U.S. Census results for the Hartford and Springfield Metropolitan Statistical Areas (MSAs). The MSAs cover Hartford, Tolland, and Middlesex Counties in Connecticut and Hampden, Hampshire, and Franklin Counties in Springfield. These MSAs cover an area larger than the CRCOG and PVPC boundaries, but were selected because recent estimates from the U.S. Census American Community Survey (ACS) for smaller component geographies were deemed to have too high a margin of error for consideration. Unfortunately, the ACS – conducted annually using a small sample size – is now the only source of census data beyond simple population and household information, since the U.S. Census discontinued its decennial “long-form” survey after the 2000 census.

**Station area and corridor data from the U.S. Census** – Station area and transit corridor population and household data is from the 2010 decennial census, which attempts to gather survey data covering every household and person in the United States.

**Woods & Poole** – Woods & Poole data, described above, was examined for insights into future demographic and household changes.
**Other:**

**Personal Interviews** – In order to gain a better “on-the-ground” perspective, personal interviews were conducted with representatives of industries, major institutions, regional economic development agencies, property developers, and academics.

**Relevant Reports** – A variety of relevant economic development reports were reviewed in the course of research for this report’s findings. Specific reports are cited as appropriate.

**HISTORICAL EMPLOYMENT TRENDS**

The CRCOG/PVPC region’s economy, which included 760,000 jobs in 2010, is diverse. The region’s industry mix is diverse, with high shares of employment in sectors like health care, educational services, retail, manufacturing, and finance and insurance.

*Figure 1: Regional Employment by Industry, 2012*

*Note:* Data for the CRCOG area is based on the boundary of the Connecticut North Central Workforce Investment Area.


**Employment trends in the region over the past decade reflect the nation’s economic cycles.**

The region has experienced ups and downs in employment from 2001 to 2010, with dips during the economic recessions. The peaks and troughs of the cycles were less pronounced in the region compared to the United States, and employment remained in the range of 750,000 to 800,000 throughout the decade. Overall the region experienced a net job loss of about three percent from 2001 to 2010.
Figure 2: Historical Year-Over-Year Employment Growth in the Region and U.S.

Figure 3: Historical Employment in the Region

Figure 4: Regional Employment Trends by Industry, 2001 - 2010

Figure 5: Concentration of Industries in the Region, 2012

Figure 6: Highly Concentrated Sub-industries in the Region, 2012

Note: Data for the CRCOG area is based on the boundary of the Connecticut North Central Workforce Investment Area.


Note: Data for the CRCOG area is based on the boundary of the Connecticut North Central Workforce Investment Area.


**Table 1:** Regional Employment Trends by Industry, 2001 - 2010

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</tr>
</thead>
<tbody>
<tr>
<td>Health Care and Social Assistance</td>
<td>111,389</td>
<td>114,037</td>
<td>113,925</td>
<td>114,671</td>
<td>115,911</td>
<td>119,322</td>
<td>122,303</td>
<td>126,336</td>
<td>128,404</td>
<td>130,045</td>
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<td>17%</td>
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<td>Educational Services</td>
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<td>73,710</td>
<td>75,063</td>
<td>76,239</td>
<td>78,844</td>
<td>79,966</td>
<td>80,455</td>
<td>80,562</td>
<td>80,809</td>
<td>9%</td>
<td>11%</td>
<td>13%</td>
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<td>Retail</td>
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<td>87,375</td>
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<td>86,462</td>
<td>85,672</td>
<td>85,210</td>
<td>84,627</td>
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<td>80,722</td>
<td>11%</td>
<td>11%</td>
<td>.8%</td>
</tr>
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<td>Manufacturing</td>
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<td>98,245</td>
<td>92,197</td>
<td>91,977</td>
<td>91,927</td>
<td>91,382</td>
<td>91,110</td>
<td>89,658</td>
<td>81,828</td>
<td>79,105</td>
<td>13%</td>
<td>10%</td>
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<tr>
<td>Other*</td>
<td>73,062</td>
<td>72,028</td>
<td>71,625</td>
<td>73,072</td>
<td>73,909</td>
<td>72,929</td>
<td>72,728</td>
<td>73,356</td>
<td>70,154</td>
<td>71,752</td>
<td>9%</td>
<td>9%</td>
<td>9%</td>
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<td>Accommodation and Food Services, Arts, Ent, Rec.</td>
<td>59,294</td>
<td>59,320</td>
<td>60,871</td>
<td>61,741</td>
<td>63,319</td>
<td>64,442</td>
<td>65,632</td>
<td>65,346</td>
<td>64,625</td>
<td>65,208</td>
<td>8%</td>
<td>9%</td>
<td>10%</td>
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<td>Finance and Insurance</td>
<td>71,924</td>
<td>71,493</td>
<td>70,144</td>
<td>68,216</td>
<td>67,775</td>
<td>68,130</td>
<td>68,378</td>
<td>66,502</td>
<td>66,645</td>
<td>66,700</td>
<td>9%</td>
<td>9%</td>
<td>7%</td>
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<td>Public Administration</td>
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<td>37,074</td>
<td>36,846</td>
<td>34,846</td>
<td>34,025</td>
<td>34,761</td>
<td>34,804</td>
<td>34,622</td>
<td>34,674</td>
<td>34,577</td>
<td>5%</td>
<td>5%</td>
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<tr>
<td>Information, Real Estate and Leasing, Management of Companies</td>
<td>38,610</td>
<td>36,446</td>
<td>35,732</td>
<td>35,531</td>
<td>35,626</td>
<td>35,767</td>
<td>35,328</td>
<td>35,947</td>
<td>35,072</td>
<td>35,244</td>
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<td>5%</td>
<td>4%</td>
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<tr>
<td>Professional, Scientific, and Technical Services</td>
<td>34,242</td>
<td>33,219</td>
<td>32,777</td>
<td>32,477</td>
<td>33,526</td>
<td>34,444</td>
<td>36,116</td>
<td>35,442</td>
<td>33,963</td>
<td>34,263</td>
<td>4%</td>
<td>5%</td>
<td>0%</td>
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<tr>
<td>Wholesale Trade</td>
<td>30,351</td>
<td>28,827</td>
<td>28,593</td>
<td>29,077</td>
<td>29,012</td>
<td>29,768</td>
<td>29,652</td>
<td>29,730</td>
<td>27,636</td>
<td>27,218</td>
<td>9%</td>
<td>8%</td>
<td>7%</td>
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<td>Transportation and Warehousing</td>
<td>30,940</td>
<td>29,840</td>
<td>28,700</td>
<td>28,602</td>
<td>28,390</td>
<td>28,701</td>
<td>28,148</td>
<td>26,545</td>
<td>25,709</td>
<td>25,097</td>
<td>4%</td>
<td>3%</td>
<td>-9%</td>
</tr>
<tr>
<td>Construction</td>
<td>31,045</td>
<td>30,829</td>
<td>29,798</td>
<td>30,642</td>
<td>31,591</td>
<td>32,011</td>
<td>31,161</td>
<td>30,701</td>
<td>26,850</td>
<td>25,594</td>
<td>4%</td>
<td>3%</td>
<td>-19%</td>
</tr>
<tr>
<td>Total</td>
<td>784,088</td>
<td>772,211</td>
<td>758,178</td>
<td>762,188</td>
<td>768,663</td>
<td>782,422</td>
<td>788,554</td>
<td>790,786</td>
<td>763,467</td>
<td>761,093</td>
<td>100%</td>
<td>100%</td>
<td>-3%</td>
</tr>
</tbody>
</table>

