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Employment and Job Vacancy Developments Across Industries of Massachusetts and Local Workforce Development Areas/Economic Development Districts: Their Implications for Future Job Training andWorkforce Development Initiatives

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Table of Contents

Introduction

Workforce development policymaking and program planning at the state and local level is dependent upon the availability of timely and statistically reliable labor market and occupational information.[1] Efforts to place jobseekers in One Stop Career Centers and other labor exchange offices require information on available job openings, their occupational characteristics, hiring requirements, and geographic location. The planning of job training programs should be based on knowledge of recent and anticipated employment developments by industry and occupation, the numbers of available job openings by industry and occupation, the geographic locations of the firms with these job openings, and the hiring requirements/wages of these job openings. Public policies to promote labor market efficiency by more effectively matching job vacancies with the number of unemployed persons are dependent on information on the industrial and occupational characteristics of both job openings and the unemployed.[2] Such information would help identify labor shortages and surpluses in industries and occupations and provide guidance to labor exchange and job training agencies in their efforts to place applicants in jobs.

Until recently (2003), workforce development planners and labor market analysts in Massachusetts were handicapped in their efforts to rigorously identify labor shortages and surpluses by an absence of comprehensive job vacancy data by industry or occupation.[3] Since the fall of 2002, however, the Massachusetts Department of Workforce Development has undertaken a statewide, semi-annual job vacancy survey that provides estimates of the number of job vacancies in the state as a whole, major industrial sectors, major occupational groups, and for seven geographic regions of the state. The job vacancy estimates can be used together with data on employment developments by industry to identify industries at the state and regional level that meet selected job growth and job openings criteria and, thus, can serve as targets for job training efforts. This research paper is designed to provide a comprehensive analysis of both industry employment and job vacancy developments in Massachusetts in recent years both at the state level and in selected substate areas and to assess the implications of these findings for workforce development planning and policy-making.

An Overview of the Report's Findings

The empirical sections of the paper will begin with a description of the data sources and key concepts underlying the estimates of employment by industry, job vacancies by industry, and unemployment by industry. A variety of state and national labor market data bases were used in conducting the analysis, including some unpublished findings from the state job vacancy surveys. This review of data sources will be followed by an analysis of industry employment developments in Massachusetts over the following two time periods: 2001-2004 and 2004 I – 2005 I. Wage and salary employment (seasonally adjusted) in Massachusetts peaked in the first quarter of 2001. Over the following three years, the aggregate number of wage and salary jobs declined fairly steadily and strongly, but job growth resumed in the first quarter of calendar year 2004. Even during the period of severe job losses, some industries in Massachusetts continued to increase their payroll employment levels. We will identify growth industries in both time periods for both major industrial sectors and more disaggregated individual industries.[4] A similar set of findings on industry employment growth and decline for sixteen Workforce Investment Board areas across the state is provided in two appendices to this paper. (See Appendix A and B).

The industry employment analysis will be followed by a review and analysis of job vacancy data for Massachusetts over the past few years, with a major emphasis on job vacancy findings by industry for calendar year 2004. Job vacancy rates for the entire nonfarm economy in Massachusetts, for major industrial sectors, and for individual industries will be presented and analyzed, including comparisons of job vacancy rates by major industrial sector for the U.S. and Massachusetts in the fourth quarter of 2004.[5] Estimates of the level of job vacancies by major industrial sector in Massachusetts will be compared to the estimated level of unemployment in each of those sectors to derive indicators of the relative degree of labor surpluses and shortages in those industries.[6]

The analysis of state job vacancy and unemployment data will be supplemented with an analysis of similar data for seven regions of the state based on the boundaries of economic development districts. Job vacancy rates in the aggregate and by major industrial sector will be examined for each of these seven regions, and comparisons of the findings across these regions will be provided. The final section will provide a brief summary of key findings, assess their implications for the state's workforce development system, and outline a series of future research issues on occupational employment developments and job vacancies by occupational area across the state.

Data Sources on Key Industry Employment, Job Vacancy, and Unemployment Measures

The data on industry employment levels, job vacancies by industry, and unemployment levels by industry appearing in this research report are based on a variety of different state and national data sources, including administrative data on wage and salary employment levels by industry, innovative state surveys on job vacancies by industry, and CPS household surveys on the labor force behavior of the resident population, including their unemployment status.[7] The Massachusetts data on wage and salary employment levels by major industrial sector and individual industries are based on the ES-202 administrative data base of the Massachusetts Division of Unemployment Assistance. The monthly and annual employment data from the ES-202 system represent a complete count of wage and salary jobs in private firms and government agencies that are covered by the provisions of federal and state unemployment insurance laws. The employment data represent wage and salary jobs on the formal payrolls of these firms. They exclude the self-employed, independent contractors for these firms, and unpaid workers in family businesses.[8] Each employer included in the data base is assigned a 2, 3, and 4 digit NAICS industry code that identifies the main product or service provided by the firm or government agency. Some industries, such as hospitals and educational services, will include both private sector firms and government agencies. The ES-202 employment data are available on a statewide basis and for a variety of substate areas, including labor market areas, counties, local WIA workforce investment boards, and regional economic development districts.

The job vacancy data presented in this paper are derived from two different surveys: a semi-annual job vacancy survey conducted by the Massachusetts Division of Unemployment Assistance and a monthly, national job vacancy survey conducted by the U.S. Bureau of Labor Statistics. The state survey is based on a representative sample of private sector firms and government agencies. Estimates of job vacancies are provided for the state as a whole and for seven regional economic development districts. These job vacancy estimates are produced for the entire nonfarm economy, for major industrial sectors, selected industries, and for occupational groups. Job vacancies represent currently available job openings for which the firm is actively seeking applicants from outside the company. Vacancies can be part-time or full-time, permanent or temporary/seasonal. The national job vacancy data collected by the U.S. Bureau of Labor Statistics are available for the nation as a whole and for four geographic regions.[9] The national vacancy survey also produces estimates of job vacancies by major industrial sector but not by occupational group. Findings from both the state and national job vacancy surveys will be used to compare the job vacancy rates by major industrial sector for the nation and the state in calendar year 2004.

Finally, data on unemployment levels for the state as a whole, for major industrial sectors in the state, and for geographic regions within the state were derived from the Local Area Unemployment Statistics (LAUS) program and the monthly Current Population Survey (CPS). The LAUS program is operated by the Massachusetts Division of Unemployment Assistance and is used to produce both monthly and annual average data on the size of the state's resident labor force and its employed and unemployed populations.[10] Data are also available for substate areas. The CPS survey is used by the U.S. Bureau of Labor Statistics to estimate the monthly size of the national labor force, the pool of employed and unemployed persons of working-age (16 and older), and the monthly unemployment rate. CPS data are available for Massachusetts and each of the other 49 states. The CPS also collects data on the industry of last job attachment of the unemployed, thereby allowing us to generate annual average estimates of unemployment in major industrial sectors. The unemployment data and job vacancy data by major industrial sector will be combined at several points to produce estimates of the comparative degree of labor surpluses and shortages in major industrial sectors of the state in 2004.

Trends in Massachusetts Wage and Salary Employment by Major Industrial Sectors and Three-Digit NAICS Industries

In an earlier research paper in this series, we analyzed wage and salary employment developments in Massachusetts across major industries during the 1980's, the recessionary period of the late 1980's and early 1990's, the 1990's labor market boom, and from early 2001 through the third quarter of 2005.[11] Comparisons of trends in job growth over time within the state were made, and Massachusetts job growth over the 2001– 2005 period was contrasted with that of the U.S. and other states across the country. This paper will primarily focus on wage and salary job growth in the state across broad industrial sectors and individual industries over two time periods: 2001 to 2004 and from the first quarter of calendar year 2004 through the first quarter of calendar year 2005, primarily relying on data from the ES-202 employment series. Findings will be provided for the state as a whole, for major industrial sectors classified at the two-digit NAICS level, and for selected number of individual industries at the 3-digit NAICS level. Similar industry employment analyses for local Workforce Investment Boards across the state are provided in a set of comprehensive statistical appendices to this report.

Wage and salary employment levels for the state as a whole and for major industrial sectors in calendar years 2001 and 2004 are displayed in Table 1. The jobs boom of the 1990's decade came to an abrupt end, in the first quarter of calendar year 2001. The number of wage and salary jobs (seasonally adjusted) declined from the end of the first quarter of 2001 though the first quarter of 2004. Job growth resumed in the first quarter of 2004. From 2001 to 2004, the Massachusetts economy experienced a net loss of 136,474 jobs (Table 1). Over this three year period, ES-202 wage and salary employment in Massachusetts declined from nearly 3.28 million to 3.14 million, a drop of 4.2%, far exceeding the rate of job loss in the nation over this same three year period.[12]

Over this three year period, wage and salary employment changes varied considerably across major industrial sectors of the state. In Table 1, employment data for the state are broken out into 20 broad industrial sectors. The manufacturing sector is subdivided in two sub-sectors: durable manufacturing and non-durable manufacturing. In 13 of these 20 sectors, wage and salary employment levels declined between 2001 and 2004, with a combined job loss of -179,906 in these 13 sectors (Table 2). On the other hand, seven industrial sectors, including primarily five private service related sectors, experienced some job growth over this three year period. The combined employment increases in these seven industries were equal to 43,432 jobs, far below the job losses generated by the declining industrial sectors. The net job loss was equal to -136,474, one of the two worst performances in the nation.

The state's manufacturing sector accounted for more than 80 percent of the gross number of jobs lost between 2001 and 2004. A total of 76,141 jobs were lost in the manufacturing sector with most of these declines taking place in the durable goods manufacturing sub-sector over this time period. Many of the jobs in the state's manufacturing sector comprise part of the state's export base involving sales of products outside the state and frequently outside the

Table 1: Changes in ES-202 Employment by 2-digit NAICS Industry, 2001-2004

NAICS Code	Description	2001	2004	Absolute Change	% Change
	Total, all industries	3,276,103	3,139,629	-136,474	-4.17
11	Agriculture, Forestry, Fishing & Hunting	6,408	6,860	452	7.05
21	Mining	1,424	1,829	406	28.49
23	Construction	151,270	150,159	-1,111	-0.73
31-33	Manufacturing	389,232	313,291	-75,941	-19.51
	Durable Goods Manufacturing	262,550	205,336	-57,214	-21.79
	Non-Durable Goods Manufacturing	126,682	107,955	-18,727	-14.78
22	Utilities	15,134	13,741	-1,393	-9.20
42	Wholesale Trade	141,086	135,265	-5,821	-4.13
44-45	Retail Trade	359,024	356,206	-2,818	-0.78
48-49	Transportation and Warehousing	113,128	102,221	-10,907	-9.64
51	Information	117,751	92,623	-25,128	-21.34
52	Finance and Insurance	183,989	172,877	-11,112	-6.04
53	Real Estate and Rental and Leasing	44,899	44,809	-90	-0.20
54	Professional and Technical Services	247,890	227,554	-20,336	-8.20
55	Management of Companies and Enterprises	71,925	64,681	-7,244	-10.07
56	Administrative and Waste Services	170,152	162,818	-7,334	-4.31
61	Educational Services	294,213	299,340	5,127	1.74
62	Health Care and Social Assistance	429,761	451,464	21,703	5.05
71	Arts, Entertainment, and Recreation	46,961	51,261	4,300	9.16
72	Accommodation and Food Services	237,739	244,935	7,196	3.03
81	Other Services, Ex. Public Admin	113,608	117,856	4,248	3.74
92	Public Administration	140,511	129,840	-10,671	-7.59

Table 2: Net Employment Changes Between 2001 and 2004 in Industrial Sectors with Job Losses and Job Gains

Type of Sector	Number of Sectors in Category	Net Change in Employment
Job declines	13	-179,906
Job gains	7	+43,432

county.[13] Job losses in this sector and in key services industries have made it difficult for states to grow. Other industry sectors that suffered severe job losses over the 2001-2004 period were: Professional and Business Services which lost 35,547 jobs or 7.3 percent of all jobs in that industry, information Services, Trade/Transportation/and Utilities, Financial Activities, and Public Administration. In the information services industries, the loss of employment from

2001 to 2004 was 25,208 jobs, representing about 21% of the total jobs in that sector in 2001. In its December 15, 2005 report on conditions in Massachusetts labor markets in November of that year, the Massachusetts Division of Unemployment Assistance noted that there have been some modest employment gains in this sector in recent months but that employment in this super sector in November was still 33,300 or 28% below its peak employment level in January 2001.[14] This industrial sector had been one of the engines of economic growth in the state in the 1990s.

As noted above, there were seven industrial sectors where wage and salary employment increased over the 2001 – 2004 period. The vast bulk of the new jobs in these industries were generated by the health care and social assistance, educational services, accommodation and food services, and arts/entertainment and recreation industries. (Table 1). With the exception of tourist related jobs in the accommodation and food services industries and some of the jobs in specialty hospitals and medical research laboratories, many of the jobs in these growth sectors were part of the non-export local base of the economy, selling goods and services to local residents rater than to buyers from outside the state. The overall weakness of the state's export base contributed to the poor job generating performance of the state over the 2001 – 2004 period.

We also have analyzed the employment ES-202 data at the 3-digit NAICS levels in order to identify individual industries that might have experienced some growth in employment but were in industrial sectors where overall employment declined. There were two major sectors, manufacturing and information services where there were no 3- digit industries with job growth over the 2001 – 2004 period, but other industrial sectors, that experienced job declines at the aggregate level between 2001 and 2004 had specific 3-digit industries in which employment increased during this time period.

We have identified all 3-digit NAICS industries in which wage and salary employment increased by 300 or more jobs between 2001 and 2004. (Table 3). In the trade, transportation and utilities sector, there were seven 3-digit NAICS industries that reported increases in employment from 2001 to 2004, all of these industries where in wholesale or retail trade. There were three industries in the trade sector where employment increased considerably. Employment in the Electronic markets sector increased by 3,388 or 26% from 2001 to 2004, Motor vehicle and parts dealers registered an increased in employment of 2,136 or nearly 6%, and Building material and garden supply stores generated an increase of 2,292 jobs or nearly 9%

While employment in the overall construction industry declined by 1,111 jobs over the 2001-2004 time period, there were two construction industries (NAICS 236 and 238) where wage and salary employment grew over this period. Building construction, primarily home construction added 2,200 jobs, a gain of 7.5%, while specialty trade contractors added another 2,700 jobs.

