

## Massachusetts Regional Labor Market Profiles: Geographic Definition Appendix

### *The Regional Labor Markets*

The Massachusetts regional labor market profiles were developed for eight regions in Massachusetts: Berkshire, Boston/Metro North, Cape & Islands, Central Mass, Metro South/West, Northeast, Pioneer Valley, and Southeast. The regions' boundaries are defined by the sixteen Workforce Investment Areas (WIAs) in Massachusetts (See Map 1).<sup>1</sup> The WIAs were split into the eight regions based on the similarities of the regional labor markets (For the detailed geographic components of the eight regional labor market see the Geographic Data Appendix).

The defined regions help improve the fit of the regions to available data series that describe the labor supply and labor demand of the regional labor markets. The profiles rely on five major data sources to analyze regional labor market conditions: U.S. Census Bureau Decennial Census and American Community Survey (ACS) Public Use Microdata Samples (PUMS), Massachusetts Executive Office of Labor and Workforce Development (EOLWD) Labor Force Statistics, Massachusetts EOLWD ES-202 Employment Data, Massachusetts EOLWD Jobs Vacancy Survey, and the Integrated Postsecondary Educational Data System (IPEDS) surveys. Please see the Methodological Appendix for further information on these data series.

Fortunately, a number of the data series from the EOLWD have data by WIAs (i.e. Labor Force Statistics and ES-202 Employment data) and perfectly fit the geographic boundaries of the WIA-defined labor markets in the profiles. The IPEDS survey also fits perfectly to the defined regions as the data is provided at the institutional level and includes the exact address of postsecondary educational institutions, enabling assignment of institutions to region by zip code. However, the U.S. Census Bureau Decennial Census and ACS PUMS, and the Massachusetts EOLWD Jobs Vacancy Survey have geographic limitations that need to be taken into consideration when analyzing data for small geographic areas.

### *U.S. Census Bureau Decennial Census and ACS: Geographic Limitations*

The U.S. Census Bureau releases PUMS data that provides researchers a rich source of information on individual and household characteristics at various geographic levels. However, these data are subject to the limitations of sample size, geographic identification, and confidentiality protection. As a result the smallest geographic components of the PUMS data are Public Use Microdata Areas (PUMAs), which have a minimum population count of 100,000 to maintain the confidentiality of survey respondents. The PUMAs do not cross state boundaries and typically conform to the boundaries of county subdivisions (i.e. municipalities).

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<sup>1</sup> For further information on Workforce Investment Areas in Massachusetts, visit the Massachusetts Workforce Investment Board Association at [www.massworkforce.com/region-map.php](http://www.massworkforce.com/region-map.php).

To use these data each of the 52 PUMAs in Massachusetts is assigned to one of the eight regional labor markets.<sup>2</sup> Unfortunately, the PUMAs do not fit perfectly within the boundaries of the WIA-defined regional labor markets. The PUMAs were therefore assigned based on the best coverage of the major areas of residency and employment for each WIA-defined regional labor market. Map 2 shows the boundaries of the PUMA-defined regional labor markets and Map 3 shows the towns that fall into PUMA-defined regions but should be part of the WIA-defined regions.

Table 1 details the population coverage rates of the PUMA-defined regions relative to the WIA-defined regions based on U.S. Census Bureau town population counts from the 2010 Census. Table 2 details the employment coverage rates of the PUMA-defined regions based on Massachusetts EOLWD ES-202 data on town annual average employment in 2010.

Table 1. Population Coverage Rate of PUMA Regional Labor Markets

	2010 Population by WIA-Defined Region	2010 Population by PUMA-Defined Region	2010 Population Coverage of PUMA Regions to WIA Regions
Berkshire	131,219	115,245	87.8%
Boston/Metro North	1,379,025	1,279,537	92.8%
Cape & Islands	242,595	242,595	100.0%
Central Mass	821,808	693,813	84.4%
Metro South/West	911,991	1,095,327	120.1%
Northeast	1,018,563	1,040,706	102.2%
Pioneer Valley	708,700	725,117	102.3%
Southeast	1,333,728	1,355,289	101.6%

Source: U.S. Census Bureau 2010 Sample File 1 County Subdivision Population Counts.