* Includes Agriculture; Mining; Administrative Support and Waste Management and Remediation; Utilities; Other Services

A significant amount of the region’s employment losses were in manufacturing and other industrial sectors. The greatest job declines from 2001 to 2010 were in manufacturing, which declined by 25 percent. Manufacturing’s share of regional employment dropped from 13 percent to 10 percent. This sector fared better in the CRCOG/PVPC region than in the nation, where manufacturing employment dropped by about 30 percent. Other sectors with significant job declines in the region include wholesale trade, construction, utilities, transportation and warehousing, which declined by 17 percent combined.

The health care and social assistance sector experienced significant growth from 2001 to 2010. Employment in Health Care and Social Assistance jobs rose by 17 percent, making this industry the largest industry in the region. Drilling down to sub-industry level data shows that the employment growth in this industry was highest for ambulatory health care services, followed by social assistance, nursing and residential care facilities and hospitals.

Though the Finance and Insurance sector’s employment numbers have dropped over the last decade, the sector retains a high share of total regional employment. The Finance and Insurance sector is heavily dominated by Insurance Carriers, which have been present in the Hartford-Springfield region for two hundred years. In the 2001 to 2010 period, number of Finance and Insurance jobs declined by about seven percent. These losses are not entirely a product of the global financial recession of 2008; the region experienced losses in the sector even in the early 2000s, as large insurance companies consolidated and transferred activities to other locations, in many cases resulting in worker layoffs. Even as the industry has experienced declines in employment, it still plays an important role in the region, accounting for about nine percent of all jobs in 2010.

The number of jobs in Professional, Scientific, and Technical Services (PSTS) remained stable during the last decade. In spite of the magnitude of the 2008 recession, the PSTS sector was able to hold steady, and now accounts for a larger share of the region’s total employment (about five percent in 2010).

ECONOMIC DRIVERS

There are a number of heavily concentrated industries that drive much of the region’s economic activity, generating multiplier effects through the purchase of equipment and services from suppliers, and employee spending. As shown in Figure 5, Industries with the strongest concentrations, or largest location quotients (LQ), in the region include: Finance Insurance (LQ of 2.03), Health Care and Social Assistance (1.21), Other Services (1.23), Manufacturing (1.15), Educational Services (1.12), and Management of Companies and Enterprises (1.07).

Detailed analysis at the sub-industry level (three-digit NAICS codes) shown in Figure 6 provides more detail on the types of businesses that are clustered in the region. The highest location-quotient sub-industries include insurance carriers; manufacturing of equipment and machinery;

---

24 In this report, concentrations are measured by comparing regional industry employment concentration to national industry employment concentration, with the results expressed as a “location quotient.” A location quotient above 1.0 indicates greater concentration relative to the United States. A location quotient of less than 1.0 indicates lower concentration compared to the overall U.S. economy.
Figure 7: Concentration and Growth of Industries in the Region

Figure 8: Concentration and Growth of Sub-Industries in the Region


22 | MARKET ANALYSIS OF THE KNOWLEDGE CORRIDOR
Figures 7 and 8 illustrate the size, relative concentration, and historical growth trends of each industry or sub-industry in the region. The size of each “bubble” corresponds to the size of employment in the industry. The location quotient is mapped on the y-axis, while the historical growth rate from 2001 to 2010 is shown on the x-axis. Industries and sub-industries in the upper right quadrant are those that have a relatively high concentration and have shown growth in recent years, while industries/sub-industries in the lower left quadrant are industries that are not concentrated and have experienced job declines. The analysis of location quotients and growth trends leads to the following conclusions:

**Insurance is the most concentrated industry in the region.**
The Finance and Insurance sector is twice as concentrated in the region compared to the United States; no other industry sector approaches this level of concentration in the region. The sub-sector “Insurance Carriers and Related Activities” has a location quotient of 4.0. The large amount of headquarters employment makes this one of the most significant industries in the region in terms of the depth and breadth of its impact on the economy. As discussed above, while this sector has not experienced growth in the last decade, it continues to be a large employer and generates higher than average wages.

**Manufacturing remains an important industry in the region, even as the number of employees in this sector is in decline.**
According to business and economic development representatives, the region still contains a significant cluster of aerospace and precision metal manufacturers. This is supported by the employment data showing strong concentrations in Transportation Equipment Manufacturing, Fabricated Metal Product Manufacturing, and Machinery Manufacturing. Average wages in these subsectors are well above the overall regional average. This sector has an important ripple effect through the rest of the economy. It is estimated that in the state of Connecticut, the manufacturing sector generates a multiplier of 1.35 in others sectors.25

**Educational institutions play a critical role in supporting the region’s knowledge-based economy.**
There are many high-quality four-year colleges and universities, as well as two-year colleges and training schools present in the region, with a 1.1 location quotient. These institutions support the “knowledge” industries in the region, and attract highly talented faculty and students from all over the country and the world, helping to foster a highly educated workforce. The Pioneer Valley contains 13 public and private colleges and universities, employing over 12,000 workers.26

**Health Care and Social Assistance activities are concentrated and growing in the region.**
This sector has particularly high employment concentration in Residential Care Facilities, Social Assistance, and Ambulatory Health Care Services (outpatient services and medical offices). Major hospitals in the region include Baystate Health System (the second largest hospital system in Massachusetts), and Hartford Hospital. The strength of these health institutions helps to support a growing bio-medical products industry in the region, which includes the manufacturing of devices and equipment,27 as well as research and development activities in

27 Ibid.
conjunction with the universities. Wages in the health care sectors are also above the average for the region.

**TOD-SUPPORTIVE INDUSTRIES**

**TOD-supportive industries currently account for almost 60 percent of total employment in the region.** The employment analysis summarized above indicates that the region has existing strengths in many of the TOD-supportive sectors, including Knowledge-based, Health Care Services, Educational Services, and Public Administration.