Within the Financial Activities sector, there were two three-digit NAICS industries that generated job growth, the Credit intermediation industry (NAICS 522) boosted employment by 1,222 jobs or 2% and Real estate sector added 1,050 jobs, a 3.5% gain. Growth in these two

Table 3: Three-Digit NAICS Industries that Experienced An Absolute Increase in Employment of 300 or More Jobs by Industry Sector in Massachusetts, 2001 – 2004 (Annual Averages)

NAICS Code	Description	(A) 2001	(B 2004)	(C) Absolute Change	(D) % Change
	Total, all industries				
	Natural Resources and Mining	**7,832**	**8,689**	**857**	**10.95**
212	Mining (except Oil and Gas)	1,393	1,711	318	22.86
	Construction				
236	Construction of Buildings	29,752	31,986	2,234	7.51
238	Specialty Trade Contractors	90,625	93,285	2,660	2.93
	Trade				
424	Merchant Wholesalers, Nondurable Goods	46,598	46,973	375	0.81
425	Electronic Markets and Agents/Brokers	21,261	24,649	3,388	15.93
441	Motor Vehicle and Parts Dealers	36,613	38,749	2,136	5.83
442	Furniture and Home Furnishings Stores	12,604	13,195	591	4.69
444	Building Material & Garden Supply Stores	25,526	27,818	2,292	8.98
446	Health and Personal Care Stores	26,362	26,795	433	1.64
452	General Merchandise Stores	42,589	43,446	857	2.01
	Financial Activities				
522	Credit Intermediation & Related Activity	60,992	62,214	1,222	2.00
531	Real Estate	29,799	30,849	1,050	3.52
	Professional and Business Services				
562	Waste Management and Remediation Services	9,034	9,591	557	6.17
	Education and Health Services				
611	Educational Services	294,213	299,340	5,127	1.74
621	Ambulatory Health Care Services	124,609	127,122	2,514	2.02
622	Hospitals	155,999	170,619	14,620	9.37
623	Nursing and Residential Care Facilities	89,074	91,348	2,274	2.55
624	Social Assistance	60,080	62,375	2,295	3.82
	Leisure and Hospitality				
711	Performing Arts and Spectator Sports	7,661	8,476	815	10.64
713	Amusement, Gambling & Recreation	33,212	36,937	3,725	11.22
722	Food Services and Drinking Places	202,043	211,782	9,739	4.82
	Other Services				
812	Personal and Laundry Services	35,524	35,890	366	1.03
814	Private Households	15,673	20,212	4,539	28.96
	Public Administration				
926	Administration of Economic Programs	6,966	7,601	635	9.12

sectors was related to the refinancing boom in the home industry and to sales of new and used homes, aided by a substantial run-up in housing prices in the state. In the heath sector, employment increased strongly in all three major industries: ambulatory and residential care facilities. The social services industries also boosted employment by close to 4 per cent. Nearly 20,000 net new jobs were created by these three health care industries (Table 3).

The Renewal of Job Growth in the State, 2004 I – 2005 I

Since the first quarter of calendar year 2004, wage and salary employment (seasonally adjusted) in Massachusetts has been rising. Between the first quarter of 2004 and the first quarter of 2005, wage and salary employment based on the ES-202 administrative data system increased by approximately 22,700 jobs, representing a growth rate of slightly over .7% over this time period (Table 4). The growth rate of wage and salary employment in the state was only 40 percent as high as that of the nation over the same time period. The U.S. economy generated 2.26 million net new wage and salary jobs over this twelve month period; thus, Massachusetts captured only 1 percent of the net growth in the number of wage and salary jobs across the nation.[15]

Wage and salary employment growth in the state also became more broadly based over this time period. In 7 of the 11 super-sectors, some employment growth took place. The state's manufacturing, trade/transportation/utilities, information, and public administration sectors continued to decline over this 12 month period although a few individual industries in these super-sectors added some jobs.

The bulk of the job growth in the state was generated by two private services super-sectors: Professional and business services and education and health services. Together, these two super-sectors added nearly 26,400 jobs, accounting for all of the net job growth in the state. The financial activities sector experienced a modest turnaround adding 1,500 jobs, and the retail trade industries added nearly 1,000 net new jobs. The state's construction sector generated a small number of net new jobs (+522), primarily as a consequence of an expansion of the building construction industry.[16] Heavy construction continued to decline over this period partly as a result of the curtailment of the Big Dig.

As was the case for the 2001-2004 period, we also analyzed changes in employment over the 2004 I – 2005 I period for 3-digit NAICS industries across the state. Each 3-digit NAICS industry that created 300 or more net new wage and salary jobs over this time period are displayed in Table 5. There were 26 such growth industries across the state, with the absolute size of the increases in employment ranging from a low of 327 jobs in the financial investment industry to a high of 6,578 in professional and technical services.

Table 4: Changes in Wage and Salary Employment by 2-digit NAICS Industry, in Massachusetts 2004 I-2005 I

NAICS Code	Description	1Q 2004	1Q 2005	Absolute	Relative
	Total, all industries	**3,066,992**	**3,089,691**	**22,699**	**0.74**
	Goods-Producing Sector	**453,063**	**448,410**	**-4,653**	**-1.03**
	Natural Resources and Mining	**6,833**	**7,084**	**251**	**3.67**
11	Agriculture, Forestry, Fishing & Hunting	5,287	5,471	184	3.48
21	Mining	1,546	1,612	66	4.27
	Construction	**133,759**	**134,281**	**522**	**0.39**
23	Construction	133,759	134,281	522	0.39
	Manufacturing	**312,470**	**307,046**	**-5,424**	**-1.74**
31-33	Manufacturing	312,470	307,046	-5,424	-1.74
	Durable Goods Manufacturing	204,842	200,798	-4,044	-1.97
	Non-Durable Goods Manufacturing	107,628	106,248	-1,380	-1.28
	Service-Providing Sector	**2,613,930**	**2,641,280**	**27,350**	**1.05**
	Trade, Transportation and Utilities	**596,971**	**593,884**	**-3,087**	**-0.52**
22	Utilities	13,674	13,352	-322	-2.35
42	Wholesale Trade	133,985	131,242	-2,743	-2.05
44-45	Retail Trade	348,136	349,122	986	0.28
48-49	Transportation and Warehousing	101,176	100,169	-1,007	-1.00
	Information	**92,932**	**92,533**	**-399**	**-0.43**
51	Information	92,932	92,533	-399	-0.43
	Financial Activities	**216,597**	**218,106**	**1,509**	**0.70**
52	Finance and Insurance	173,701	174,869	1,168	0.67
53	Real Estate and Rental and Leasing	42,897	43,238	341	0.79
	Professional and Business Services	**437,687**	**448,885**	**11,198**	**2.56**
54	Professional and Technical Services	225,304	231,882	6,578	2.92
55	Management of Companies and Enterprises	63,874	65,274	1,400	2.19
56	Administrative and Waste Services	148,509	151,729	3,220	2.17
	Education and Health Services	**755,183**	**770,352**	**15,169**	**2.01**
61	Educational Services	307,916	315,438	7,522	2.44
62	Health Care and Social Assistance	447,267	454,914	7,647	1.71
	Leisure and Hospitality	**268,887**	**271,294**	**2,407**	**0.90**
71	Arts, Entertainment, and Recreation	42,565	42,413	-152	-0.36
72	Accommodation and Food Services	226,322	228,882	2,560	1.13
	Other Services	**116,260**	**117,370**	**1,110**	**0.95**
81	Other Services, Ex. Public Admin	116,260	117,370	1,110	0.95
	Public Administration	**129,413**	**128,855**	**-558**	**-0.43**
92	Public Administration	129,413	128,855	-558	-0.43

Table 5: Industries that Experienced an Absolute Increase in Employment of 300 or More Workers by Industry Sector in Massachusetts 2004 I – 2005 I

NAICS Code	Description	(A) 1Q 2004	(B) 1Q 2005	(C) Absolute Change	(D) Percent Change
	Total, all industries	3,066,992	3,089,691	22,699	0.7
	Construction				
236	Construction of Buildings	28,847	29,573	726	2.5
	Manufacturing				
311	Food Manufacturing	22,479	22,967	488	2.2
316	Leather and Allied Product Manufacturing	1,968	2,555	587	29.8
325	Chemical Manufacturing	16,254	17,135	881	5.4
	Trade and Transportation				
444	Building Material & Garden Supply Stores	25,614	26,828	1,214	4.7
448	Clothing and Clothing Accessories Stores	37,726	38,269	543	1.4
452	General Merchandise Stores	41,913	42,629	716	1.7
493	Warehousing and Storage	7,799	8,611	812	10.4
	Information				
511	Publishing Industries	40,719	42,101	1,382	3.4
518	ISPs, Search Portals, & Data Processing	9,755	10,190	435	4.5
	Financial Activities				
523	Financial Investment & Related Activity	45,620	45,947	327	0.7
524	Insurance Carriers & Related Activities	61,812	63,159	1,347	2.2
531	Real Estate	29,612	30,536	924	3.1
	Professional and Business Services				
541	Professional and Technical Services	225,304	231,882	6,578	2.9
551	Management of Companies and Enterprises	63,874	65,274	1,400	2.2
561	Administrative and Support Services	139,346	142,045	2,699	1.9
562	Waste Management and Remediation Service	9,163	9,684	521	5.7
	Education and Health Services				
611	Educational Services	307,916	315,438	7,522	2.4
621	Ambulatory Health Care Services	125,769	126,787	1,018	0.8
622	Hospitals	168,179	171,739	3,560	2.1
623	Nursing and Residential Care Facilities	91,109	92,829	1,720	1.9
624	Social Assistance	62,210	63,559	1,349	2.2
	Leisure and Hospitality				
721	Accommodation	28,757	29,349	592	2.1
722	Food Services and Drinking Places	197,564	199,533	1,969	1.0
	Other Services				
813	Membership Organizations & Associations	33,825	34,394	569	1.7
814	Private Households	19,917	20,950	1,033	5.2
	Public Administration				
928	National Security & International Affairs	4,922	5,177	255	5.18

Two major industrial sectors (manufacturing and information services) that did not register any employment growth at the 3-digit NAICS industry level during the 2001 to 2004 time period reported an increase in employment from 2004 I to 2005 I for a few 3-digit NAICS industries. In the manufacturing sector that registered an overall decline in employment from 2004 I to 2005 I, three 3-digit NAICS industrial sectors reported gains in employment during this time period (Table 5). They were food, leather, and chemical manufacturing. The gains in employment ranged from 488 net new jobs in the food manufacturing industries to 881 new jobs in the chemical manufacturing sector. The largest relative gain in manufacturing employment took place in the leather and allied products industry with an increase of 30% or 587 jobs between 2004 I and 2005 I.

While the information services sector failed to generate any new jobs over this period, several three-digit NAICS industries did boost their employment levels. The publishing industries (NAICSA 511) and IPS's, Search Portals and Data Processing industries (NAICS 518) added new jobs from 2004 I to 2005 I. A total of 1,817 jobs were created by these two industries over this time period.

Education and health services industries continued to be strong engineers of growth between 2004 I and 2005 I. Educational services alone added more than 7,500 net new jobs over this period while the three health-related industries created another 6,300 jobs, with hospitals generating nearly 55 percent of the job gains in these three industries. Leisure and hospitality industries boosted their payroll employment by nearly 2,600 workers.

Table 6: Industries that Experienced an Absolute Increase in Wage and Salary Employment of 300 or More by Industry Sector in Massachusetts 2001 I – 2005 I

NAICS	Industry
236	Construction of Buildings
444	Building Material & Garden Supply Stores
452	General Merchandise Stores
531	Real Estate
562	Waste Management and Remediation Service
611	Educational Services
621	Ambulatory Health Care Services
622	Hospitals
623	Nursing and Residential Care Facilities
624	Social Assistance
722	Food Services and Drinking Places
814	Private Households

Identifying the specific three-digit NAICS industries in which employment growth has taken place since 2001 is important in order to guide decisions for training in occupations related to the industries in which employment opportunities are increasing across the state. Of the industries that grew in both time periods of analysis, 2001-2004 and 2004 I to 2005 I, the industrial sector that generated the most additional job opportunities was the Education and Health Services Sectors. Employment in this sector increased from 724,000 in 2001 to 770,000 the first quarter of 2005, a gain of 46,000 jobs. In the construction sector growth occurred in building contraction and special trade contractors. Most jobs are full-time and relatively well paid, but little training in this sector has been provided by the state's workforce development system. Both formal data analysis and many anecdotes from the field indicate that immigrants have obtained a very high share of the net new jobs created in this industry both in our state and across the nation.