Table 2. Employment Coverage Rate of PUMA Regional Labor Markets

	2010 Employment by WIA-Defined Region	2010 Employment by PUMA-Defined Region	2010 Employment Coverage of PUMA Regions to WIA Regions
Berkshire	60,150	56,735	94.3%
Boston/Metro North	925,569	892,185	96.4%
Cape & Islands	102,028	102,028	100.0%
Central Mass	315,594	272,724	86.4%
Metro South/West	521,409	572,264	109.8%
Northeast	405,578	410,174	101.1%
Pioneer Valley	281,611	285,337	101.3%
Southeast	502,940	523,432	104.1%

Source: Massachusetts EOLWD ES-202 Annual Average Municipal Employment Data for 2010.

<sup>2</sup> For detailed information on Massachusetts PUMAs, see [http://www2.census.gov/geo/maps/puma/puma2k/ma\\_puma5.pdf](http://www2.census.gov/geo/maps/puma/puma2k/ma_puma5.pdf)

Map 3 illustrates how three particular regions are impacted by the use of PUMAs: Berkshire, Central Mass, and Metro South/West. Berkshire is covered by only one PUMA due to the small population in the region. However, the towns in Berkshire that are part of Pioneer Valley in the Census and ACS data contain a fairly small share of the region's population and employment. As result, PUMA 100 covers 87.8 percent of Berkshire's population and 94.3 percent of its jobs.

Central Mass has the poorest coverage rates by PUMA, covering only 84.4 percent of the region's population and 86.4 percent of the region's employment. The low coverage is largely due to PUMA 400 containing the towns of Milford (from the Central Mass region) and Marlborough (from the Metro South/West region). PUMA 400 was ultimately assigned to Metro South/West as Marlborough has around 10,000 more residents than Milford and 14,000 more jobs.

Metro South/West has the opposite issue, covering a larger geography when defined by PUMAs rather than WIAs. Relative to the WIA-defined region's population, Metro South/West's PUMA population coverage is about 120.1 percent and its employment coverage is 109.8 percent. This is in part due to PUMA 400, but also PUMA 2400, which contains the towns of Waltham and Lexington (from Metro South/West) and Arlington, Belmont, and Watertown (from Boston/Metro North). PUMA 2400 was ultimately assigned to Metro South/West as Waltham is a major residential and employment center of the region, more so than Arlington, Belmont, and Watertown are to Boston/Metro North. Arlington in particular had a fairly sizeable residential population (42,844 in 2010), and the assignment of PUMA 2400 to Metro South/West resulted in the 92.8 percent population coverage in Boston/Metro North (For the assignment of all municipalities by regional labor market see the Geographic Data Appendix). These population and employment coverage rates are important to understand when interpreting the analysis of the regional labor market profiles from the Census and ACS.

#### *EOLWD Massachusetts Job Vacancy Survey: Geographic Limitations*

The seven regional labor markets in the Job Vacancy Survey are fairly similar to those of the regional labor markets defined by WIAs. The major difference is that Boston/Metro North and Metro South/West are not separated and instead a region referred to as Greater Boston is used. The seven regions defined by the Job Vacancy Survey therefore are: Berkshire, Cape & Islands, Central Mass, Greater Boston, Northeast, Pioneer Valley, and Southeast (See Map 4). Unlike the Census and ACS data, the regions covered by the Job Vacancy Survey were determined by the EOLWD and do not require any additional analysis to assign to WIA defined labor markets. However, the boundaries of the regions do not perfectly fit the boundaries defined by WIA. Map 5 shows the differences between the WIA-defined regions and the regions defined by the Job Vacancy Survey by highlighting the towns that are assigned to a different region in the Job Vacancy Survey. Table 3 details the employment coverage rates of the Job Vacancy Survey-defined regions relative to the WIA-defined regions based on Massachusetts EOLWD ES-202 data on town annual average employment in 2010.