**TOD-supportive industries, namely the knowledge-based and educational/health services sectors, are expected to drive national employment growth over the coming decades nationally.** The U.S. Bureau of Labor Statistics projects that knowledge-based employment will increase 16 percent between 2010 and 2020 and educational and medical services employment will increase 33 percent, while total employment is expected to increase by 14 percent.21 Given the region’s existing strengths in these sectors, it is likely that they will continue to grow and generate demand for new space in the long term.

![Figure 9: Employment Patterns](source)

**SPATIAL PATTERNS IN EMPLOYMENT** The transit investments will connect the region’s densest regional employment centers in Hartford and Springfield by rail, and other major employers and institutions in the region will be connected to Hartford by the BRT. The transit corridors are estimated to contain about 107,000 jobs, corresponding to 13 percent of the region’s total employment.

More important for TOD potential, many of the region’s transit-supportive jobs are located near transit. Approximately 19 percent of employment in TOD-supportive industries are already located in the transit corridors. The corridor is particularly strong in attracting public administration and knowledge-based job, capturing 34 percent and 21 percent of jobs in those sectors, respectively.

The capture of jobs near transit for the CRCOG/PVPC region is similar to other peer regions. Transit regions of similar size, including Cleveland, Pittsburgh, and Charlotte, have similar “capture rates” of jobs near transit, ranging from 11 percent in Charlotte to 18 percent in Cleveland. For all of the regions, the share of knowledge-based jobs near transit is similar, ranging from 21 percent in the CRCOG/PVPC region to almost 28 percent in Cleveland. However, the percentage of public administration jobs is the highest in the CRCOG/PVPC region, largely due to the fact that the corridors include two state capitals. The share of jobs in the educational services and health care services in the CRCOG/PVPC region is average compared to peer regions.

For all the peer regions the industry mix in transit corridors includes a high share of knowledge-based and health care jobs. Some regions, such as Charlotte, contain a smaller percentage of education and public administration jobs. The industry mix in the knowledge corridors is most similar to Cleveland, which also contains a significant concentration of health care and educational jobs along their transit lines.
Figure 14: Total Employment Density in the Region, 2011

Employment Density (per square mile)

Employment Density around the Sustainable Knowledge Corridor

Woodbury
Monroe

10,001 - 50,000
5,001 - 10,000
2,501 - 5,000
1,001 - 2,500
251 - 1,000
0 - 250

Figure 15: TOD-Supportive Job Density

Figure 16: Knowledge Sector Job Density

Knowledge jobs are defined as the following NAICS sectors:
- Information
- Finance and Insurance
- Real Estate, Rental and Leasing
- Professional, Scientific and Technical Services
- Management of Companies and Enterprises
- Administrative, Support, Waste Management and Remediation Services

Inset: New Britain Busway at 2x larger scale

Figure 18: Educational Services Job Density

Educational sector jobs are defined as those in the NAICS sector "Educational Services."

Figure 19: Public Administration Job Density

![Map showing job density around the Sustainable Knowledge Corridor.](image)

Employment Density around the Sustainable Knowledge Corridor

The region is anticipated to have continued, modest growth over the long term. According to long-term projections by CRCOG, the Central Connecticut RPA (representing Bristol and New Britain areas) and PVPC, the region is forecast to add approximately 89,000 jobs by 2040, at an average annual growth rate of 0.40 percent.29

Figure 20: Regional Growth Projections

<table>
<thead>
<tr>
<th>Regional Government</th>
<th>2012</th>
<th>2040</th>
<th>Growth</th>
<th>Average Annual Growth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capitol Region Council of Governments</td>
<td>425,885</td>
<td>492,529</td>
<td>66,644</td>
<td>0.52%</td>
</tr>
<tr>
<td>Central Connecticut Regional Planning Agency</td>
<td>82,854</td>
<td>85,817</td>
<td>2,963</td>
<td>0.13%</td>
</tr>
<tr>
<td>Pioneer Valley Planning Commission</td>
<td>251,200</td>
<td>270,564</td>
<td>19,364</td>
<td>0.27%</td>
</tr>
<tr>
<td>Total Region</td>
<td>759,939</td>
<td>848,910</td>
<td>88,971</td>
<td>0.40%</td>
</tr>
</tbody>
</table>

There is opportunity to capitalize on the modest demand for TOD-supportive space in the region. Though the projections do not provide detail on the sectoral mix of the job growth, assuming that the region retains its existing share of TOD-supportive industries, there is likely to be significant demand for commercial and institutional space in the coming decades. Currently, about 60 percent of the region’s jobs are in the TOD-supportive sectors. Assuming the sectoral mix remains similar in the coming decades (a conservative estimate), there would be demand to accommodate approximately 50,000 new TOD-supportive jobs during that 25-year period.

Capturing even a small share of new employment growth in station areas will require targeted efforts by the local, state, and regional governments. As shown in Figure 21, from 2002 to 2009, much of the new employment growth in the region occurred in suburban cities rather than the core urban areas along the corridors. Generally, central cities along the transit corridors experienced net job loss during the 2002 to 2009 period, while suburban towns away from the core fared better.

Holyoke Data Center, Holyoke, MA

29 For purposes of the employment projections, the approximate CRCOG and PVPC region is defined as the non-jurisdictional boundaries of Hartford, Tolland, Hampden, and Hampshire Counties.
Figure 21: Job Growth by City, 2002-2009

Utilize state financial assistance to companies to incentivize expansion or relocation in the transit areas. As shown in the map below, over the past 10 years, state financial assistance to firms in the CRCOG and PVPC regions has often benefitted firms that are not located within the transit areas. Of a total of $XX million of state incentives to firms, only $XX million (YY%) went to firms located within a half mile of the station areas.

Figure 22: Connecticut State Subsidies, 2002-2012
This market research looked at two major commercial sectors in the region: (1) Office, which is the major employers and business tax revenue base in the region; and (2) Governmental and Anchor Institutions, which are the major governmental offices, as well as public and private institutions (e.g. universities and colleges). The Study Team chose these sectors based on research into TOD, which indicates that access to high-density employment is a main driver for new development along transit corridors, and these sectors are traditionally associated with high-density employment.

### Office Sector

The location of Knowledge Sector employment is highly correlated with the location of commercial offices in the region, because Knowledge Sector industries locate in office buildings. Figure 16 shows the location of Knowledge Sector employment, which indicates significant concentration of office space in Hartford and Springfield, but also a large amount of employment in suburban areas west and north of Hartford, in and around Northampton, and in further outlying towns such as Bristol and Southington. Employment patterns also follow the major highways, with concentrations of office employment along the I-91, I-84 and Rte. 2 corridors in Connecticut and along the I-90 corridor in Massachusetts.

Available data on office square footage in Hartford County indicates that the Hartford Central Business District contains only 31 percent of the total.