All of the above analyses of industry employment developments were based on findings for the state as a whole over the 2001-2004 and 2004 I – 2005 I intervals. Since most workforce development programs, including labor exchange, job training, and adult basic education, are planned and operated at the local level, it is desirable to conduct similar employment analyses for substate areas. In Massachusetts, there are 16 local Workforce Investment Board service delivery areas. The names of these 16 WIB areas are presented in Appendix A. For each of these 16 areas, we have tracked industry employment developments at the 2-digit and 3-digit NAICS levels for the same two time periods. Findings of our analyses were used to identify local growth industries in each of these 16 WIB areas during both the 2001-2004 and 2004 I – 2005 I time periods. A listing of these 3-digit NAICS growth industries in each WIB area is presented in a comprehensive set of tables in Appendix A and B of this report.[17]

Job Vacancies in Massachusetts in the 4th Quarter of 2004, Total and by Major Industry

Knowledge of employment trends by major industry across the state and in geographic regions of the state would ideally be complemented by information on the numbers and characteristics of available job openings by industry. Since the fall of 2002, the Massachusetts Division of Unemployment Assistance has been conducting a semi-annual survey of job vacancies across the state. The innovative survey generates estimates of the number of available job openings for the state as a whole, for geographic regions, for major industries, and for occupational groups.[18] The job vacancy data represent a measure of unfilled labor demand; i.e., job openings for which the firm is making a good faith effort to actively recruit applicants from outside the firm. At the national level, the U.S. Bureau of Labor Statistics collects monthly data on job vacancies in wage and salary jobs by major industry for the nation and four geographic regions, including the Northeast region, but does not collect data on job vacancies by occupational area.[19]

Analysis of the combined data on industry employment growth and job vacancies by industry can help identify the degree to which industries with above average employment growth are experiencing difficulties in recruiting workers to fill their available job openings. Some growth industries will find it relatively easy to recruit new workers; thus, they will experience low vacancy rates, particularly if their labor turnover rates are low.[20] Other growth industries will find it more difficult to fill available openings due to a shortage of qualified applicants, thereby driving up the job vacancy rate. Industries and occupations with labor shortages due to skilled labor constraints should be the target for job training programs, both classroom based and on-the-job training programs. Some industries with little job growth may experience a relatively high vacancy rate due to difficulties in replacing skilled workers who leave the firm due to retirement or other withdrawals from the labor force. Difficulties in recruiting new workers due to high living costs in the state or to low, local unemployment rates in the industry can generate a number of job openings despite limited to no net job growth. Some of these occupations with favorable wage opportunities also should serve as a target for future training initiatives.

In other cases, some firms and industries with no growth will experience above average vacancy rates due to high labor turnover rates influenced in part by low wages, poor working conditions, and limited employment benefits. For example, the nation's retail trade industries are characterized by high monthly quit rates frequently in the 4 percent range.[21] The existence of high job vacancy rates in some industries may or may not be accompanied by employment growth, and not all high vacancy rates indicate the existence of skill shortages. In same cases, low wages, unstable working arrangements and poor working conditions are the cause of labor shortages. The training program implications of these latter labor shortages are quite different from those generated by true skill shortages. Many of these entry-level, retail trade positions would serve as desirable job placements for many teens and less educated young adults whose employment opportunities have diminished considerably both in our state and the nation since 2000.

The state job vacancy survey for the fourth quarter of calendar year 2004 was based on questionnaires submitted to a sample of 6,000 employers, both public and private, across the state, of whom approximately 77 percent responded. The sample results are weighted by research staff at the Division of Unemployment Assistance to generate estimates of the total number of available job openings. The vacancy survey also collects information on the part-time/full-time nature of job openings, whether they are permanent or temporary/seasonal, their hourly/weekly wages, and their educational requirements. Of the total number of job vacancies in the fourth quarter of 2004, 38 percent were part-time, 20% were temporary or seasonal, and 36% required the applicant to have an Associate's or higher degree. The educational requirements of available job openings in the fourth quarter of 2004 varied markedly by industrial sector. Only 1 percent of all job openings in the retail trade industries required the job applicant to have an Associate's or higher degree versus 53 percent in health care, 63% in finance and insurance, and 86% in professional and technical services.[22]

Estimates of the total number of job vacancies in Massachusetts from the fourth quarter of calendar year 2002 through the fourth quarter of calendar year 2004 are displayed in Chart 1.[23] The first statewide job vacancy survey yielded somewhat less than 50,000 job openings across the state, representing a job vacancy rate of only 1.7% (Chart 2).[24] Over the following two years, however, the number of job vacancies increased nearly steadily, rising to just under 65,000 in the fourth quarter of 2003 and to nearly 72,000 in the fourth quarter of 2004. The overall job vacancy rate (which is calculated as the ratio of job vacancies to total employment in nonfarm wage and salary jobs) of the state rose from 1.7% in the fourth quarter of 2002 to 2.5% in the fourth quarter of 2004 (Chart 2).

Chart 1: The Estimated Number of Job Openings in Massachusetts, Fourth Quarter of 2002 to Fourth Quarter of 2004 (Numbers in 1000s)

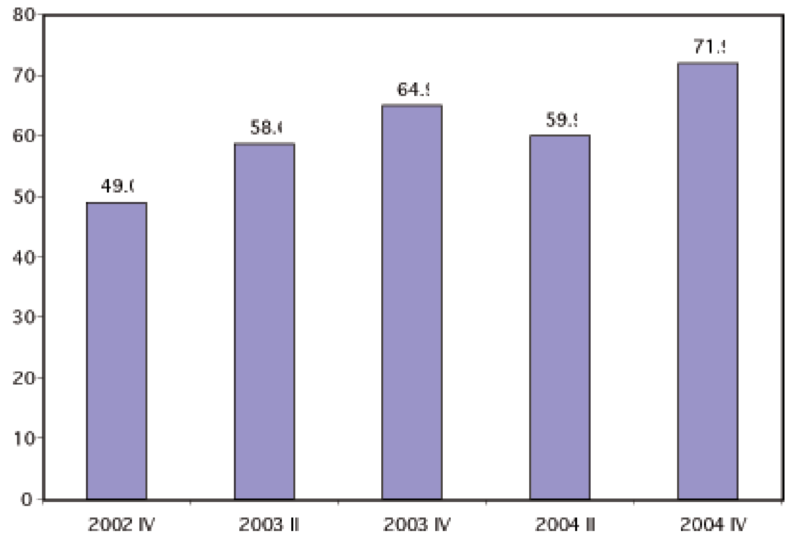
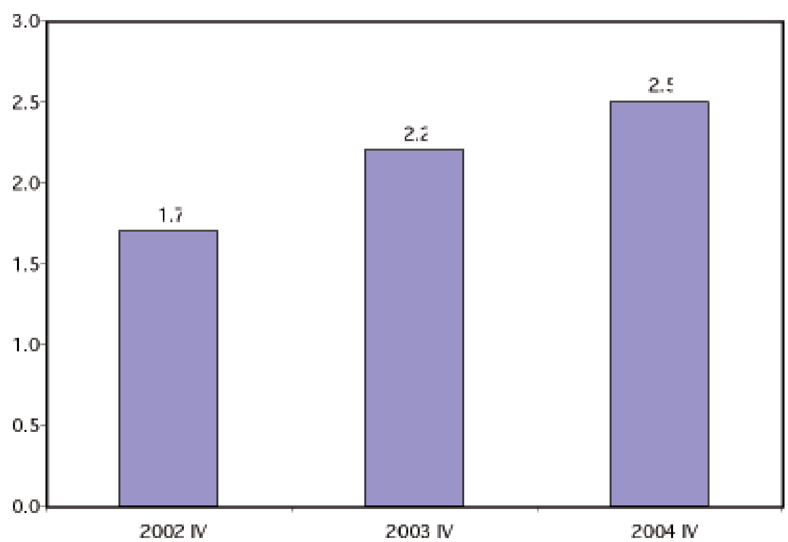


Chart 2: Estimates of Job Vacancy Rates in Massachusetts from 2002 IV to 2004 IV (in %)



The aggregate job vacancy data also can be compared to aggregate estimates of the resident count of the unemployed to identify the comparative degree of overall slack or tightness in the state's labor markets. The stock of job vacancies at a point in time represents the level of unfilled labor demand while the stock of the unemployed reflect the level of unutilized, but effectively available labor supply.[25] Comparisons of the estimated stock of job vacancies with the estimated number of unemployed at a point in time can help identify the overall shortage of jobs in the economy (the gap between the pool of unemployed and job vacancies) while changes in the ratio of the unemployed to job vacancies over time can help identify the efficiency of existing job matching mechanisms. For example, if the number of job vacancies increased relative to the number of unemployed at a given unemployment rate, then this would imply that job matching had become less efficient over time.

Within Massachusetts, the seasonally adjusted unemployment rate rose fairly steadily and strongly from the first quarter of calendar year 2001 through the summer of 2003. In the first quarter of calendar year 2001, the seasonally adjusted unemployment rate was only 2.8% one of the lowest in the entire. By the spring and summer of 2003, it had risen to 5.9% as the state lost a considerable number of wage and salary jobs and worker dislocation problems mounted. Fortunately, the unemployment rate peaked at 5.9% in the summer of 2003 and began to decline steadily over the next 16 months, aided by a combination of renewed wage and salary job growth in 2004 and a drop in the number of active labor force participants.[26]

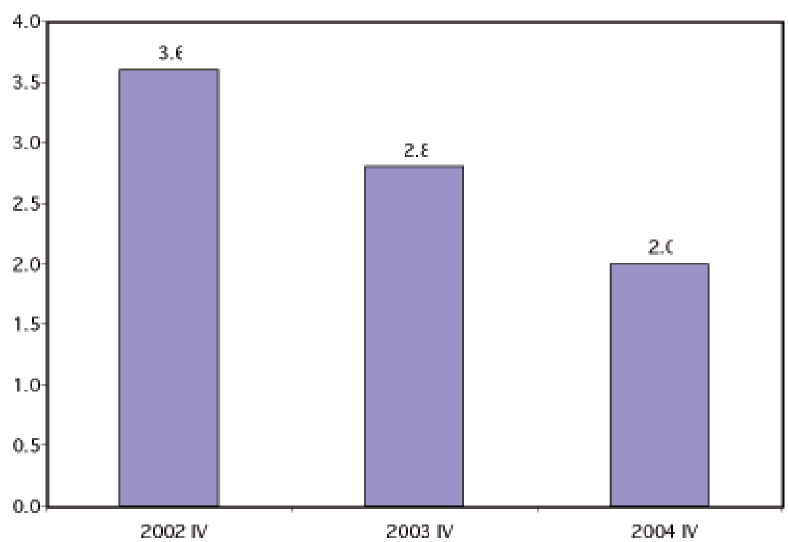
A combination of a declining pool of unemployed persons from the fall of 2003 onward and a rising number of job vacancies generated sharp declines in the ratio of the number of unemployed per job vacancy from late 2002 through the end of calendar year 2004. (Table 7 and Chart 3). In the final quarter of calendar year 2002 there were 3.6 unemployed persons for every job vacancy in the state, indicating a substantial labor surplus situation, especially since the official unemployment statistics exclude the labor force reserve and the underemployed and mal-employed, whose numbers also rose sharply after the end of the state labor market boom in 2000.[27] By the fourth quarter of 2003, there were only 2.8 unemployed persons for every job vacancy, and this ratio would decline to 2.0 by the fourth quarter of 2004, due largely to a further steep drop in the number of unemployed residents over this twelve month period (Chart 3).

Table 7: Estimates of the Number of Unemployed Persons and Job Vacancies and Estimated Ratios of the Number of Unemployed to Job Vacancies in Massachusetts From the 4th Quarter of 2002 to 4th Quarter of 2004 (Not Seasonally Adjusted)

Time Period	(A) Unemployed Persons	(B) Estimated Vacancies	(C) Unemployed/ Vacancies (A/B)
4th Q 2002(1)	176,866	49,004	3.6
2nd Q 2003(1)	199,000	58,654	3.4
4th Q 2003	180,733	64,926	2.8
2nd Q 2004	176,967	59,891	3.0
4th Q 2004	143,800	71,934	2.0

Note: (1) The estimated vacancies for the fourth quarter of 2002 include a proxy estimate for job vacancies in the public sector, based on 7% of all job vacancies in the state.

Chart 3: Trends in the Number of Unemployed Residents to the Stock of Job Vacancies in Massachusetts, 2002 IV to 2004 IV (Not Seasonally Adjusted)



A careful analysis of the sources of the decline in state unemployment between the fourth quarters of 2003 and 2004 revealed that about 60 percent of the reduction in the number of unemployed persons was due to a drop in the resident labor force and the remaining 40 percent was attributable to a rise in the number of employed residents as measured by the LAUS survey (Table 8).[28] The decline in the labor force took place at a time when wage and salary job opportunities were improving; thus, it comes as somewhat of a surprise. One would have expected improved job prospects to attract more residents into the civilian labor force. The state's resident labor force continued to decline throughout calendar year 2005. Recently-released population estimates for the state by the U.S. Census Bureau reveals a further modest decline in the number of state residents due in large part to continued high levels of domestic out-migration from the state over the July 2003 – July 2005 period.[29] Since the out-migrants from Massachusetts contained a high proportion of well-educated individuals in their prime-aged working year (25-54), their departure from the state would have been expected to lower the number of residents in the civilian labor force. State job markets in the past two years were, thus, tightening as a consequence of both a renewal of job growth and demographic developments that were simultaneously improving employment prospects and diminishing the pool of available workers. This decline in the resident labor force should be viewed as a serious economic problem by state and local policy makers. If left unchecked, it will constrain future economic and job growth.

Table 8: Sources of the Decline in the Number of Unemployed Persons (16+) in Massachusetts from the Fourth Quarter of 2003 to the Fourth Quarter of 2004 (Numbers are Seasonally Adjusted)

Time Period	(A) Number of Unemployed	(B) Number in Civilian Labor Force	(C) Number Employed
4th Quarter 2003	194,900	3,405,500	3,210,600
4th Quarter 2004	161,800	3,386,500	3,224,800
Change from 2003 IV to 2004 IV	-33,100	-19,000	+14,200

Job Vacancy Rates of Major Industrial Sectors in Massachusetts

The job vacancy data collected by the Massachusetts Division of Unemployment Assistance also can be used to generate estimates of the number of job openings and job vacancy rates in individual industrial sectors. The job vacancy data are classified by industry with the use of the North American Industrial Classification System (NAICS). Estimates of job vacancy rates in 17 industrial sectors of the state during the fourth quarters of 2002, 2003, and 2004 are displayed in Table 3. These job vacancy rates were calculated by dividing the number of job vacancies in a given industrial sector by the estimated number of wage and salary jobs in that sector during the same time period.[30]

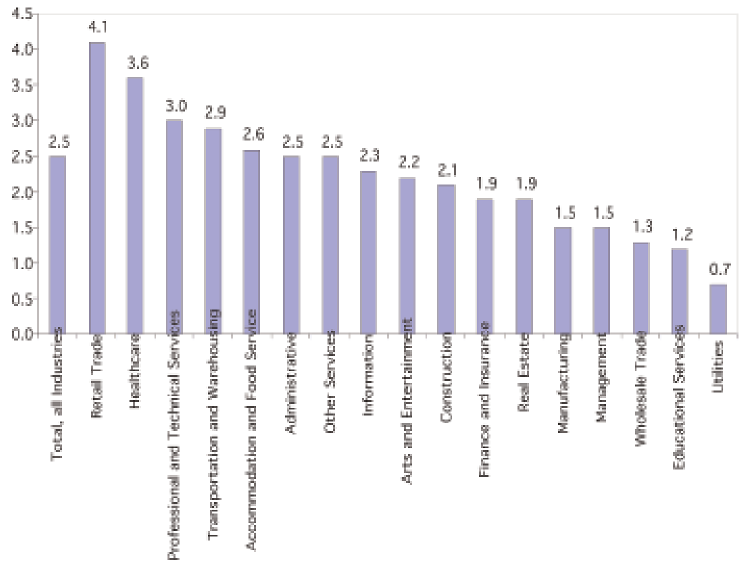
Over the 2002 IV to 2004 IV period, the overall job vacancy rate of the state is estimated to have increased from 1.7% to 2.5% (Table 9). Over this two year period, vacancy rates rose in 16 of 17 industrial sectors for whom vacancy rates were available. Only the management services industry experienced a decline in its job vacancy rate over this two year period. Each of the other 16 industrial sectors were characterized by rising job vacancy rates, with the magnitude of these increases ranging from .1 to .2 percentage points in utilities and health care industries to highs of 1.6 percentage points in Professional and Technical Services and 2.1 percentage points in retail trade. Both of these latter job vacancy rates doubled over this two year period.