Table 3. Employment Coverage Rate of Job Vacancy Survey Regions

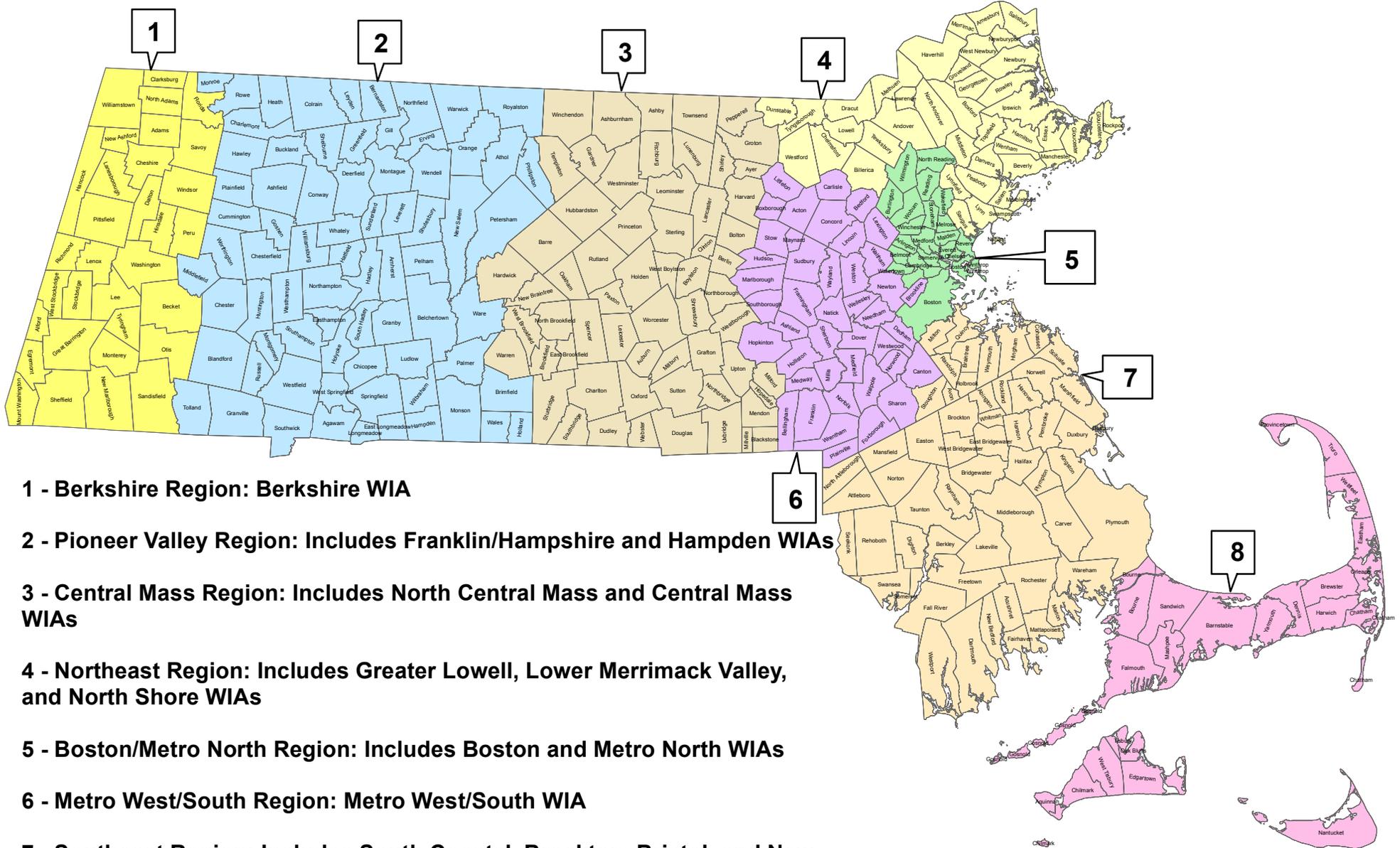
	2010 Employment by WIA Regions	2010 Employment by Job Vacancy Survey Regions	2010 Employment Coverage of Job Vacancy Survey to WIA Regions
Berkshire	60,150	60,150	100.0%
Cape & Islands	102,028	102,028	100.0%
Central Mass	315,594	266,646	84.5%
Greater Boston	1,446,978	1,597,404	110.4%
Northeast	405,578	425,051	104.8%
Pioneer Valley	281,611	281,611	100.0%
Southeast	502,940	381,989	76.0%

Source: Massachusetts EOLWD ES-202 Annual Average Municipal Employment Data for 2010.