Much of the office space in the region is located in areas not accessible to the new transit service. Automobile-oriented regions such as the Farmington Valley, Manchester and Glastonbury, and interior sections of Windsor and Bloomfield contain significant concentrations of office space and employment. In addition to the regional sprawl of office space, the trend over the past 30 years has been of construction of new office space in suburban areas of the region and away from the...
transit areas as referenced in Figure 21. According to a report from CERC describing employment gain / loss by town from 1980 to 2004, the greatest change in Hartford County occurred in the following towns:

- Farmington gained 12,723 jobs (78% increase)
- Manchester gained 9,275 jobs (48% increase)
- Glastonbury gained 8,406 jobs (125% increase)
- Hartford lost 28,536 jobs (20% decrease)
- East Hartford lost 16,855 jobs (36% decrease)
- Windsor Locks lost 1,958 jobs (12% decrease)\(^3\)

Many NHHS Rail and CT Fastrak Station Areas have lost employment since 1980. The data indicate that many of the towns where stations will be located lost employment, including Hartford, New Britain, West Hartford, and Windsor Locks, while the greatest growth in employment occurred in towns not connected to transit. In the near term, these trends discourage the feasibility of new commercial space in the Station Areas, because the long-term trend of firms moving away from the locations where transit service will run indicates a depressed demand for office space in the transit corridors.

Both NHHS Rail and CT Fastrak corridors connect to significant employment nodes in the major urban centers. Analysis of employment at the NHHS rail and CT Fastraks stations indicates that the CT Fastrak system connects to more employment centers, particularly in Hartford and New Britain, and indicates little employment at any of the NHHS rail stations outside of Hartford and Springfield.

Recent trends in the Hartford / Springfield office market indicate high vacancy rates, stationary rental rates, and little new construction.

According to data from Cushman Wakefield:

- Office vacancy rates in the region have remained stationary at around 20% for over a year and direct vacancy rates have risen from around 16% in 2007 to close to 18.4% in Q1 2012. Direct vacancy is the amount of office space that is unleased, whereas total vacancy factors in leased vacant space.
- Office asking rents have been nearly stationary at approximately $19-20 per square foot for four years (and, in the case of downtown Hartford, 20 years).
- There is only 13,000 Square Feet (less than 0.01% of total) of new space under construction in the Hartford region the first quarter of 2012 and 36,500 (less than 0.01% of total) completed in 2011.\(^4\)

The downtown Hartford office market, in particular, suffers from significant market challenges, but may be poised for a comeback in coming years:

- The recent sale of CityPlace I, a Class A property 98% occupied by credit-worthy tenants for $112 per square foot indicates the infeasibility of new office construction, which costs upwards of $300 per square foot.
foot, according to stakeholder interviews. However, this transaction also indicates an increase in commercial transactions and other downtown properties are expected to transact in the near future, which indicates a growing investor appeal.33

- Values of the largest downtown Hartford office towers declined by at least 15% over the past five years.

- Downtown Hartford office vacancy is currently 27% and absorption of space has been negative for over one year.

- Major employers in the downtown market continue to shed employees, led by The Hartford, which has cut 2,200 jobs in Connecticut, or about 17 percent of its home-state workforce, from the Third Quarter of 2008 to October, 2011.

However, there is also interest from the State of Connecticut in consolidating state agency offices into a vacant building in downtown Hartford, which could lead to a substantial increase in downtown employment and build more demand for housing along the transit corridors.34 It is expected that the downtown Hartford office market could show substantial improvement in the next few years.

Summary of Findings - Office Sector

The development of new office space is unlikely in the near term due to high levels of vacancy, low rental rates, and stagnant employment. If employment levels increase, demand for office space will increase and fill vacant inventory, which will eventually make new construction of office space feasible. Like the multifamily sector, the office sector is subject to real estate dynamics which dictate that new construction will become feasible only when demand pushes up rents to the point where values exceed costs of construction or supply is reduced through conversion of office space. As indicated by the recent sale of CityPlace I, the transaction value of Class A office towers are currently far below the cost to construct new office towers and there is a large inventory of vacant office space that will need to be absorbed before new construction becomes feasible.

Trends of movement of employment and office space away from the urban centers must be reversed to promote commercial TOD. The long-standing trend of employment leaving the urban centers and relocating to automobile-oriented, suburban locations has lead to decreased near-term feasibility of commercial development at the NHHS Rail and CT Fastraks stations. However, the construction of the transit service and supportive state and local policies may be able to reverse this trend and create more demand for commercial space at the Station Areas.

Government and Anchor Institutions Sector

The Government and Anchor Institutions Sector consists of employers with a different set of objectives than traditional Office Sector.

34 Ibid.
employers (i.e. for- and non-profit businesses). The Government and Anchor Institution sectors tend to be more committed to a particular location than Office Sector employers, because of their deep ties to particular communities and large capital investment in campuses. These institutions are more likely than Office Sector employers to respond to policy and social objectives, such as TOD, which make them critically important to the future development of the transit corridors.
Figure 27: Government Leased Space

PUBLIC UNIVERSITIES/COLLEGES & TRANSIT
- Stations
- Railroad lines
- Public university/college near transit
- Public university/college not near transit

ENROLLMENT
- 500 - 2,000
- 2,001 - 6,000
- 6,001 - 10,000
- 10,001 - 15,000
- 15,001 - 25,000
The Government Sector consists of state and local government offices. Local government offices are traditionally contained within the City or Town Hall, which is often located within the historic center of the municipality or in a location that is easily accessed by automobile. State government offices are generally concentrated around the state capital with smaller state offices located in other urban centers.

The Anchor Institutions Sector consists of education and health institutions, such as colleges, community colleges, universities, and hospitals. These institutions often have a long history and significant real estate investment in one location, with a social mission of serving the local community.

The Government Sector is concentrated in downtown Hartford, but a substantial amount of State of Connecticut leased office space is found in non-transit-oriented locations. The Government Sector is particularly concentrated in Hartford and directly adjacent municipalities, which is the center of Connecticut state government. As of 2005, the Government Sector constituted 25 percent of the City of Hartford's employment as its largest employer (CERC Town Profile).

Although the Government Sector contributes greatly to the amount of employment at the Station Areas, as described in earlier sections of this report, there are significant concentrations of Government employment that are not transit-oriented. The map shows that most Connecticut leased state government offices are not located within a half-mile of a future station stop and many are instead located adjacent to I-91 or I-84. These government offices account for several hundred thousand square feet of regional office space and thousands of jobs.

Health-related anchor institutions are heavily concentrated in Hartford and Springfield, constitute primary employers in both cities, and are expanding. Within the transit corridors, Hartford and Springfield both contain large hospital complexes, Hartford Hospital in Hartford and Baystate Medical Center and Mercy Hospital in Springfield, which are significant employers, and there are smaller hospitals in New Britain and Northampton. Hartford Hospital employs over 7,000 and has a medical staff of over 1,000 active staff physicians, Baystate Health System employs 10,000 and Mercy Hospital employs 3,000 in Springfield.35 Figure 17 indicates these major concentrations of health sector employment in Hartford and Springfield, but also indicates smaller concentrations of health sector employment near the New Britain, Enfield, Holyoke, and Northampton Station Area.