Job vacancy rates in Massachusetts varied considerably across industrial sectors during the fourth quarter of 2004 (Table 9 and Chart 4). These job vacancy rates ranged from lows of .7 percent in utilities industries and 1.2 percent in educational services to highs of 3.6 percent in health care and 4.1 percent in retail trade. Health care industries ranked first or second highest in the distribution of job vacancy rates across major industrial sectors in each of three time periods analyzed in Table 3. Retail trade industries had the highest job vacancy rate in both the fourth quarters of 2003 and 2004. A very high fraction of the job vacancies in the state's retail trade industries during the fourth quarter of 2004 were part-time in nature. Overall, 38 percent of job vacancies were part-time in 2004 IV, but in retail trade industries 76 percent of the available job openings were part-time. A relatively high share of job vacancies in the health care industries (40%) also were part-time; however, the vast majority (99%) of the jobs in health care were permanent positions while 62 percent of those in retail trade were categorized as temporary or seasonal, reflecting anticipated hiring for the holiday season.

Table 9: Job Vacancy Rates in Major Industrial Sectors of Massachusetts, 2002 IV, 2003 IV, and 2004 IV (in %)

Industrial Sector	(A) 2002 IV	(B) 2003 IV	(C) 2004 IV	(D) Change, 2002-2004
Total, all Industries	1.7	2.2	2.5	0.8
Construction	0.9	2.7	2.1	1.2
Manufacturing	0.7	0.8	1.5	0.8
Wholesale Trade	1.0	1.3	1.3	0.3
Retail Trade	2.0	4.2	4.1	2.1
Transportation and Warehousing	1.9	2.3	2.9	1.0
Utilities	0.6	0.7	0.7	0.1
Finance and Insurance	1.2	1.5	1.9	0.7
Professional and Technical Services	1.4	1.9	3.0	1.6
Administrative	1.6	1.9	2.5	0.9
Management Services	2.3	1.9	1.5	-0.8
Information Services	1.2	1.1	2.3	1.1
Other Services	2.1	2.1	2.5	0.4
Educational Services	0.7	1.0	1.2	0.5
Real Estate	0.9	1.9	1.9	1.0
Healthcare	3.4	3.5	3.6	0.2
Accommodation and Food Service	2.2	2.6	2.6	0.4
Arts and Entertainment	0.9	3.9	2.2	1.3

Chart 4: Job Vacancy Rates by Major Industry Sector in Massachusetts, 2004 4th Quarter (in %)



A more disaggregated analysis of job vacancy rates within individual industries comprising several of these major industrial sectors revealed a considerable degree of diversity in these rates. For example, the job vacancy rate for the entire manufacturing sector during the fourth quarter of 2004 was only 1.4 percent.[31] (Table 10). Yet, across twelve individual manufacturing industries, the job vacancy rates ranged from lows of .6 to 1.0 percent in electrical equipment and appliances, miscellaneous manufacturing, and chemical products to highs of 2.7, 3.0, and 8.6 percent in furniture, food products, and beverage product industries. The occupational characteristics, wages, and hiring requirements of vacancies in these three manufacturing industries need to be carefully reviewed to identify the desirability of providing training, both classroom and on-the-job, to fill these vacancies. The vast majority of the job vacancies in the state's manufacturing industries were full-time (95%) and permanent positions. Manufacturing sector vacancies also are deserving of the attention of workforce development and economic development program policymakers and administrators since many manufacturing industries are part of the state's export base, selling their products outside the state and often outside the country. Expansion of output in these manufacturing sectors, thus, can have favorable multiplier effects on the rest of the state economy, creating additional jobs in supplier networks and local construction, retail and service establishments.

Table 10: Job Vacancy Rates in Key Manufacturing Industries, 4th Quarter 2004

	(A) Employment (E)	(B) Vacancies (V)	(C) E+V	(D) V/(E+V)
Total Manufacturing Job Vacancies	344,834	4,850	349,684	1.39
Beverage and tobacco products	1,610	151	1,761	8.57
Food manufacturing	19,677	606	20,283	2.99
Furniture and related products	4,914	134	5,048	2.65
Paper and printing products	29,415	595	30,010	1.98
Computer and electronic products	74,075	1,230	75,305	1.63
Nonmetallic mineral products	7,485	119	7,604	1.56
Machinery	23,100	357	23,457	1.52
Plastics and rubber products	15,479	223	15,702	1.42
Transportation equipment	15,977	216	16,193	1.33
Chemicals	26,878	277	27,155	1.02
Miscellaneous manufacturing	50,376	341	50,717	0.67
Electrical equipment and appliances	12,474	77	12,551	0.61

Comparisons of Job Vacancy Rates in Massachusetts with Those of the U.S. by Major Industrial Sector, 2004 IV

Since May 2001, the U.S. Bureau of Labor Statistics has been collecting job vacancy statistics for the nation as a whole and for the four geographic regions (Northeast, Midwest, South, West).[32] The national job vacancy data can be used to estimate an overall job vacancy rate for the nonfarm economy and for major industrial sectors. Comparisons of overall job vacancy rates and by major industrial sector for the U.S. and Massachusetts during the fourth quarter of 2004 are displayed in Table 11.

The overall job vacancy rate in Massachusetts during the fourth quarter of 2004 was 2.5 percent versus 2.3 percent for the U.S. The modestly higher job vacancy rate in Massachusetts might seem somewhat surprising, given the much lower job growth in the state over the two year period prior to the fourth quarter of 2004. Vacancy rates, however, tend to follow a Beveridge-curve relationship, rising as the unemployment rate declines.[33] The unemployment rate (seasonally adjusted) in Massachusetts during the fourth quarter of 2004 was only 4.8% versus 5.4% for the U.S. Given the lower unemployment rate in our state, ceteris paribus, one would have expected a somewhat higher job vacancy rate in Massachusetts unless the state was more efficient than the country in matching available job openings with unemployed or underemployed jobseekers. The reduction in the state's resident labor force since 2003 has lowered the number of available jobseekers. As noted above, however, the size of the labor force reserve in Massachusetts (74,000) was still quite high in 2004; thus, efforts to successfully match members of the labor force reserve with available job openings would both simultaneously reduce the vacancy rate and expand the number of employed residents in the Commonwealth.

The industrial patterns of job vacancy rates in Massachusetts and the U.S. were quite similar in the fourth quarter of 2004 with a few exceptions (Table 11). Above average job vacancy rates were posted by the health care and professional/technical service industries in both areas. In Massachusetts, the retail trade industry was characterized by the highest job vacancy rate at 4.1% while the job vacancy rate of the nation's retail trade industries was only equal to the national job vacancy rate of 2.3%. In both areas, job vacancy rates were below average in manufacturing, educational services, transportation and utilities, wholesale trade, and real estate during the fourth quarter of calendar year 2004. Both the absolute and relative (to the entire nation) job vacancy rates in educational services, finance and insurance, and wholesale trade industries in Massachusetts were well below average.

Table 11: Comparisons of Job Vacancy Rates in the U.S. and Massachusetts By Major Industrial Sector, 2004 IV (in %)

Industry	(A) MA	(B) U.S.	(C) MA as % of U.S.
Total, All Industries	2.5	2.3	1.10
Retail Trade	4.1	2.3	1.76
Health Care	3.6	3.2	1.11
Professional and Technical Services	3.0	3.4	0.89
Accommodation and Food Service	2.6	2.8	0.93
Other Services	2.5	2.0	1.25
Information	2.3	2.6	0.88
Arts and Entertainment	2.2	2.5	0.89
Construction	2.1	1.3	1.62
Public Administration	2.0	1.6	1.24
Finance and Insurance	1.9	2.7	0.70
Real Estate	1.9	1.7	1.12
Transportation, Warehousing and Utilities	1.8	1.7	1.08
Manufacturing	1.5	1.5	0.98
Wholesale Trade	1.3	1.6	0.80
Educational Services	1.2	1.7	0.71

Identifying Labor Shortages and Surpluses Within Major Industrial Sectors of Massachusetts

Identification of industries with existing labor shortages is key to improving the efficiency with which state and local labor markets operate. By combining estimates of the number of job vacancies in major industrial sectors of the state in 2004 with estimates of the number of unemployed residents in these same sectors, we can identify the comparative degree of labor shortages/surpluses in these major industrial sectors. Job vacancy data from the second and fourth quarters of 2004 were averaged to provide an estimate of the average monthly number of job vacancies in the state within 16 industrial sectors. The twelve monthly CPS public use files for Massachusetts for 2004 were used to estimate the average monthly number of unemployed persons in each industrial sector.[34] Across the entire state, in 2004, there were approximately 2.4 unemployed persons for every job vacancy in the state (Table 12). The ratios of the unemployed to job vacancies varied quite considerably across the sixteen major industrial sectors. These ratios ranged from a low of .82 in health care and 1.8 to 1.9 in information services, accommodation and food services, retail trade, and professional/ management/technical services industries to highs of 3.7 to 3.8 in manufacturing, arts and entertainment, administrative/support services and 8.8 in construction and utilities. The health care sector was the only one in the state that was characterized by more job openings than unemployed persons. This sector had nearly 15,000 job openings on average during 2004, accounting for nearly one of every four job openings in the state. The retail trade industries had the second largest number of job vacancies (nearly 10,000) during 2004; however, most of these job openings were part-time and/or seasonal, especially in the fourth quarter of the year.[35] Many other industries in the state, including manufacturing, real estate, transportation, administrative and support industries, were characterized by large labor surpluses, with high ratios of unemployed persons per job vacancy; however, there were a few niche industries in manufacturing and construction where some spot occupational shortages seemed to exist.

Table 12: Ratios of Unemployment Levels to Job Vacancy Levels in Massachusetts During 2004 by Major Industrial Sector

	Job Vacancies			Annual Average Unemployment	Ratio U/V
	2nd Q	4th Q	Annual Average		
Total, all Industries	59,891	71,934	65,913	156,938	2.381
Healthcare	13,787	15,695	14,741	12,052	0.818
Retail Trade	5,834	13,968	9,901	18,291	1.847
Professional, Management and Technical Services	6,019	6,713	6,366	12,218	1.919
Accommodation and Food Service	6,543	5,928	6,236	11,318	1.815
Manufacturing	4,126	4,850	4,488	16,588	3.696
Educational Services	4,544	3,713	4,129	8,050	1.95
Administrative and Support Services	4,434	2,530	3,482	13,347	3.833
Finance and Insurance	2,587	3,135	2,861	8,302	2.902
Construction, util, mining	2,403	2,789	2,596	22,859	8.805
Other Services	2,285	2,059	2,172	8,918	4.106
Transportation and Warehousing	1,062	2,924	1,993	5,936	2.978
Information	1,576	2,110	1,843	3,331	1.807
Public Administration	1,124	2,202	1,663	4,615	2.775
Wholesale Trade	1,493	1,544	1,519	4,358	2.87
Arts and Entertainment	1,116	1,009	1,063	3,988	3.753
Real Estate	525	689	607	1,965	3.237

The above findings on recent employment growth by industry, job vacancy rates by industry, and the degree of labor market tightness (as measured by the unemployed/vacancy ratio) can be combined to identify industrial sectors for potential training interventions. We have identified a subset of major industrial sectors in our state that met at least two of the following three criteria: an above average rate of job growth between 2004 I and 2005 I, an above average job vacancy rate in the fourth quarter of 2004, and a below average ratio of unemployed to job vacancies in calendar year 2004 (Table 13).

Table 13: Scorecard for Selected Massachusetts Industries on Job Growth, Job Vacancy Ratios, and Unemployment/Vacancy Ratios in 2004

Industrial Sector	(A) Job Growth Rate In 2004 I – 2005 I Above Average	(B) Above Average Job Vacancy Rate, 2004 IV	(C) Below Average Ratio of Unemployed/ Job Vacancies
Health Care	*	*	*
Retail Trade		*	*
Accommodation and Food Services	*		*
Professional and Technical Services	*	*	*
Educational Services	*		*

Five industrial sectors met at least two of the above three criteria. Both the health care and the professional/technical services industries met all three of the criteria and should be considered prime candidates for future training activities given the existence of a high fraction of permanent job vacancies and many jobs that can meet adequate earnings criteria. The educational services industries, including public education, met two of the three criteria but had a below average vacancy rate in 2004 (only 1.2%). Many of the jobs in this industry meet earnings adequacy criteria but require a bachelor's or higher degree. Replacement demand in this sector, especially among public school teachers, is projected to be quite high over the remainder of the current decade. The retail trade and accommodation/food service industries met two of the three criteria, and most vacancies in these two sectors do not require any post-secondary education, especially for entry-level positions. However, many of the job vacancies in these two industries during 2004 IV were part-time or seasonal in nature, and a substantial share of these job openings could not meet adequate earnings criteria. While many of these jobs should not be the focus of future training, intensified job placement efforts should be made to match existing unemployed residents and members of the labor force reserve with these openings, especially teens, young adults with limited formal schooling, the disabled, and older workers seeking to supplement their retirement income with part-time or part-year employment. More effective job matching strategies could reduce the job vacancy rate and the rate of open unemployment, improving the efficiency with which state labor markets operate. Since most workforce development planning and program operations take place at the local level, let us now turn to an analysis of job vacancy rates and labor market imbalances in substate areas in recent years.