Map 5 shows how the large Greater Boston region defined by the Jobs Vacancy Survey creates geographic coverage issues. The region most impacted is Southeast. Southeast’s employment coverage rates falls to 76.0 percent for the job vacancy region, as some of the region’s larger employment centers (such as Quincy, Braintree, and Weymouth) are counted in Greater Boston. The employment coverage of Central Mass is only 84.5 percent as some of the region’s larger employment centers (such as Westborough and Milford) also fall into the Greater Boston region. The boundaries for Northeast’s labor market are almost the same in the Job Vacancy Survey as those defined by WIAs, with the exception of Bedford (part of Metro South/West when defined by WIA) and its 19,473 jobs, which are counted in Northeast under the Job Vacancy Survey. Berkshire, Pioneer Valley, and Cape & Islands Job Vacancy regions fit the exact same boundaries as the WIA-defined regions and have 100 percent coverage rates (For the assignment of all municipalities by job vacancy region see the Geographic Data Appendix).

# Map 1. Eight Regional Labor Market Areas

Defined by Workforce Investment Areas (WIAs)



**1 - Berkshire Region: Berkshire WIA**

**2 - Pioneer Valley Region: Includes Franklin/Hampshire and Hampden WIAs**

**3 - Central Mass Region: Includes North Central Mass and Central Mass WIAs**

**4 - Northeast Region: Includes Greater Lowell, Lower Merrimack Valley, and North Shore WIAs**

**5 - Boston/Metro North Region: Includes Boston and Metro North WIAs**

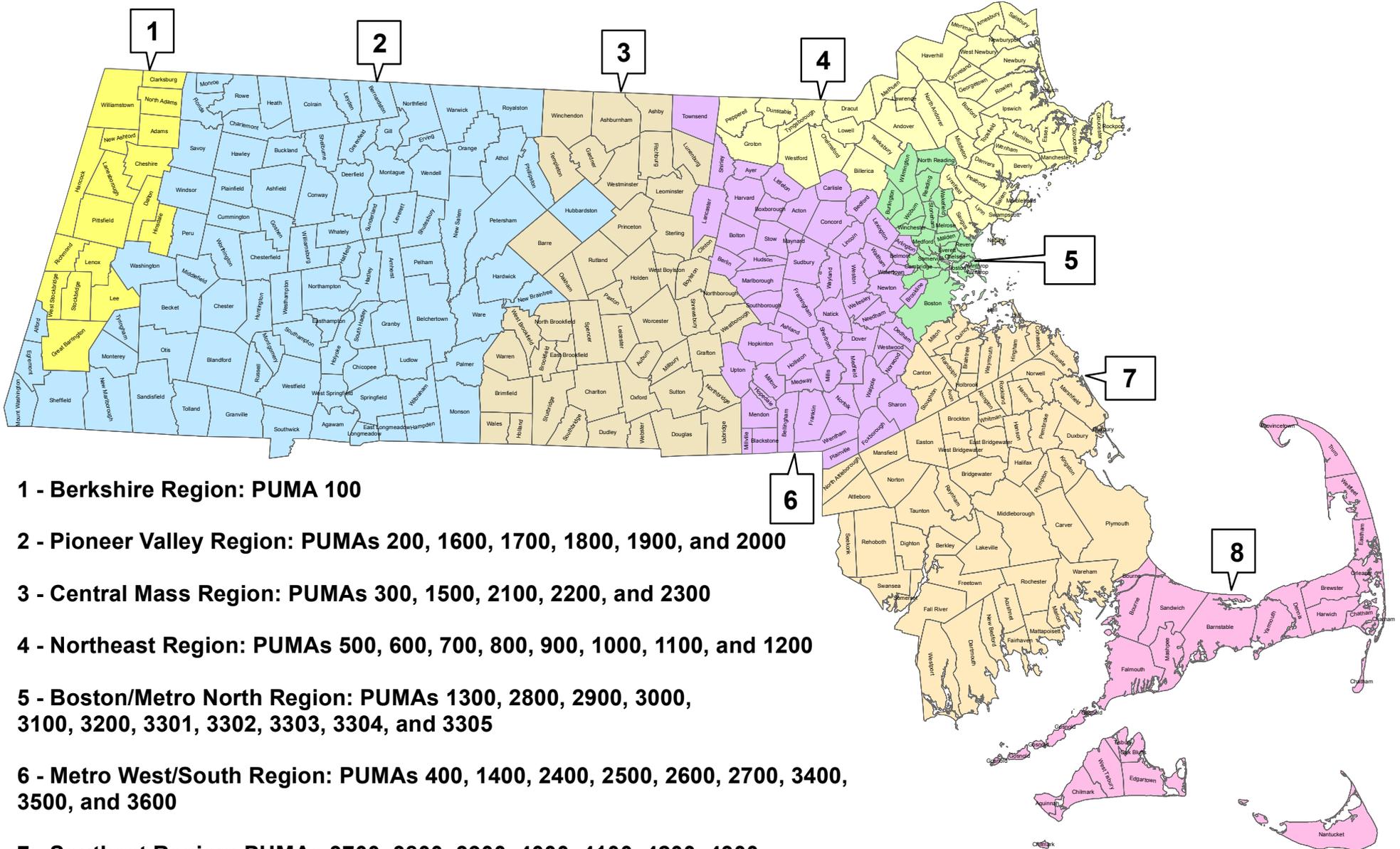
**6 - Metro West/South Region: Metro West/South WIA**