The UCONN Health Center is an important, growing node of health sector employment and bioscience, which will be linked to the CT FasTrak corridor. The UCONN Health Center in Farmington, which will be connected to the CT FasTrak via a local loop at the Elmwood Station in West Hartford, is quickly becoming a regional health and bioscience node. The UCONN Health Center complex will soon expand to include the new home of Jackson Laboratories, an independent, non-profit genetics research firm employing 1,400 and 200 Ph.D. scientists that is constructing a new 189,000 square foot laboratory and office facility on a 17-acre parcel at the UCONN Health Center. Groundbreaking is expected in January, 2013 with full completion of the new facility in 2014.36

36 The Jackson Laboratory, The Jackson Laboratory for Genomic Medicine: Revealing the Complex Causes of...
As described earlier, Health and Social Services is a rapidly growing sector, particularly around hospitals. It is expected that this sector will expand in the future as the regional population ages and as the country’s bioscience needs increase. The expansion of this sector in and around Station Areas could become a major driver of Transit-Oriented Development.

While the largest education-related anchor institutions are outside of the transit corridors, there are also a significant number of smaller educational institutions located near the transit corridors. The two largest universities in the region - the University of Connecticut in Storrs, CT and University of Massachusetts in Amherst, MA - are located outside of the transit corridors (See Figure 23). However, the NHHS rail service and CT Fastraks will stop close to several colleges and universities, including Trinity College (Hartford), the University of Hartford (West Hartford), St. Joseph’s College (West Hartford / Hartford), the University of Connecticut School of Law (Hartford), Goodwin College (East Hartford), Central Connecticut State University (New Britain), Asnuntuck Community College (Enfield), Springfield College (Springfield), Western New England College (Springfield), Springfield Community Technical College (Springfield), and Smith College (Northampton). Central Connecticut State University and the Springfield colleges stands out as the most easily connected to the new transit services and warrant deeper review for opportunities for expansion within Station Areas.

The transit corridors may provide opportunities for educational institutions to better collaborate. Interviews with Margi Nareff, Executive Director of the Hartford Consortium for Higher Education, and Neal Abraham, Executive Director of Five Colleges, Inc., indicated that lack of connectivity is a significant issue hindering collaboration between the region’s colleges and universities. Both groups operate programs enabling students to take classes and access resources

at the participating institutions, but lack of access to transportation between the institutions limits participation. Five Colleges, Inc. institutions spend $1.5 million annually to operate inter-campus transportation. These institutions should be engaged to investigate opportunities for them to utilize the transit corridors to enable better transportation between institutions, which may reduce their costs and enable further collaboration.

Summary of Findings - Government and Anchor Institutions Sector

The Government Sector and Anchor Institutions together represent a significant source of employment and real estate activity in the region and are, in many cases, closely linked to the new transit service.

Many of these institutions are located close to transit, but inter-connection between the institutions is weak due to the existing lack of transportation between them. Although both the Hartford Consortium for Higher Education and Five Colleges, Inc. believe the transit corridors will improve inter-connection, both organizations stressed the importance of improving the linkages from existing Anchor Institutions to the new transit corridors for full utilization.

These sectors also represent an important source of potential new commercial demand in the Station Areas, either through the expansion of hospitals and associated outpatient facilities or the relocation of leased government offices to Station Areas. Due to their significant histories and investments in one locations, and Anchor Institutions are likely to remain fixed in one region. For this reason, municipalities across the country have succeeded in leveraging their Anchor Institutions to produce greater economic ripple effects. Opportunities may exist in the Hartford / Springfield region to leverage its Anchor Institutions by encouraging private development of student or employee housing in and around universities and hospitals, improving transit service to and from Anchor Institutions, or spurring development of research facilities linked to universities.
This section discusses long-term demographic and housing patterns in the region and their implications for TOD housing demand. The Study Team analyzed long-term historical trends particularly for household types and age cohorts that have demonstrated a higher propensity to live near transit—Generation Y and Baby Boomer households, as well as smaller households. The demographic data is supplemented with housing market information to shed light on the future development potential in station areas.

**DEMOGRAPHIC TRENDS**

For the past two decades, the region experienced slow population growth. The region’s population has grown by slightly over 100,000 in the past twenty years, at an average annual rate of .3 percent, well below the United States growth rate. Household growth has been slightly faster, increasing at a rate of 0.5 percent annually, indicating that many of the new households in the region are small.

The region has a relatively lower share of young working-age adults compared to the U.S. The region’s share of young people aged 25 to 39 is lower than the United States. The high ratio of “dependents” (seniors and children) to working age adults could be problematic for the region’s future economic development if it leads to workforce shortages.37

The region has a significant aging population. Compared to the nation, the region has a larger share of the senior and Baby Boomer population. Given

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38 Born prior to 1946
39 Born roughly between 1946 and 1965
the higher likelihood of Baby Boomers choosing a compact, walkable lifestyle, the large number of households in this demographic could help to support TOD demand in the region in future years.

The young adult population has not moved away from the region in the last decade. The concern about a decline in the young population in the region is mostly a function of the demographics composition of the population, which contains fewer people born between 1971 and 1990 (Generations X and Y) than the United States as a whole. But there is no evidence that there has been a significant net out-migration of young professionals away from the region. From 2000 to 2010, the population in the 1981 to 1990 age cohort remained stable, with a slight decline in the 1971 to 1980 age cohort. Most of the population declines were in fact in older demographic groups, likely a combination of deaths and out-migration.

The large cities are attracting a significant share of the region’s young adults. When examined at the city scale, the cities of Hartford and Springfield have a significantly larger share of young adults and children than the region as a whole. This indicates that the young workforce aged between 20 and 39 (adults born between 1971 and 1990) is much more concentrated in the region’s job centers.

Figure 31: Population by Age in Core Cities.

Figure 30: Population by Age in Hartford, CT

<table>
<thead>
<tr>
<th></th>
<th>2000</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>20-34</td>
<td>74%</td>
<td>76%</td>
</tr>
<tr>
<td>Other</td>
<td>26%</td>
<td>24%</td>
</tr>
</tbody>
</table>


The number of young adults in Hartford has increased in the last 10 years, fueling much of the growth in that city. Over the past ten years – for the first time in four decades – the population of the city of Hartford experienced growth. Most of that growth was driven by students and working adults between the ages of 20 and 34.40

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Household size in the region is shrinking, consistent with national trends. The average number of persons per household has dropped from almost 2.68 in 1990 to 2.56 in 2010.