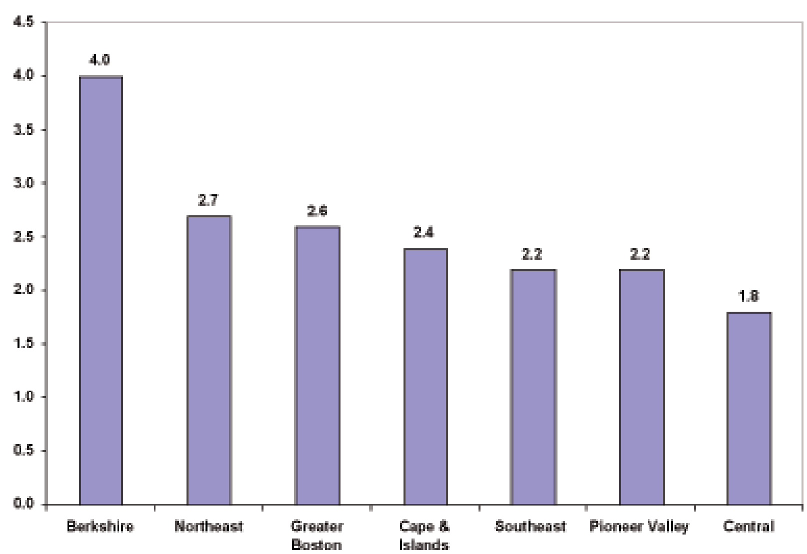
An Analysis of Job Vacancy Rates Across Geographic Regions of the State

The Massachusetts Job Vacancy Survey also provides data on the estimated number of job vacancies and job vacancy rates in the second and fourth quarters of each year by geographic region. The survey breaks the state into seven geographic regions representing the boundaries of economic development districts across the state. The seven regions are the Berkshires, Cape and Islands, Central, Greater Boston, Northeast, Pioneer Valley, and the Southeast. Job vacancy rates varied considerably across these seven regions during the 4th quarter of 2004, ranging from a low of 1.8% in the Central region (the Worcester area) to a high of 4.0% in the Berkshire region.[36] The Central, Pioneer Valley, and Southeast regions experienced job vacancy rates below the statewide average of 2.5%. The largest region in the state, the Greater Boston region, which was home for more than half of all jobs in the state, had a job vacancy rate of 2.6%, and accounted for approximately 54% of all of the job vacancies in Massachusetts. The Northeast region had the second highest job vacancy rate (2.7%) and accounted for slightly more than 14% of all the job vacancies in the state during the 4th quarter of 2004.

Table 14: The Number of Job Vacancies and Job Vacancy Rates by Geographic Region, 4th Quarter 2004

State/Region	(A) Number of Job Vacancies	(B) Job Vacancy Rate (in %)
Massachusetts, total	71,934	2.5
Berkshire	2,284	4.0
Northeast	10,345	2.7
Greater Boston	38,649	2.6
Cape & Islands	2,420	2.4
Southeast	8,088	2.2
Pioneer Valley	5,680	2.2
Central	4,468	1.8

Chart 5: Job Vacancy Rates by Region, 4th Quarter 2004 (in %)



As noted earlier, job vacancy rates in Massachusetts have been rising over the past two years. From the 4th quarter of 2003 to the 4th quarter of 2004, the job vacancy rate for the state increased from 2.2% to 2.5%. Four of the seven regions also experienced an increase in their job vacancy rates over this time period. They were the Berkshire, Greater Boston, Northeast, and Pioneer Valley regions. The job vacancy rate fell over this time period in the Southeast region from 2.6% to 2.2% and on the Cape and Islands (2.8% to 2.4%). The job vacancy rate remained steady at 1.8% in the Central region. This region of the state which includes Worcester County posted the lowest job vacancy rate of the seven regions during the 4th quarters of both 2003 and 2004. Job seekers in the Central region also have faced the worst employment prospects compared to their counterparts in the rest of the state over this time period.

Table 15: Job Vacancy Rates by Region, 4th Quarter 2003 and 4th Quarter 2004

State/Region	4th Quarter 2003 Job Vacancy Rate (in %)	4th Quarter 2004 Job Vacancy Rate (in %)	Percentage Point Change 4th Q 03 – 4th Q 04
Massachusetts	2.2	2.5	+.3
Berkshire	3.6	4.0	+.4
Northeast	2.5	2.7	+.2
Greater Boston	2.1	2.6	+.5
Cape & Islands	2.8	2.4	-.4
Southeast	2.6	2.2	-.4
Pioneer Valley	2.0	2.2	+.2
Central	1.8	1.8	0

Job Vacancies and Vacancy Rates by Industry and by Geographic Region During the 4th Quarter of 2004

The job vacancy survey also provides information on the estimated number of job vacancies and job vacancy rates in major industries (20 major industry categories) across the seven regions of the state. The industry specific job vacancy data can be helpful in determining which industries are experiencing above average vacancy rates in a given region and to identify whether high vacancy rates in a given industry prevail across most regions of the state. In most of the regions, the two industries with the greatest absolute number of job vacancies were healthcare and retail trade. Table 16 displays job vacancy rates by region and major industry group. The following bullet points identify the top three or four industries in each region that have the highest job vacancy rates. Since some of the industries in the survey may have a small job base in a given region, we will point out only those industries that have a high number of job vacancies relative to employment levels in that region. For example, an industry that has 250 job vacancies in the Berkshires would be quite noteworthy, but would not represent as significant a finding if that industry were located in the Greater Boston area because this region had over 38,000 vacancies. A summary of the main findings is presented below with more detailed data for each region presented in Table 16.

- In the Berkshire region, job vacancy rates were the highest in arts and entertainment (34.2%), construction (7.8%), retail trade (4.4%), and health care 4.4%. The manufacturing sector also had a relatively high job vacancy rate (3.3%). There were 492 job vacancies in arts and entertainment, 374 in health care, 366 in retail trade, 242 in manufacturing, and 222 in construction. The nature of the job shortages in many of these industries in the Berkshires is deserving of further analysis. For example, a high fraction of the job vacancies in the art's and entertainment industry appeared to be attributable to seasonal operators of ski resorts and other winter-related activities. Other industries appear to face high vacancy rates on a more year-round basis.

- In the Cape and the Islands, the highest job vacancy rates were found in transportation and warehousing (7.3%), retail trade (3.9%), accommodations (3.6%), and health care (3.2%). Retail trade, accommodation, and health care industries accounted for over 70% of the 2,420 job vacancies reported in this region.

- The Central region had the lowest overall job vacancy rate, but there were three industries that had relatively high vacancy rates. They were the following: health care (4.8%), transportation and warehousing (3.5%), and finance and insurance (2.4%). Job vacancies totaled 1,923 in health care, 296 in transportation and warehousing, and 267 in finance and insurance.

- In the Greater Boston region, many of the major industries included in the vacancy report had fairly high job vacancy rates. Retail trade (4.5%), healthcare (3.7%), and professional and technical services (3.1%) were the industries experiencing the highest job vacancy rates in the Greater Boston region. Not surprisingly, the greatest numbers of job vacancies were found in healthcare (7,777) and retail trade (6,589). In addition to these industries, professional and technical services had 4,834 job vacancies. This sector had begun to experience renewed job growth, and many of the jobs in the latter industrial sector involved high skilled positions frequently requiring some type of post-secondary degree.

- The Northeast region had the second highest job vacancy rate in the state. The highest job vacancy rates were found in public administration (8.2%), real estate (8.1%), retail trade (4.1%), health care (3.6%), and accommodations (3.6%). Of the 10,345 total job vacancies in this region, 2,030 were in health care, 1,968 in retail trade, 1,135 in manufacturing, 1,104 in public administration, and 1,096 in accommodation. The substantial number of vacancies in public administration and real estate were unique to this area of the state. A high share of the vacancies in public administration was tied to the seasonal hiring of the Internal Revenue Service offices located in this region.

• Across Pioneer Valley, the industries with the highest job vacancy rates were construction (4.1%), retail trade (3.6%), transportation and warehousing (3.6%), and health care (3.3%). Almost one-half of the 5,680 job vacancies during the 4th quarter in this region of the state were in the retail trade (1,245) and health care industries (1,504).

• The Southeast region had high job vacancy rates in "other services" (6.0%), administrative and support (4.9%), and retail trade (4.5%). The other services category largely consists of personal care and automotive repair services. The total number of job vacancies reported in the region was 8,088, and 2,524 (31%) were in retail trade. The healthcare industry had 1,581 job vacancies in the 4th quarter of 2004 in the Southeast region.

Table 16: Job Vacancy Rates by Region and by Major Industry, 4th Quarter 2004 (in %)

Major Industry	Berkshire	Cape & Islands	Central	Greater Boston	Northeast	Pioneer Valley	Southeast
Total	4.0	2.4	1.8	2.6	2.7	2.2	2.2
Construction	7.8	1.2	.1	2.5	1.5	4.2	1.3
Manufacturing	3.3	.7	1.1	2.1	1.6	1.0	.7
Wholesale Trade	*	*	.2	2.3	.3	1.1	.3
Retail Trade	4.4	3.9	1.7	4.5	4.1	3.6	4.5
Transportation & Warehousing	1.4	7.3	3.5	2.7	3.0	3.6	1.6
Information	*	.5	.9	2.7	2.0	.7	2.5
Finance and Insurance	*	*	2.4	1.8	1.1	3.3	2.0
Real Estate	5.6	2.1	*	.8	8.1	4.1	*
Professional & Technical Services	*	2.4	2.6	3.1	3.4	2.5	.9
Management Services	2.1	*	.9	1.9	1.4	1.0	.9
Administrative and Support		1.3	*	2.6	2.2	.5	4.9
Educational Services	1.4	1.2	1.3	1.5	1.0	.8	.9
Healthcare	4.0	3.2	4.8	3.7	3.6	3.3	2.9
Arts and Entertainment	34.2	2.0	2.0	1.8	*	.7	*
Accommodation	3.2	3.6	1.0	2.5	3.6	1.6	2.9
Other Services	5.0	*	.4	2.4	1.0	2.3	6.0
Public Administration	*	*	.4	1.2	8.2	1.3	1.7

Comparisons of the Number of Unemployed With the Number of Job Vacancies by Region

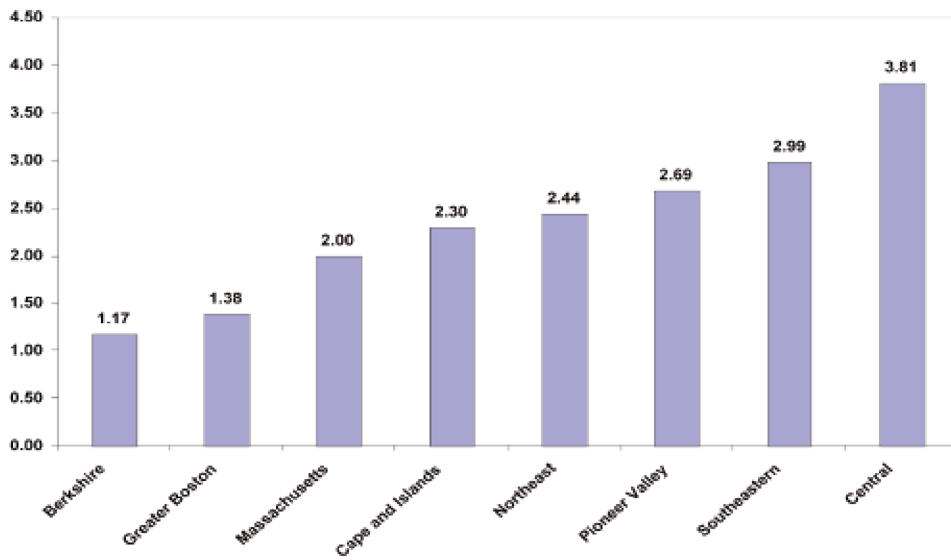
To better understand the degree of labor market tightness in these seven regions, we compared the number of unemployed persons to the number of job vacancies by geographic region during the 4^{th} Quarter of 2004. How many unemployed persons were there for every available job vacancy in the region? The number of unemployed in each region are based on monthly estimates from the Local Area Unemployment Statistics (LAUS) program of the Massachusetts Department of Unemployment Assistance. The LAUS survey provides monthly estimates of the number of employed and unemployed residents of the state and a variety of substate areas, including labor market areas and individual cities and towns. CLMS staff aggregated the unemployment estimates by city and town to match the geographic boundaries of the regions used in the Job Vacancy survey.

In the 4th Quarter of 2004, there were 143,800 unemployed persons (16 and older) and 71,934 job vacancies in the state, yielding an unemployed to job vacancy ratio of 2.0. In other words, there were two unemployed persons for every available job vacancy. In the aggregate, there still are not enough job vacancies to absorb the unemployed however the balance has steadily improved over the past two years. The ratios of unemployed/ job vacancies varied considerably across regions, ranging from a low of 1.17 in the Berkshire region to a high of 3.81 in the Central region. In addition to the Central region, four other regions had unemployed/job vacancy ratios above the statewide average. They were the Southeast (2.99), Pioneer Valley (2.69), Northeast (2.69), and the Cape and the Islands (2.30) regions. Higher unemployed/job vacancy ratios in these regions indicate an absence of sufficient labor market demand to absorb the numbers of available job seekers, excluding the labor force reserve who report a desire for immediate employment but are not actively seeking work. Such high unemployed/job vacancy ratios also serve as an indication that the region's employers are not hiring across a wide array of industries. The Greater Boston region had the second lowest unemployed to job vacancy ratio (1.38) among the seven regions. Although 37 percent of the state's unemployed reside in the Greater Boston region, the unemployed/job vacancy ratio for this region is relatively low because over one-half of the job vacancies reported in the state are located in Greater Boston.