**7 - Southeast Region: Includes South Coastal, Brockton, Bristol, and New Bedford WIAs**

**8 - Cape & Islands Region: Cape and Islands WIA**

# Map 2. Eight Regional Labor Market Areas

Defined by Public Use Micro Areas (PUMAs)



**1 - Berkshire Region: PUMA 100**

**2 - Pioneer Valley Region: PUMAs 200, 1600, 1700, 1800, 1900, and 2000**

**3 - Central Mass Region: PUMAs 300, 1500, 2100, 2200, and 2300**

**4 - Northeast Region: PUMAs 500, 600, 700, 800, 900, 1000, 1100, and 1200**

**5 - Boston/Metro North Region: PUMAs 1300, 2800, 2900, 3000, 3100, 3200, 3301, 3302, 3303, 3304, and 3305**

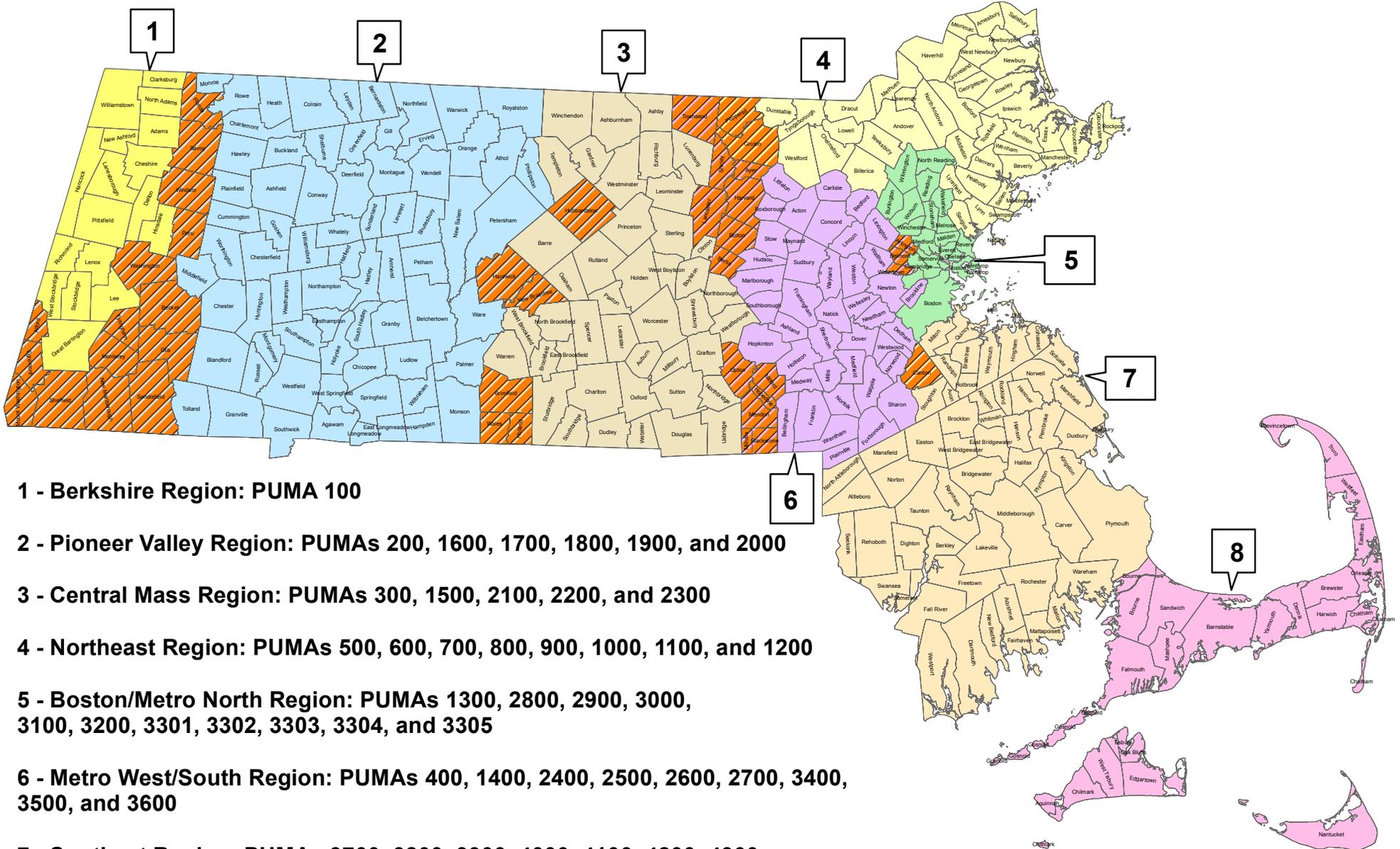
**6 - Metro West/South Region: PUMAs 400, 1400, 2400, 2500, 2600, 2700, 3400, 3500, and 3600**

**7 - Southeast Region: PUMAs 3700, 3800, 3900, 4000, 4100, 4200, 4300, 4400, 4500, and 4600**

**8 - Cape & Islands Region: PUMAs 4700 and 4800**

# Map 3. Eight Regional Labor Market Areas

Defined by Public Use Micro Areas (PUMAs)