**Figure 32: Trends in Average Household Size**

![Graph showing the average household size from 1990 to 2010](image)

**Note:** Region is defined as the US Census Metropolitan Statistical Areas encompassing Hartford and Springfield. **Source:** US Census, 1990, 2000, 2010.

Housing unit development has generally kept pace with household formation. From 1990 to 2010, the number of housing units in the region generally exceeded the number of households.

**Figure 33: Trends in Housing Units and Households in Region, 1990-2010**

![Graph showing trends in housing units and households from 1990 to 2010](image)

**Note:** Region is defined as the US Census Metropolitan Statistical Areas encompassing Hartford and Springfield. **Source:** US Census, 1990, 2000, 2010.
Most of the new household growth in the region has been driven by one-person households. From 1990 to 2010, two thirds of the net household growth in the region was from one-person households. The number of new one-person households grew by 45,000, more than three times the growth in family households during that same period.

Figure 34: Net New Households in Region by Type, 1990-2010


The demographic shifts that have occurred in the region are not reflected in the new construction of housing units, which are still predominantly single-family units in suburban locations. From 1990 to 2010, the increase in housing stock in the region was almost entirely driven by the addition of new single-family detached units, with only slight increases in multi-family and townhouse units.

Figure 35: Net New Housing Units by Type in the Region, 1990-2010

These trends in demographic change impact the type of housing in demand and the amount and location of new construction that can be expected in the region. The Study Team analyzed the existing conditions of the two key residential real estate market segments - multi-family rental and single-family owner-occupied - based on standard real estate metrics, including rent/value levels, vacancy, days on the market, and number of transactions to understand the existing state of these markets and to analyze the impacts these demographic shifts may have on these market segments.

**REAL ESTATE MARKET CONDITIONS**

**MULTI-FAMILY (RENTAL)**

The multifamily rental market encompasses any building in which the primary occupants are renters and where there are more than one housing unit in one building. Traditionally, this encompasses a range of building types, from two-family homes up to 100+ unit apartment complexes.

Hartford/Springfield region multifamily housing is concentrated around areas of high population density, especially in the urban centers. Large concentrations of renter-occupied housing are found in Hartford, Springfield, Manchester, New Britain, Holyoke, and Northampton.

*Figure 36: Percent Renter Occupied Housing, 2010*

### Figure 37: Net New Households in Region by Type, 1990-2010

<table>
<thead>
<tr>
<th>Station Name</th>
<th>Total Housing Units</th>
<th>Occupied Housing Units</th>
<th>Owner Occupied Units</th>
<th>Renter Occupied Units</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>%</td>
<td>Total</td>
<td>%</td>
</tr>
<tr>
<td>Northampton</td>
<td>2,416</td>
<td>2,230</td>
<td>495</td>
<td>22%</td>
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<td></td>
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<td></td>
<td>1,735</td>
<td>78%</td>
</tr>
<tr>
<td>Holyoke</td>
<td>1,722</td>
<td>1,611</td>
<td>185</td>
<td>11%</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>1,426</td>
<td>89%</td>
</tr>
<tr>
<td>Springfield</td>
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<td>2,619</td>
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<td></td>
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<td></td>
<td>2,499</td>
<td>95%</td>
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<td></td>
<td></td>
<td>1,378</td>
<td>82%</td>
</tr>
<tr>
<td>Windsor Locks</td>
<td>949</td>
<td>891</td>
<td>430</td>
<td>48%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>461</td>
<td>52%</td>
</tr>
<tr>
<td>Windsor</td>
<td>671</td>
<td>616</td>
<td>315</td>
<td>51%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>301</td>
<td>49%</td>
</tr>
<tr>
<td>Hartford</td>
<td>2,452</td>
<td>2,050</td>
<td>110</td>
<td>5%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1,940</td>
<td>95%</td>
</tr>
<tr>
<td>West Hartford</td>
<td>960</td>
<td>909</td>
<td>432</td>
<td>48%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>476</td>
<td>52%</td>
</tr>
<tr>
<td>Newington</td>
<td>933</td>
<td>898</td>
<td>740</td>
<td>82%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>158</td>
<td>18%</td>
</tr>
<tr>
<td>Berlin</td>
<td>702</td>
<td>658</td>
<td>437</td>
<td>66%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>221</td>
<td>34%</td>
</tr>
</tbody>
</table>

### Figure 38: Year Built and Unit Size

<table>
<thead>
<tr>
<th>Year Built</th>
<th>Hartford</th>
<th>Springfield</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before 1970</td>
<td>36%</td>
<td>32%</td>
</tr>
<tr>
<td>1970-1979</td>
<td>31%</td>
<td>56%</td>
</tr>
<tr>
<td>1980-1989</td>
<td>16%</td>
<td>10%</td>
</tr>
<tr>
<td>1990-1999</td>
<td>7%</td>
<td>0%</td>
</tr>
<tr>
<td>2000-2009</td>
<td>9%</td>
<td>0%</td>
</tr>
<tr>
<td>After 2009</td>
<td>%</td>
<td>0%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Unit Size</th>
<th>Hartford</th>
</tr>
</thead>
<tbody>
<tr>
<td>Studio</td>
<td>4%</td>
</tr>
<tr>
<td>1 BR</td>
<td>43%</td>
</tr>
<tr>
<td>2 BR</td>
<td>51%</td>
</tr>
<tr>
<td>3 BR +</td>
<td>3%</td>
</tr>
</tbody>
</table>
The percentage of renter-occupied housing is particularly high relative to regional averages in the CT Fastraks and NHHS Rail Station Areas. In these areas, an average of 78% and 75% of units are renter-occupied, respectively, compared to 41% for the region as a whole. Many of the Station Areas almost entirely consist of renter-occupied households, including stations in Enfield, Hartford, New Britain, Springfield, Holyoke and Northampton.

Multifamily housing in the region is also generally more than 30 years old and little new product has been added in the past decade. In both regions, less than 20 percent of multifamily housing was built since 1990. Older multifamily units are often functionally obsolescent and not appealing to modern consumer tastes, which limits their appeal to consumers deciding between renting and owning.

The rental market is geared primarily to single-person households, couples, and/or families with one child. The vast majority of multifamily units are either 1- or 2-bedroom, which indicate that larger families look to the homeownership market for housing options. Note: Springfield information was unavailable.

Multifamily rents in the Hartford / Springfield regions are relatively affordable and below Northeast region and U.S. averages. The average rents in the Hartford and Springfield regions for all unit types were below the national average and well below the Northeast region average.

The rental market in both regions appears to be unable to appeal to higher-income households. There exists a significant mismatch between the regions’ average rents and average incomes when compared to national averages. Of 280 Metropolitan Statistical Areas (MSAs) nationally, the Hartford MSA ranks 6th and Springfield 98th in median income, but both regions have average rents substantially below the U.S. national average. This mismatch indicates that, while both regions rank highly in terms of income compared to other regions, higher income is not translating into high rent levels, either because the renting population is relatively lower income or because the regional population has lower demand for renting as compared to homeownership. The large supply of older rental housing may also discourage households with sufficient income to afford homeownership from renting, due to the relative obsolescence of the regional rental unit supply.