Table 17: Comparisons of the Number of Unemployed Persons With the Number of Job Vacancies

State/Region	4th Quarter, 2004 Unemployed	4th Quarter, 2004 Job Vacancies	4th Quarter, 2004 Unemployed/ Job Vacancies
Massachusetts	143,800	71,934	2.00
Greater Boston	53,477	38,649	1.38
Berkshire	2,679	2,284	1.17
Cape and Islands	5,569	2,420	2.30
Central	17,034	4,468	3.81
Northeast	25,218	10,345	2.44
Pioneer Valley	15,265	5,680	2.69
Southeastern	24,176	8,088	2.99

Chart 6: Unemployed/Job Vacancy Ratios by Region and the State, 4th Quarter 2004



To identify trends in labor market tightness over time across the state, we compared the unemployed/job vacancy ratios for the 4th quarter of 2003 with those of the 4th quarter of 2004. The ratios declined statewide and across every region of the state. The ratio for the entire state fell from 2.80 in the 4th quarter of 2003 to 2.00 during the 4th quarter of 2004. A combination of stronger job growth, rising job vacancies, and declining unemployment levels were behind this decline in the unemployed/vacancy ratio. The total number of unemployed fell by 37,700, and the number of job vacancies increased by approximately 7,000 between these two time periods. The Central, Pioneer Valley, and Northeast regions experienced the largest declines in their unemployment/job vacancy ratios. While the number of job vacancies in the Central region remained steady, the number of unemployed fell by over 5,000, which caused the ratio to decline. The number of unemployed persons in the Northeast region fell by more than 9,000. This decline in unemployment accounted for most of the change in the unemployment/vacancy ratio for the Northeast region. Pioneer Valley had 490 additional job vacancies in the 4th quarter of 2004, and unemployment fell by more than 4,000 persons. The change in the unemployed/job vacancy ratio for the Greater Boston region was more balanced. A decline in unemployment and a steep increase in the number of job vacancies caused the ratio to fall. The Cape and the Islands and the Southeastern region were the only two regions to experience a decline in the number of job vacancies from the 4th quarter of 2003 to the 4th quarter of 2004. In the Cape and Islands the demand for seasonal workers in the region's tourism industries is highest in the second quarter rather than the fourth quarter of the year. Unemployment fell by over 5,800 persons in the Southeast region, resulting in this region's unemployment/vacancy ratio declining by -0.27 percentage points. The Berkshire region remained the tightest labor market area in the state with an unemployed/job vacancy ratio of only 1.17, down sharply from 1.56 during the 4th quarter of 2004.

The decline in the number of unemployed persons in the state from the 4th quarter of 2003 to the 4th quarter of 2004 is somewhat puzzling. The state's labor force declined across most regions of the state. As noted earlier, this is a surprising development given the improvement in the state's labor markets over this period. Part of the decline in the number of unemployed, thus, can be explained by the decrease in the size of the resident labor force. A better understanding of the sources of this decline in the labor force is clearly needed for workforce development planning in Massachusetts.

Table: 18 Estimated Changes in the Unemployed/Job Vacancy Ratio by Region, 4th Quarter 2003 to 4th Quarter 2004

State/Region	(A) 4th Quarter 2003 Unemployed/ Job Vacancies	(B) 4th Quarter 2004 Unemployed/ Job Vacancies	(C) 4th Q 04 – 4th Q 03 Change
Massachusetts	2.80	2.00	-0.80
Greater Boston	2.10	1.38	-0.72
Berkshire	1.56	1.17	-0.39
Cape and Islands	2.46	2.30	-0.16
Central	4.97	3.81	-1.16
Northeast	3.46	2.44	-1.02
Pioneer Valley	3.74	2.69	-1.05
Southeastern	3.26	2.99	-0.27

Summary of Key Findings, Their Implications for Future Workforce Development Policymaking and Program Planning, and Future Research Issues

The planning and administration of a wide array of workforce development programs are dependent upon the availability of timely and statistically reliable information on job growth and decline across industries and occupations of the state, the numbers, industrial characteristics, and geographic locations within job vacancies across the state, and the degree of labor shortage/surplus in various industries and occupations. This research report was designed to track industry employment developments across the state and 16 Workforce Investment Board service delivery areas over the 2001-2005 period. Information on the level of job vacancies, vacancy rates, and ratios of unemployed/job vacancies for major industrial sectors and individual industries also was reviewed and analyzed. A summary of key research findings, an assessment of their implications for future workforce development policymaking and planning, and a future research agenda to improve our knowledge base on both the effectiveness of existing programs in addressing labor imbalances, and changing occupational employment developments and occupational shortages/surpluses across the state are presented below.

(i) The aggregate number of wage and salary jobs on the formal payrolls of private firms and government agencies declined considerably in Massachusetts from the end of the first quarter of 2001 through the first quarter of 2004. Between 2001 and 2004, annual average payroll employment fell by nearly 145,000 or 4.4%. Job changes varied considerably across major industrial sectors of the state over this three year period. Employment fell by 20 percent or more in manufacturing industries and information services and by 9 to 10 percent in utilities, transportation and warehousing, and management services. During the same time period, however, employment grew quite strongly in health care and social services, arts/entertainment and recreation, and accommodation and food services industries.

(ii) Since the first quarter of 2004, the aggregate level of wage and salary employment has increased. Between 2004 I and 2005 I, the state added nearly 23,000 net new wage and salary jobs, and some job growth began to take place in a wider array of industries, including a small selected subset of manufacturing industries, information service industries, insurance carriers, professional and business services, and warehousing and storage. A total of 27 3-digit NAICS industries added 300 or more jobs over this one year period, the best job generating performance in the state since 2000. Unfortunately, however, job growth in the state came to an abrupt halt in the mid-summer of 2005.

(iii) Job growth/decline in the state over both the 2001-2004 and the 2004 I – 2005 I periods varied quite widely across local labor market areas, WIB service delivery areas, and individual cities/towns. During the recent jobs recovery period, levels and rates of job growth within local WIB areas also have varied across major industrial sectors, and job vacancy rates for given industrial sectors in 2004 also differed quite considerably across economic development regions.[37] Given variations in the numbers and industrial characteristics of growth industries across local WIB areas, the selection of industries for targeting job development, job placement, and job training activities should be expected to vary across WIB areas. A comprehensive information base on the success of local One Stop Career Centers, WIB training agencies, and community colleges in meeting the skill needs of growth industries is critically needed. Best practices in meeting labor shortages in selected growth industries should be documented and disseminated.

(iv) The total number of job vacancies in Massachusetts had increased fairly steadily from the fourth quarter of 2002 through the fourth quarter of 2004, rising from an estimated level of 49,000 in the fourth quarter of 2002 to just under 72,000 in the fourth quarter of 2004.[38] The overall job vacancy rate increased from 1.7% in the fourth quarter of 2002 to 2.5% in the fourth quarter of 2004. The job vacancy rate for the state in the latter time period modestly exceeded that for the nation as a whole (2.5% vs. 2.3%).

(v) Job vacancy rates in Massachusetts during the past two years increased in every major industrial sector except management services. During the fourth quarter of 2004, job vacancy rates varied quite widely across industrial sectors and among individual industries within some of these sectors, such as manufacturing and professional/business services. Job vacancy rates in the fourth quarter of 2004 ranged from lows of .7 percent in utilities and 1.2 percent in educational services to highs of 3.0 percent in professional/technical services, 3.6 percent in the health care sector, and 4.1 percent in retail trade. A relatively high share of the job vacancies in the retail trade industries, however, were either part-time (76%) or temporary/seasonal (62%).

(vi) Over the past few years, the relative degree of labor surplus in the state as measured by the number of unemployed persons per job vacancy has been reduced as vacancy rates rose and the unemployment rate declined, especially after 2003. During the fourth quarter of 2004, there were only two unemployed persons for every job vacancy in the state as compared to 3.6 in the fourth quarter of 2002. The health care sector was the only major industrial sector in the state during 2004 IV to have more job vacancies than unemployed persons. The ratios of the unemployed to job vacancies were also below average in accommodation and food services, retail trade, educational services, and information services industries. The construction/utilities, manufacturing, and administrative services industries were characterized by relatively high ratios of unemployed persons to job vacancies, indicating the continued existence of substantial labor surpluses in these industrial sectors during the fourth quarter of 2004.

(vii) Job vacancy data are also available for seven geographic regions across the state. During the fourth quarter of 2004, job vacancy rates varied from a low of 1.8% in the Central region (the Worcester area) to a high of 4.0% in the Berkshires. The Berkshire region also had the highest job vacancy rate in the second quarter of 2004 (3.0%) while the Cape and Islands region came in a close second place (2.9%).

(viii) While high job vacancy rates in health care and retail trade industries prevailed in nearly all regions during the fourth quarter of 2004, these was a much higher degree of variability in job vacancy rates for other industries across the seven geographic regions. For example, job vacancy rates in construction varied from lows of 1 percent in the Central and Southeast regions to a high of nearly 8 percent in the Berkshire region. In the professional and technical services industries, job vacancy rates ranged from a low of slightly below 1% in the Southeast region to highs of 3.1 to 3.4 percent in the Greater Boston and Northeast regions. The comparative degree of labor surpluses/shortages by industry frequently varied quite widely across these different regions of the state. Industrial targets for training initiatives, thus, also should vary across local WIB areas.

(ix) The job vacancy series developed by the Massachusetts Department of Workforce Development has provided valuable new information on the operations of state and local labor markets, and support for its continued operation by the Division of Unemployment Assistance should be provided by the workforce development community. There is, however, a need for a faster turnaround in the dissemination of data from the vacancy survey. Recently, there have been rather long, unnecessary time lags in the public release of the data, thereby reducing its utility for the operations of many workforce development programs.

(x) There are a variety of research and evaluation activities that should be undertaken to improve our knowledge of the effectiveness of state and local labor exchange offices, including the WIA one-stop career centers and Wagner-Peyser labor exchange offices and job training programs, in filling job vacancies in both industries and occupations across the state. This research agenda would identify both the success of these labor exchange agencies in obtaining job orders from industries with available job openings and in filling these job orders. Knowledge of these job vacancy penetration rates and fill rates by industry, occupation, and geographic area would then be used to alter existing vacancy recruitment and job development/placement strategies to improve performance in filling job vacancies. A more effective labor exchange and job training system could improve the efficiency with which state labor markets operate and reduce both the number of job vacancies and the pool of unemployed persons in Massachusetts.

(xi) The analyses of industry employment developments and job vacancy rates by industry presented in this paper need to be supplemented with a similar set of analyses of occupational employment developments and job vacancy rates by occupation across the state and in selected substate regions. Which occupational groups have experienced job growth in the Commonwealth in recent years, how do job vacancy rates vary by major occupational group and across individual occupations, which occupations appear to be in shortage, do occupational shortages vary across geographic regions, and which of these shortage occupations seem to warrant additional training interventions to boost the supply of skilled workers in Massachusetts?[39] Our next research paper will aim to provide answers to some of these key research questions.

Notes

[1] For a detailed description and analysis of the roles of labor market and occupational information systems in designing and planning employment and training programs at the state and local level, See: Andrew Sum, Paul Harrington, and Lorraine Amico, Cracking the Labor Market for Human Resource Planning, National Governor's Association, Washington, D.C., 1982.

[2] For a review of the uses of job vacancy data in identifying occupational shortages at the state and local level and analyzing labor markets at the metropolitan level, See: (i) Andrew Sum and Paul E. Harrington, Job Vacancy Data and the Measurement of Occupational Shortages and Surpluses at the State and Local Level, Center for Labor Market Studies, Northeastern University, Boston, 1983; (ii) Harry J. Holzer, Unemployment, Vacancies, and Local Labor Markets, W.E. Upjohn Institute for Employment Research, Kalamazoo, 1989.

[3] There were a number of ad hoc job vacancy surveys undertaken to identify job vacancies in selected occupations and industries in New England and Massachusetts during the late 1990s and the 2000-2001 period. See: Paul Harrington and Neeta P. Fogg, Threats to Sustained Economic Growth: Science, Engineering, and Information Technology Labor Shortages in the Massachusetts Economy, Prepared for the Commission on High Technology Workforce Development, The New England Council, 2000.

[4] Major industrial sectors are coded at the two-digit NAICS level while 3-digit industries are used to identify individual growth industries within these major industrial sectors.

[5] The job vacancy data for the fourth quarter of 2004 are the most recent data released by the Massachusetts Division of Unemployment Assistance. A new round was undertaken in the second quarter of 2005,

[6] If job vacancies (V) can be considered to be a measure of unmet labor demand and the unemployed (U) as a measure of unutilized labor supply, then V > U implies a shortage while U > V implies a labor surplus.

[7] The CPS is the acronym for the Current Population Survey, a monthly household survey conducted by the U.S. Census Bureau for the Bureau of Labor Statistics. It collects labor force data from a representative sample of approximately 60,000 households across the nation, including nearly 1,300 households in Massachusetts.

[8] Due to delays in reporting by employers there can be a fairly lengthy lag (6 to 8 months) between the end of a calendar quarter and the date at which the ES-202 employment data for that quarter are made available by the Massachusetts Division of Unemployment Assistance. At the time of the writing of this report (December 2005), the most recent ES-202 data released by DUA were for the first quarter of calendar year 2005. The second quarter ES-202 employment data should be available in the early winter of 2006.

[9] The national job vacancy series began in May 2001 while the state job vacancy series starts with the fourth quarter of 2002.

[10] The LAUS methodologies used to generate these estimates of the resident labor force, the employed, and the unemployed are described in the U.S. Bureau of Labor Statistics' Handbook of Methods, which is available on the BLS website.