**1 - Berkshire Region: PUMA 100**

**2 - Pioneer Valley Region: PUMAs 200, 1600, 1700, 1800, 1900, and 2000**

**3 - Central Mass Region: PUMAs 300, 1500, 2100, 2200, and 2300**

**4 - Northeast Region: PUMAs 500, 600, 700, 800, 900, 1000, 1100, and 1200**

**5 - Boston/Metro North Region: PUMAs 1300, 2800, 2900, 3000, 3100, 3200, 3301, 3302, 3303, 3304, and 3305**

**6 - Metro West/South Region: PUMAs 400, 1400, 2400, 2500, 2600, 2700, 3400, 3500, and 3600**

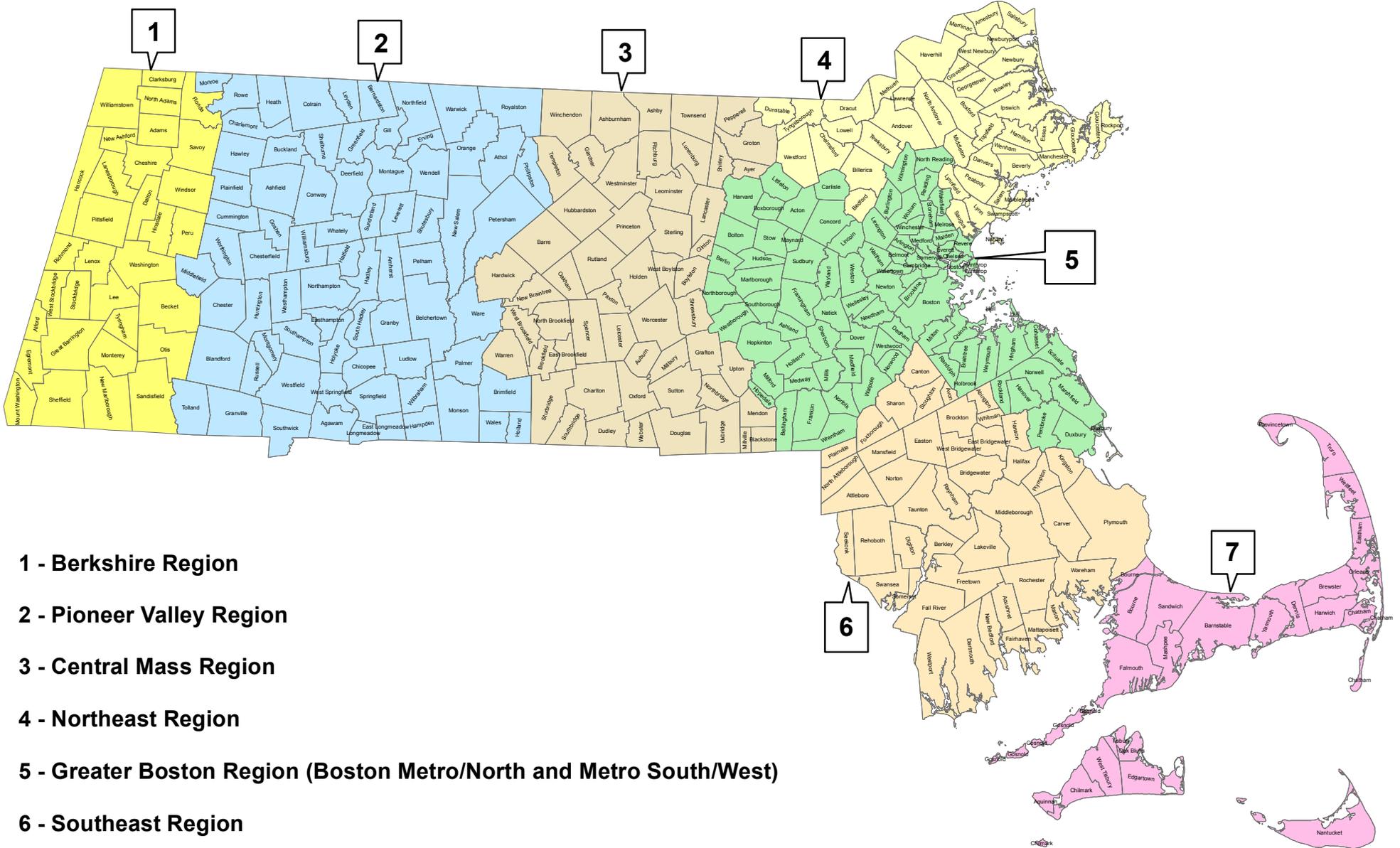
**7 - Southeast Region: PUMAs 3700, 3800, 3900, 4000, 4100, 4200, 4300, 4400, 4500, and 4600**