Rent amounts in the region vary considerably by location and by age of structure, with the highest rents in newer buildings in downtown Hartford and suburban locations. The following map shows contract rents mapped by census tract and highlights a trend of higher rent amounts in the urban fringe and lower rent amounts in the urban core, with the exception of downtown Hartford, where some of the region’s highest rents are located. Lower rent amounts are present at many of the CT Fastrak Station Areas, particularly in Hartford locations outside of downtown and in New Britain, as well as in the Windsor Locks, Springfield and Holyoke station areas. Downtown Hartford, Windsor, Newington, and Enfield contained relatively higher rent levels.
Additionally, rent levels are highest in newer structures and lowest in older structures, with complexes built within the past having the highest rent levels:

<table>
<thead>
<tr>
<th>Year Built</th>
<th>Hartford</th>
<th>Springfield</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before 1970</td>
<td>$905</td>
<td>$838</td>
</tr>
<tr>
<td>1970-1979</td>
<td>$948</td>
<td>$962</td>
</tr>
<tr>
<td>1980-1989</td>
<td>$1,039</td>
<td>$844</td>
</tr>
<tr>
<td>1990-1999</td>
<td>$1,146</td>
<td>$1,289</td>
</tr>
<tr>
<td>2000-2009</td>
<td>$1,490</td>
<td>N/A</td>
</tr>
<tr>
<td>After 2009</td>
<td>$1,514</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Source: U.S. Census 2010
However, the multifamily rental market conditions are improving and appear poised for strong performance in coming years. The multifamily rental sector in the Hartford and Springfield regions appears to be reaching a transition point where vacancy is reaching historical lows and rents are starting to increase. Compared to the region and the nation, the one year vacancy and rent growth rates are among the highest.

**Figure 41: Hartford, Springfield Rental Growth**

<table>
<thead>
<tr>
<th>Vacancy Rate</th>
<th>Hartford</th>
<th>Springfield</th>
</tr>
</thead>
<tbody>
<tr>
<td>5-Year Annualized Rate</td>
<td>4.80%</td>
<td>N/A</td>
</tr>
<tr>
<td>3-Year Annualized Rate</td>
<td>4.90%</td>
<td>N/A</td>
</tr>
<tr>
<td>1-Year Annualized Rate</td>
<td>4%</td>
<td>2.80%</td>
</tr>
<tr>
<td>Q3 2011</td>
<td>3.50%</td>
<td>3%</td>
</tr>
<tr>
<td>Q4 2011</td>
<td>3.30%</td>
<td>2.50%</td>
</tr>
<tr>
<td>Ranking in Northeast (1-Year) of 15</td>
<td>10</td>
<td>5</td>
</tr>
<tr>
<td>Ranking in U.S. (1-Year) of 82</td>
<td>15</td>
<td>9</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Asking Rent Growth</th>
<th>Hartford</th>
<th>Springfield</th>
</tr>
</thead>
<tbody>
<tr>
<td>5-Year Annualized Rate</td>
<td>1.80%</td>
<td>N/A</td>
</tr>
<tr>
<td>3-Year Annualized Rate</td>
<td>1.20%</td>
<td>N/A</td>
</tr>
<tr>
<td>1-Year Annualized Rate</td>
<td>2.20%</td>
<td>2.70%</td>
</tr>
<tr>
<td>Q3 2011</td>
<td>0.70%</td>
<td>0.50%</td>
</tr>
<tr>
<td>Q4 2011</td>
<td>0.70%</td>
<td>0.90%</td>
</tr>
<tr>
<td>Ranking in Northeast (1-Year) of 23</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Ranking in U.S. (1-Year) of 200</td>
<td>25</td>
<td>23</td>
</tr>
</tbody>
</table>

Multifamily housing is becoming a larger part of the region’s new housing construction. While permit activity is down in the region in all sectors due to the impact of the Great Recession on the national real estate market, the multifamily sector constitutes a growing percentage of the total number of new units produced in the region. From 2000 to 2010, multifamily buildings with more than 5 units constituted 14 percent of all units constructed in the Hartford and Springfield regions, but constituted only an average of 11 percent of all units in 2000-2006 and 18 percent from 2007-2011.

Multifamily housing construction is occurring in many locations not connected to transit. Over the past 10 years, new multifamily housing construction has been highly concentrated in just a few municipalities, most notably Manchester, centered around the connection to I-84 and nearby shopping and amenities. Hartford is the only transit-linked community to have a significant amount of new multifamily housing construction.

The regional data on multifamily housing indicate the beginning of an upward cycle. As described earlier, as demand increases, rents are increased to the point where new construction becomes financially feasible. If demand continues to increase for multifamily rental housing, which may occur due to the growth of “Baby Boomers” and “Echo Boomers”, rents in the existing supply will eventu-
Figure 42: Multifamily Permits Issued, 2000-2011

ally be bid up to the point where new construction is feasible.

Summary of Findings - Multifamily

The Hartford / Springfield multifamily markets appear to be reaching a transition point, but also faces challenges in the next few years:

- Vacancy rates are very low and rent growth is ticking up, due to increased demand for multifamily apartment units with little offsetting growth in multifamily housing. As more applicants continue to compete for the same number of units, rents will continue to increase to the point where new construction will be feasible.

- Demographic shifts in the region may explain some of the increase in demand, such as the growth of empty-nesters, young couples without children, and single-person households. These demographic cohorts are expected to continue to grow in coming years, especially the “Baby Boomers”, which could drive demand for additional multifamily units in the future.

- While new construction of multifamily housing in the last 10 years has largely been focused along the I-84 corridor, there may be opportunities to develop new market-rate multifamily housing elsewhere in the region. However, the Sustainable Codes analysis indicates that multifamily housing is not a permitted use in many municipalities in the region and the development community avoids costly and lengthy zoning processes.

- The region is dominated by a supply of existing, older multifamily housing, most of which is more than 20 years old. While generally more affordable, the existence of these market comparables challenge developers and lenders to risk investment on new multifamily housing that must rent at rates considerably higher than the existing supply to cover the costs of construction.

SINGLE-FAMILY

The owner-occupied market makes up the majority of housing units in the Hartford / Springfield regions. Approximately 60 percent of all housing is owner occupied, which includes detached houses, attached townhouses, and/or condominiums. This market varies considerably in building type, including small, large, old, and new.

Owner-occupied housing is most heavily concentrated in suburban areas. Like most U.S. regions, owner-occupied homes dominate the marketplace in suburban areas of the region. High concentrations of owner-occupied housing exist in the Farmington Valley, the towns south and east of Hartford, and the towns surrounding Springfield. Owner-occupied housing predominates in areas of higher median household income, which are generally not located in the NHHS rail and CT Fastraks corridors.