[11] See: Andrew Sum, Ishwar Khatiwada, and Paulo Tobar with Sheila Palma, Wage and Salary Employment Trends in Massachusetts, 1982 – 2005, Findings on Recent Job Growth and Decline Across Industrial Sectors, and Geographic Areas of the State, Report Prepared by the Center for Labor Market Studies of Northeastern University for the Workforce Solutions Group, Boston, November 2005.

[12] Between 2001 and 2004, non-farm wage and salary employment in the U.S. declined from 131.8 million to 131.5 million, a drop of only 3%.

[13] For a review of key elements of export base theory, See: James Heilbrun, Urban Economics, (Third Edition), Martin's Press, New York, 1981.

[14] See: Massachusetts Division of Employment Assistance, "Massachusetts Unemployment Rate at 4.9 percent in November," Boston, December 15, 2005.

[15] Between the first quarter of calendar year 2004 and 2005, wage and salary employment in the nation rose from 130.54 million to 132.80 million, a gain of nearly 2.26 million. See: U.S. Bureau of Labor Statistics, Employment and Earnings, selected publications, February 2005 to August 2005.

[16] Employment in specialty trade contractors was essentially unchanged over this twelve month period at a level of 83,200.

[17] Appendix A contains the findings for the 2001-2004 period while Appendix B presents findings for the 2004 I – 2005 I period.

[18] For a review of key design features of the state job vacancy survey, See: Massachusetts Division of Unemployment Assistance, "Job Vacancy Survey: Status on the State's Unfilled Jobs," www.detma.org. The survey does not collect data on openings for independent contractors, consultants, and other non-employee positions in firms.

[19] For a more detailed review of the national job vacancy survey including design features, survey methods, and key concepts and measures, See: (i) Kelly A. Clark and Rosemary Hyson, "New Tools for Labor Market Analysis: JOLTS," Monthly Labor Review, December 2001, pp. 32-37; (ii) U.S. Bureau of Labor Statistics, "New Monthly Data Series on Job Openings and Labor Turnover Announced by BLS," Washington, D.C., July 30, 2002.

[20] Labor turnover represents the number of separations from employment during a given time period, primarily a month. Separations include voluntary quits as well as layoffs, fires, and other separations (temporary leave).

[21] Between May and October 2001, monthly quit rates in retail trade industries in the U.S. typically fell in the 4.0 to 4.7 percent range, twice the average for all industries during that time period. See: U.S. Bureau of Labor Statistics, New Monthly Data Series.

[22] One-half of the job vacancies in manufacturing required an Associate's degree of higher level of formal schooling. An above average share of their job vacancies in this sector were high skilled relative to the share of employment in this industrial sector in recent years, See: Massachusetts Department of Workforce Development, Massachusetts Job Vacancy Survey: Hiring Trends by Industry and Occupation, 4th Quarter 2004, Boston, 2005.

[23] The job vacancy survey for the fourth quarter of 2002 did not include the public sector. We generated a proxy estimate for public sector job openings in the fourth quarter of 2002 by assuming that they would be equal to 7% of all job vacancies in the state, their share of all job openings in the fourth quarter of 2003.

[24] The job vacancy data are not seasonally adjusted; thus, comparisons of estimates from year-to-year have to be confined to the same time period in each year; i.e., the fourth quarter of 2003 with the fourth quarter of 2002. The use of a slightly earlier starting data for the fourth quarter 2004, job vacancy survey makes findings for that quarter somewhat less comparable to that for 2003 IV.

[25] In labor demand theory, the demand for labor at a given wage is equal to the number of employed and the number of job vacancies (E + V) while the supply of labor at that wage is equal to the number of employed and unemployed (E + U). If labor supply exceeds labor demand, then (E + U) > (E + V) or (U > V). A positive gap between U and V represents the excess supply of labor while a negative gap between U and V would consti-

tute a "labor shortage". We will use these concepts to help identify occupational shortages in Massachusetts labor markets in the past year in the future paper.

[26] The estimated size of the state's civilian labor force peaked in 2003 at 3.428 million. By the fourth quarter of 2004, it had declined to 3.386 million, a drop of 42,000 or 1.3%. Out-migration from the state appears to be a key factor underlying this labor force decline.

[27] The labor force reserve are those individuals who are not actively looking for work but report to the CPS interviewer that they want to be employed now. The underemployed are employed persons who are working part-time, but wish to be employed full-time. The mal-employed are those employed persons who hold jobs that do not fully utilize their existing skills and education, reducing their productivity and earnings. During calendar year 2004, on average, there were 74,000 persons in the state's labor force reserve and 81,000 persons in the ranks of the underemployed. Together with the 172,000 unemployed, the combined pool of unutilized and underutilized labor was 327,000 individuals. See: Andrew Sum, Ishwar Khatiwada, and Sheila Palma, Current Massachusetts Labor Market Challenges and the Workforce Solutions Act of 2005, Prepared for the Massachusetts Legislature's Committee on Labor and Workforce Development, Hearings on the Workforce Solutions Act, The State House, Boston, May 2005.

[28] The employed in the LAUS survey include the self-employed, independent contractors, unpaid family workers, and private household workers as well as wage and salary workers.

[29] The population estimates for 2005 were released by the U.S. Census Bureau in December. They are available on the Census Bureau web site, www.Census.gov.

[30] These wage and salary employment estimates for individual industrial sectors are based on the findings of the monthly CES establishment surveys of the Massachusetts Division of Unemployment Assistance.

[31] The vacancy rates for these manufacturing industries were calculated by dividing job vacancies by the sum of the employed and job vacancies in these industries during the fourth quarter of 2004.

[32] For a review of the key design features of the national job vacancy survey and the labor turnover and job vacancy concepts and measures, See: U.S. Bureau of Labor Statistics, "New Monthly Data Series…"

[33] The Beveridge curve plots the relationship between the vacancy rate and the unemployment rate, with the vacancy rate plotted on the vertical axis. The relationship is typically depicted as a non-linear relationship with a hyperbolic shape. For a recent review of past Beveridge curve relationships in the U.S. See: (i) Kelly A. Clark and Rosemary Hyson, "New Tools for Labor Market Analysis," Monthly Labor Review, December 2001, pp. 32-37.; (ii) Hoyt Bleakely and Jeffrey C. Fuhrer, "Shifts in the Beveridge Curve, Job Matching, and Labor Market Dynamics," New England Economic Review, September/October 1997, pp. 3-19.

[34] Unemployed persons with no prior work experience are not assigned to any industrial sector. The total number of unemployed, thus, exceed the number assigned to the individual industrial sectors.

[35] For example, job vacancies in retail trade in the fourth quarter of 2004 were 2.4 times as high as they were in the second quarter. The high level of fourth quarter vacancies in retail trade was likely influenced by anticipated hiring for the holiday season.

[36] In the Massachusetts Job Vacancy Survey, the job vacancy rate is calculated by dividing the estimated number of job vacancies by the number of employed (V/E). In other vacancy studies, including those of the U.S. Bureau of Labor Statistics, the job vacancy rate is calculated by dividing the number of job vacancies by the sum of the employed and job vacancies (V/V+E). See: U.S. Bureau of Labor Statistics, New Monthly Data Series on Job Opening and Labor Turnover Announced by BLS, Washington D.C., July 30, 2002.

[37] The job vacancy data from the Division of Unemployment Assistance are disaggregated at the regional level for seven economic development areas, but are not available for local WIB service delivery areas. It would be desirable to provide future breakouts of vacancy data for local WIB areas.

[38] The estimate of 49,000 job vacancies for the fourth quarter of 2002 includes a proxy estimate of the number of job vacancies in the public sector. The job vacancy survey for that time period did not cover the government sector.

[39] Unfortunately, there is no large scale ongoing monthly survey such as the Current Employment Statistics program that measures occupational employment developments in the state. The monthly CPS surveys do collect data on the occupational characteristics of the jobs held by the employed, but the U.S. Census Bureau shifted to a new occupational coding system in 2003, creating problems in comparing occupational employment levels over time.

Appendix A:

Identifying Growth Industries at the Local Workforce Investment Board Service Delivery Area from 2001 to 2004

An analysis of industry employment developments in the state between 2001 and 2004 was presented in the main body of this report. The analysis of employment growth and decline was undertaken for major industrial sectors (two-digit NAICS industries) and for more disaggregated 3-digit NAICS industries at the state level. Most workforce development program planning and operations take place at the local level; thus it would be desirable to supplement the state wide industry employment analysis with that for local Workforce Investment Board service delivery areas across the state. For planning and operations under the Workforce Investment Act, the state is divided into 16 Workforce Investment Board service delivery areas. The names of these 16 WIB areas are displayed in alphabetical order in Appendix Table A-1.

Table A-1: An Alphabetical Listing of the Workforce Investment Board Service Delivery Areas in Massachusetts

Berkshire	Metro North
Boston	Metro South West
Bristol	New Bedford
Brockton	Northern Middlesex
Cape Cod	Northern Worcester
Franklin-Hampshire	South Coastal
Hampden	South Essex
Lower Merrimack	South Worcester

For each of theses 16 WIB areas, we generated estimates of wage and salary employment levels by 3-digit NAICS industry in 2001 and 2004 and calculated the changes in employment by industry over this three year period.[1] Two sets of growth industries were identified for each local WIB area. First, we identified all three-digit NAICS industries in the state that added 300 or more wage and salary jobs between 2001 and 2004. There were 24 such three-digit NAICS industries in the state that met our job creation criteria. (See Table A-2).

Job growth in these 24 industries ranged from a low of 318 in mining (outside of oil and gas) to highs of 9,739 in food services/drinking places and 14,620 in hospitals.

In an individual local WIB area, any 3 digit industry that met the state growth criteria and created at least 25 net new jobs between 2001 and 2004 was identified as a local growth industry. Not all local WIB areas were able to meet this growth criteria for a given industry. For

Table A-2: Two-Digit and Three-Digit NAICS Industries that Experienced an Absolute Increase in Employment of 300 or More by Industrial Sector in Massachusetts, 2001-2004

NAICS	Description	2001	2004	Absolute Change	Percent Change
	Total, all industries				
	Natural Resources and Mining	**7,832**	**8,689**	**857**	**10.95**
11	Agriculture, Forestry, Fishing & Hunting	6,408	6,860	452	7.05
21	Mining	1,424	1,829	406	28.49
212	Mining (except Oil and Gas)	1,393	1,711	318	22.86
	Construction				
236	Construction of Buildings	29,752	31,986	2,234	7.51
238	Specialty Trade Contractors	90,625	93,285	2,660	2.93
	Trade, Transportation and Utilities				
424	Merchant Wholesalers, Nondurable Goods	46,598	46,973	375	0.81
425	Electronic Markets and Agents/Brokers	21,261	24,649	3,388	15.93
441	Motor Vehicle and Parts Dealers	36,613	38,749	2,136	5.83
442	Furniture and Home Furnishings Stores	12,604	13,195	591	4.69
444	Building Material & Garden Supply Stores	25,526	27,818	2,292	8.98
446	Health and Personal Care Stores	26,362	26,795	433	1.64
452	General Merchandise Stores	42,589	43,446	857	2.01
	Financial Activities				
522	Credit Intermediation & Related Activity	60,992	62,214	1,222	2.00
531	Real Estate	29,799	30,849	1,050	3.52
	Professional and Business Services				
562	Waste Management and Remediation Service	9,034	9,591	557	6.17
	Education and Health Services	723,974	750,805	26,831	3.71
61	Educational Services	294,213	299,340	5,127	1.74
611	Educational Services	294,213	299,340	5,127	1.74
62	Health Care and Social Assistance	429,761	451,464	21,703	5.05
621	Ambulatory Health Care Services	124,609	127,122	2,514	2.02
622	Hospitals	155,999	170,619	14,620	9.37
623	Nursing and Residential Care Facilities	89,074	91,348	2,274	2.55
624	Social Assistance	60,080	62,375	2,295	3.82
	Leisure and Hospitality	284,700	296,197	11,497	4.04
71	Arts, Entertainment, and Recreation	46,961	51,261	4,300	9.16
711	Performing Arts and Spectator Sports	7,661	8,476	815	10.64
713	Amusement, Gambling & Recreation Ind	33,212	36,937	3,725	11.22
72	Accommodation and Food Services	237,739	244,935	7,196	3.03
722	Food Services and Drinking Places	202,043	211,782	9,739	4.82
	Other Services	113,608	117,856	4,248	3.74
81	Other Services, Ex. Public Admin	113,608	117,856	4,248	3.74
812	Personal and Laundry Services	35,524	35,890	366	1.03
814	Private Households	15,673	20,212	4,539	28.96
	Public Administration				
926	Administration of Economic Programs	6,966	7,601	635	9.12

example, 15 of the 16 WIB areas met the job growth criteria for motor vehicle and parts dealers, 14 met the growth criteria for food services/drinking places, and 13 met the growth criteria for hospitals. (Table A-3). However only 5 WIBs met the job growth criteria for the performing arts industry and only 3 met the criteria for health and personal care stores.

Table A-3: 3 Digit NAICS Industries that Experienced Growth in Employment of 300 or More at the State Level and 25 or More Jobs at the Local in Massachusetts, 2001 – 2004

NAICS	Industry	Areas with growth
814	Private Households	16
441	Motor Vehicle and Parts Dealers	15
713	Amusement, Gambling & Recreation Ind	15
722	Food Services and Drinking Places	14
522	Credit Intermediation & Related Activity	13
622	Hospitals	13
236	Construction of Buildings	12
444	Building Material & Garden Supply Stores	12
562	Waste Management and Remediation Service	12
238	Specialty Trade Contractors	11
531	Real Estate	11
611	Educational Services	11
621	Ambulatory Health Care Services	11
623	Nursing and Residential Care Facilities	11
425	Electronic Markets and Agents/Brokers	10
452	General Merchandise Stores	9
442	Furniture and Home Furnishings Stores	8
624	Social Assistance	8
812	Personal and Laundry Services	7
424	Merchant Wholesalers, Nondurable Goods	6
711	Performing Arts and Spectator Sports	5
926	Administration of Economic Programs	5
212	Mining (except Oil and Gas)	4
446	Health and Personal Care Stores	3

A second set of growth industries were identified at the local WIB area. These were 3-digit NAICS industries that created 50 additional wage and salary jobs at the local level, but did not meet the state job growth criteria of at least 300 jobs. There were eleven three-digit NAICS industries, including professional and technical services, administrative and support services, and insurance carriers, in which 4 or more local WIBs met the minimum job growth criteria

(Table A-4). Each local 3-digit NAICS industry creating 50 or more net new jobs between 2001 and 2004 was identified as a "growth industry" in each WIB area. The combined number of three-digit growth industries in these WIB areas ranged from lows of 16 to 17 industries in the Boston and Metro North WIB areas to highs of 27 industries in New Bedford and 30 in Brockton.