**8 - Cape & Islands Region: PUMAs 4700 and 4800**

 Towns that do not fit in correct region due to geographic limitations

# Map 4. Seven Regional Labor Market Areas

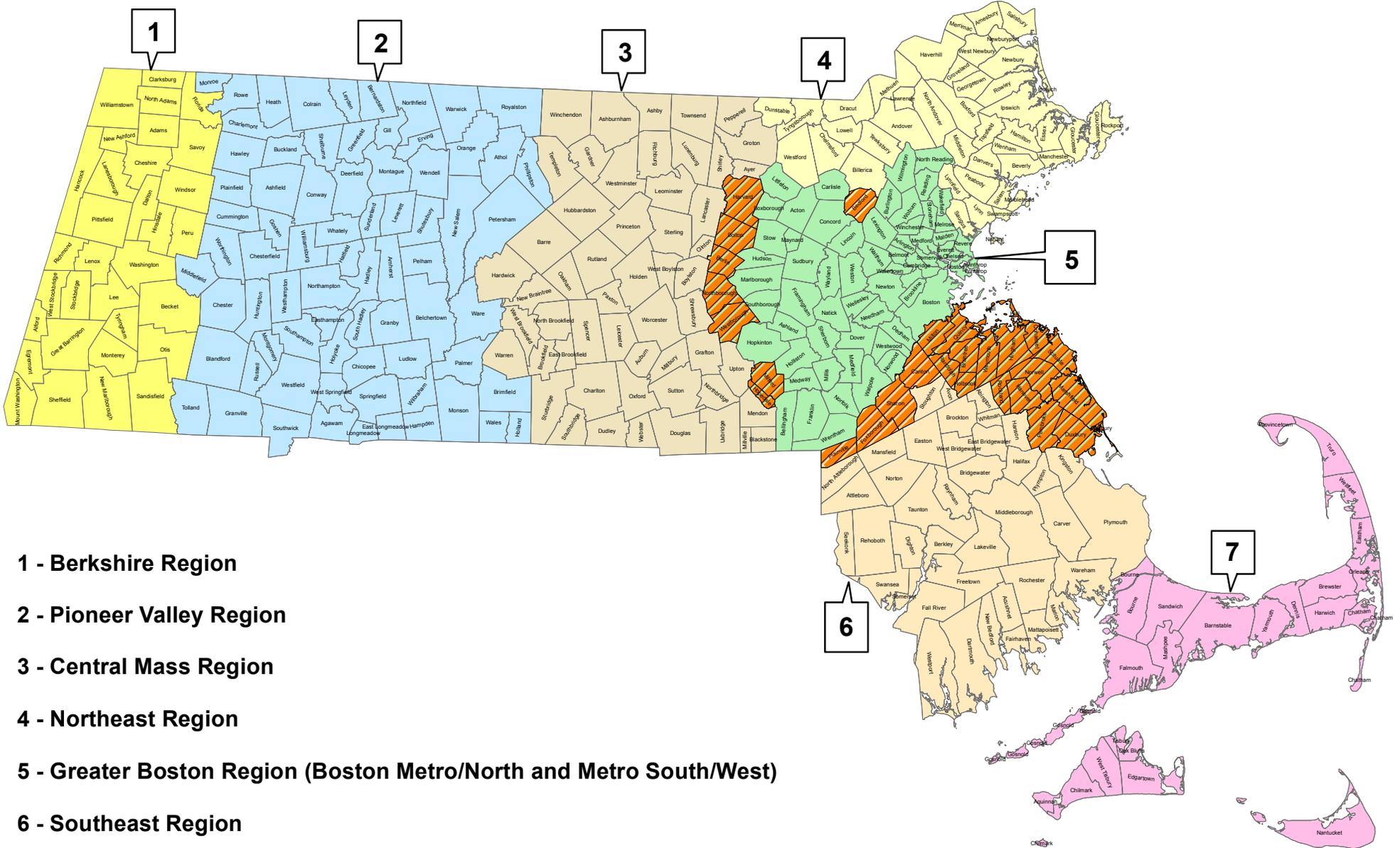
Covered by Massachusetts Job Vacancy Survey



- 1 - Berkshire Region**
- 2 - Pioneer Valley Region**
- 3 - Central Mass Region**
- 4 - Northeast Region**
- 5 - Greater Boston Region (Boston Metro/North and Metro South/West)**
- 6 - Southeast Region**
- 7 - Cape & Islands Region**

# Map 5. Seven Regional Labor Market Areas

Covered by Massachusetts Job Vacancy Survey



1 - Berkshire Region

2 - Pioneer Valley Region

3 - Central Mass Region

4 - Northeast Region

5 - Greater Boston Region (Boston Metro/North and Metro South/West)

6 - Southeast Region

7 - Cape & Islands Region

 Towns that do not fit in correct region due to geographic limitations