Within the NHHS Rail and CT Fastraks corridors, owner-occupied housing predominates at the Berlin, Newington, Windsor and Windsor Locks stations.
New owner-occupied housing construction is primarily located in communities at the regional fringes. Communities to the far south of the region and along the western periphery had the most growth in owner-occupied housing, because Greenfield land continues to be available for development and housing prices are generally higher.

The owner-occupied housing market is large and diverse, encompassing every municipality in the region in varying degrees. However, owner-occupied housing is most highly concentrated in suburban and rural areas with higher median household incomes. The general trend in the region is that owner-occupied housing percentages and median household incomes increase with distance from...
the urban centers of Hartford and Springfield. The owner-occupied market has been severely impacted by the Great Recession. According to an analysis by UCONN, median sales prices of single-family houses in the Hartford Labor Market Area (LMA) are down 15 percent from the peak in 2006 to $266,111 and in the Enfield LMA they are down 13 percent from the peak in 2006 to $182,069. Prudential Connecticut Realty estimates the Hartford County median sales price at $215,000 in the second quarter of 2012.

Owner-occupied condominium units are down even further in pricing, according to Connecticut state-wide data from UCONN, which indicates that prices have dropped 32 percent from their peak in the third quarter of 2007. Prudential Connecticut Realty estimates the Hartford County median condominium sales price at
$147,500 in the second quarter of 2012.

The general trend in single-family house sales has been downward for the past 5-6 years since the peak in 2006. Housing prices throughout the region have declined approximately 15 percent from the peak for single-family houses and 32 percent for condominiums, although there are indications that the owner-occupied housing market is stabilizing and beginning to recover.

**Home sales prices vary considerably by location within the region.** Median sales prices of owner-occupied housing vary considerably by town and range from $103,690 in New Britain to $317,848 in Farmington. The map in Figure 45 shows the concentration of high sales prices in outlying suburban areas (with the
However, conditions in the owner-occupied market appear to be improving. In the last year, Hartford County pending contracts for single-family houses increased 22.4 percent and closed sales increased 12.5 percent from 2011 to 2012. At the same time, the inventory of single-family housing on the market decreased by 47.2 percent from 2011 to 2012 and, as of the second quarter of 2012, there is 4.3 months of housing supply for sale on the market. Additionally, median single-family sales prices are stabilizing throughout the region, decreasing by only 1.5 percent from 2011 to 2012 in the Enfield LMA and by 5 percent in the Hartford LMA. If current trends persist, the study team expects that single-family housing prices will level off through 2012 and return to a healthy state.

Hartford County pending contracts for condominiums increased 12.2 percent and closed sales increased 11.2 percent from 2011 to 2012. At the same time, the inventory of condominiums on the market decreased by 17.7 percent from 2011 to 2012 and, as of the second quarter of 2012, there is 5.5 months of housing supply on the market.

Summary of Findings - Single-Family

The Hartford / Springfield owner-occupied housing market is stabilizing from the effects of the Great Recession, but the market for new construction of owner-occupied homes in the Station Areas will be limited to certain locations within the corridor:

- High owner-occupied housing values are strongly co-located with high median household incomes, which are mostly found at the outer suburban and rural fringes of the region.

- As predicted by the housing filtering model, new owner-occupied housing construction is largely occurring at the region’s fringes, where builders can access land for new construction of new, larger houses that appeal to high-income earning households, while housing values in older, urban and suburban areas is lower. Additionally, construction of new houses is highest in southern areas of the region and lowest in urban centers and northern areas of the region.

- One notable exception to these trends is Northampton, MA, which has lower levels of new construction of housing and high median sales prices. The market in this area is likely boosted by the strong concentration of colleges and universities, and by Northampton’s particular appeal as a tourist destination.

- The owner-occupied housing market appears to be stabilizing following large declines in prices across the region from 2006-2011. All signs indicate to modest increases in demand for owner-occupied housing this year, which could lead to sales price increases in coming
The corridors currently capture only about 3.5 percent of the region’s population and four percent of the households. This is due to the fact that much of the new housing development has occurred in suburban locations away from the urban core, as discussed above.

<table>
<thead>
<tr>
<th>Geography</th>
<th>Households Number</th>
<th>% of Region</th>
<th>Population Number</th>
<th>% of Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>Busway</td>
<td>17,744</td>
<td>.4%</td>
<td>43,299</td>
<td>.3%</td>
</tr>
<tr>
<td>NHHS Rail</td>
<td>14,348</td>
<td>.9%</td>
<td>30,892</td>
<td>.6%</td>
</tr>
<tr>
<td>Both Corridors</td>
<td>28,788</td>
<td>.9%</td>
<td>66,860</td>
<td>.5%</td>
</tr>
<tr>
<td>Region*</td>
<td>741,624</td>
<td>100.0%</td>
<td>1,905,323</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

During the next three decades, the region is projecting a growth of 154,000 residents. According to the forecasts from PVPC and CRCOG, the region’s population is anticipated to continue to grow slowly, at an average annual rate of 0.33 percent annually, from 2010 to 2040.

<table>
<thead>
<tr>
<th>Regional Government</th>
<th>2010</th>
<th>2040 Growth</th>
<th>Average Annual Growth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capitol Region Council of Governments</td>
<td>862,670</td>
<td>972,611</td>
<td>109,941 0.40%</td>
</tr>
<tr>
<td>Pioneer Valley Planning Commission</td>
<td>621,570</td>
<td>665,538</td>
<td>43,968 0.23%</td>
</tr>
<tr>
<td><strong>Total Region</strong></td>
<td><strong>1,484,240</strong></td>
<td><strong>1,638,149</strong></td>
<td><strong>153,909 0.33%</strong></td>
</tr>
</tbody>
</table>

Source: Capitol Region Council of Governments, Pioneer Valley Planning Commission, Strategic Economics, 2012

By 2040, the region is estimated to grow by 60,000 households. Employing the conservative assumption that the region’s households retain their existing average size of 2.57 persons, it can be estimated that the region will grow by 60,000 households. This number could be higher if household sizes continue to shrink.

<table>
<thead>
<tr>
<th></th>
<th>2010</th>
<th>2040 Growth</th>
<th>Growth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population</td>
<td>1,484,240</td>
<td>1,638,149</td>
<td>153,909</td>
</tr>
<tr>
<td>Average Household Size 2</td>
<td>.57</td>
<td>.57</td>
<td></td>
</tr>
<tr>
<td>Households</td>
<td>577,723</td>
<td>637,630</td>
<td>59,907</td>
</tr>
</tbody>
</table>

Source: Capitol Region Council of Governments, Pioneer Valley Planning Commission, Strategic Economics, 2012