Table A-4: 3 Digit NAICS Industries that Experienced Growth in Employment of 50 or More at the Local Level in 4 or More WIB Areas in Massachusetts, 2001-2004

Code	Industry	Number of Areas with Job Growth
541	Professional and Technical Services	8
561	Administrative and Support Services	8
448	Clothing and Clothing Accessories Stores	7
813	Membership Organizations & Associations	7
443	Electronics and Appliance Stores	5
524	Insurance Carriers & Related Activities	5
921	Executive, Legislative, & Gen Government	5
327	Nonmetallic Mineral Product Mfg	4
445	Food and Beverage Stores	4
493	Warehousing and Storage	4
551	Management of Companies and Enterprises	4

The findings for each local WIB area are presented on a separate page in this appendix. The WIB areas are organized in alphabetical order. For each three-digit NAICS growth industry, we provide information on the number of wage and salary workers on the payrolls of firms and government agencies in the industry during calendar years 2001 and 2004, the absolute increase in the number of wage and salary jobs in the industry between 2001-2004, and the relative or percent increase in employment between these two time periods. The growth industries in each local WIB are arranged into two groups: those that also were growth industries at the state level (300 or more new jobs) and those that were only growth industries at the local level (i.e. 50 or more new jobs in the local industry between 2001 and 2004).

Each local WIB should undertake its own analyses of the following issues. How well do the local WIA one stop centers and Wagner-Peyser labor exchange offices perform in obtaining job orders from firms in local growth industries? How successful are the local one stop career centers and labor exchange offices in filling job orders from firms in these growth industries? What strategies seem to work best in achieving high vacancy penetration rates and job vacancy fill rates? Findings of such analyses should be complemented by new strategies to improve the ability of local one stop centers to obtain more job orders from employers in growth industries and to improve the fill rate for such job orders.

Berkshire WIA
2001-2004
Selected Industries

Growth Industries at State and Local Level				Growth Industries at Local Level Only			
NAICS	**Industry**	**Absolute**	**Relative**	**NAICS**	**Industry**	**Absolute**	**Relative**
212	Mining (except Oil and Gas)	46	55.4	327	Nonmetallic Mineral Product Mfg	68	20.1
236	Construction of Buildings	129	19.4	443	Electronics and Appliance Stores	103	71.5
238	Specialty Trade Contractors	140	7.5	448	Clothing and Clothing Accessories Stores	98	11.5
441	Motor Vehicle and Parts Dealers	66	7.6	541	Professional and Technical Services	621	31.9
442	Furniture and Home Furnishings Stores	51	18.6	561	Administrative and Support Services	385	24.2
444	Building Material & Garden Supply Stores	193	34.8	721	Accommodation	124	5.5
522	Credit Intermediation & Related Activity	42	4.1				
531	Real Estate	117	34.0				
562	Waste Management and Remediation Service	47	23.6				
621	Ambulatory Health Care Services	189	8.0				
622	Hospitals	146	5.2				
623	Nursing and Residential Care Facilities	127	4.5				
722	Food Services and Drinking Places	86	1.8				
814	Private Households	129	24.2				

Boston WIA
2001-2004
Selected Industries

Growth Industries at State and Local Level				Growth Industries at Local Level Only			
NAICS	**Industry**	**Absolute**	**Relative**	**NAICS**	**Industry**	**Absolute**	**Relative**
452	General Merchandise Stores	980	48.9	327	Nonmetallic Mineral Product Mfg	206	
522	Credit Intermediation & Related Activity	631	3.7	443	Electronics and Appliance Stores	105	12.1
62	Health Care and Social Assistance	7531	8.0	454	Non-store Retailers	118	28.6
622	Hospitals	7485	12.1	492	Couriers and Messengers	269	21.2
711	Performing Arts and Spectator Sports	132	4.2	493	Warehousing and Storage	83	6.7
713	Amusement, Gambling & Recreation	504	24.3	561	Administrative and Support Services	214	0.6
722	Food Services and Drinking Places	454	1.4				
814	Private Households	355	26.2				
926	Administration of Economic Programs	561	11.2				

Bristol WIA
2001-2004
Selected Industries

Growth Industries at State and Local Level				Growth Industries at Local Level Only			
NAICS	**Industry**	**Absolute**	**Relative**	**NAICS**	**Industry**	**Absolute**	**Relative**
236	Construction of Buildings	342	28.7	311	Food Manufacturing	156	19.0
238	Specialty Trade Contractors	506	13.6	321	Wood Product Manufacturing	266	129.1
424	Merchant Wholesalers, Nondurable Goods	1337	44.8	326	Plastics & Rubber Products Manufacturing	131	23.5
425	Electronic Markets and Agents/Brokers	486	90.5	443	Electronics and Appliance Stores	148	18.0
441	Motor Vehicle and Parts Dealers	109	4.2	453	Miscellaneous Store Retailers	228	20.0
444	Building Material & Garden Supply Stores	1953		485	Transit and Ground Passenger Transport	197	27.3
452	General Merchandise Stores	282	5.6	488	Support Activities for Transportation	79	105.3
522	Credit Intermediation & Related Activity	89	4.4	511	Publishing Industries	91	10.2
621	Ambulatory Health Care Services	313	5.6	524	Insurance Carriers & Related Activities	111	8.6
622	Hospitals	364	5.9	541	Professional and Technical Services	366	9.2
624	Social Assistance	35	1.1	551	Mgmt of Companies and Enterprises	58	2.7
713	Amusement, Gambling & Recreation Ind	308	25.7	562	Waste Mgmt and Remediation Service	273	94.1
722	Food Services and Drinking Places	776	7.2	813	Membership Organizations & Associations	182	12.2
814	Private Households	250	26.5				

Brockton WIA
2001-2004
Selected Industries

Growth Industries at State and Local Level				Growth Industries at Local Level Only			
NAICS	**Industry**	**Absolute**	**Relative**	**NAICS**	**Industry**	**Absolute**	**Relative**
236	Construction of Buildings	121	13.0	326	Plastics & Rubber Products Manufacturing	18	5.8
238	Specialty Trade Contractors	32	0.8	337	Furniture and Related Product Mfg	156	49.4
425	Electronic Markets and Agents/Brokers	62	13.1	443	Electronics and Appliance Stores	122	73.5
441	Motor Vehicle and Parts Dealers	42	3.1	445	Food and Beverage Stores	267	10.1
442	Furniture and Home Furnishings Stores	46	17.8	511	Publishing Industries	414	
452	General Merchandise Stores	97	4.7	519	Other Information Services	124	64.2
522	Credit Intermediation & Related Activity	160	13.2	524	Insurance Carriers & Related Activities	51	9.8
531	Real Estate	98	18.5	532	Rental and Leasing Services	214	45.1
562	Waste Management and Remediation Service	51	20.6	541	Professional and Technical Services	166	6.9
611	Educational Services	74	0.9	551	Mgmt of Companies and Enterprises	306	13.7
621	Ambulatory Health Care Services	219	4.9	561	Administrative and Support Services	173	5.4
622	Hospitals	586	14.2	562	Waste Mgmt and Remediation Service	51	20.6
623	Nursing and Residential Care Facilities	112	3.9	813	Membership Organizations & Associations	330	37.2
713	Amusement, Gambling & Recreation	99	14.6				
72	Accommodation and Food Services	31	0.4				
812	Personal and Laundry Services	305	28.0				
814	Private Households	191	35.8				

Cape Cod WIA
2001-2004

Growth Industries at State and Local Level				Growth Industries at Local Level Only			
NAICS	**Industry**	**Absolute**	**Relative**	**NAICS**	**Industry**	**Absolute**	**Relative**
236	Construction of Buildings	396	21.3	448	Clothing and Clothing Accessories Stores	221	10.6
238	Specialty Trade Contractors	567	15.3	451	Sporting Goods/Hobby/Book/Music Stores	66	7.8
424	Merchant Wholesalers, Nondurable Goods	131	23.6	561	Administrative and Support Services	390	11.4
425	Electronic Markets and Agents/Brokers	54	23.5	811	Repair and Maintenance	52	5.0
441	Motor Vehicle and Parts Dealers	74	4.5	921	Executive, Legislative, & Gen Gov.	156	7.9
442	Furniture and Home Furnishings Str	547	93.2				
444	Building Material & Garden Supply Str	305	17.5				
452	General Merchandise Stores	93	7.1				
531	Real Estate	33	2.1				
562	Waste Management and Remediation Sv	37	9.5				
611	Educational Services	44	0.6				
621	Ambulatory Health Care Services	418	8.7				
622	Hospitals	763	23.6				
623	Nursing and Residential Care Facilities	327	8.9				
624	Social Assistance	251	14.8				
713	Amusement, Gambling & Recreation	426	16.6				
722	Food Services and Drinking Places	275	2.2				
812	Personal and Laundry Services	134	11.4				
814	Private Households	99	13.6				
926	Administration of Economic Programs	770					

Franklin-Hampshire WIA
2001-2004
Selected Industries

Growth Industries at State and Local Level				Growth Industries at Local Level Only			
NAICS	**Industry**	**Absolute**	**Relative**	**NAICS**	**Industry**	**Absolute**	**Relative**
236	Construction of Buildings	148	18.0	334	Computer and Electronic Product Mfg	123	34.7
238	Specialty Trade Contractors	140	8.0	517	Telecommunications	287	
425	Electronic Markets and Agents/Brokers	260	171.1	524	Insurance Carriers & Related Activities	64	11.3
441	Motor Vehicle and Parts Dealers	100	9.0	712	Museums, Parks and Historical Sites	245	
442	Furniture and Home Furnishings Stores	28	11.3	814	Private Households	248	27.8
444	Building Material & Garden Supply Stores	125	20.2				
452	General Merchandise Stores	161	12.5				
522	Credit Intermediation & Related Activity	152	16.1				
562	Waste Management and Remediation Service	112	90.3				
611	Educational Services	1291	6.9				
621	Ambulatory Health Care Services	88	2.9				
622	Hospitals	140	4.5				
623	Nursing and Residential Care Facilities	343	11.9				
713	Amusement, Gambling & Recreation Ind	25	2.8				
722	Food Services and Drinking Places	596	9.7				
814	Private Households	248	27.8				
926	Administration of Economic Programs	31	34.4				

Hampden WIA
2001-2004
Selected Industries

Growth Industries at State and Local Level				Growth Industries at Local Level Only			
NAICS	**Industry**	**Absolute**	**Relative**	**NAICS**	**Industry**	**Absolute**	**Relative**
424	Merchant Wholesalers, Nondurable Goods	171	6.5	336	Transportation Equipment Manufacturing	305	50.7
425	Electronic Markets and Agents/Brokers	90	12.5	448	Clothing and Clothing Accessories Stores	50	2.3
441	Motor Vehicle and Parts Dealers	188	5.9	485	Transit and Ground Passenger Transport	305	19.6
444	Building Material & Garden Supply Stores	72	3.8	523	Financial Investment & Related Activity	271	49.1
446	Health and Personal Care Stores	30	1.8	541	Professional and Technical Services	114	2.2
522	Credit Intermediation & Related Activity	70	2.9	813	Membership Organizations & Associations	61	2.5
531	Real Estate	230	15.3				
562	Waste Management and Remediation Service	91	21.9				
611	Educational Services	721	3.9				
621	Ambulatory Health Care Services	437	4.0				
622	Hospitals	696	6.7				
623	Nursing and Residential Care Facilities	216	2.6				
711	Performing Arts and Spectator Sports	124	30.9				
713	Amusement, Gambling & Recreation Ind	188	6.8				
722	Food Services and Drinking Places	106	0.8				
812	Personal and Laundry Services	156	8.0				
814	Private Households	1660	79.1				

Lower Merrimack WIA
2001-2004
Selected Industries

Growth Industries at State and Local Level				Growth Industries at Local Level Only			
NAICS	**Industry**	**Absolute**	**Relative**	**NAICS**	**Industry**	**Absolute**	**Relative**
236	Construction of Buildings	51	5.0	311	Food Manufacturing	222	12.6
425	Electronic Markets and Agents/Brokers	613	126.7	316	Leather and Allied Product Manufacturing	755	
441	Motor Vehicle and Parts Dealers	74	5.3	325	Chemical Manufacturing	156	10.9
446	Health and Personal Care Stores	137	13.9	339	Miscellaneous Manufacturing	343	24.6
452	General Merchandise Stores	194	47.9	451	Sporting Goods/Hobby/Book/Music Stores	77	29.7
522	Credit Intermediation & Related Activity	179	11.3	541	Professional and Technical Services	881	11.9
531	Real Estate	275	39.2				
611	Educational Services	787	7.5				
621	Ambulatory Health Care Services	417	7.1				
622	Hospitals	442	10.3				
623	Nursing and Residential Care Facilities	108	2.2				
624	Social Assistance	309	10.8				
713	Amusement, Gambling & Recreation	52	3.1				
722	Food Services and Drinking Places	609	8.1				
812	Personal and Laundry Services	68	4.6				
814	Private Households	165	33.5				

Metro North WIA
2001-2004
Selected Industries

Growth Industries at State and Local Level				Growth Industries at Local Level Only			
NAICS	**Industry**	**Absolute**	**Relative**	**NAICS**	**Industry**	**Absolute**	**Relative**
441	Motor Vehicle and Parts Dealers	113	3.1	484	Truck Transportation	114	4.9
442	Furniture and Home Furnishings Stores	174	14.0	485	Transit and Ground Passenger Transport	439	22.5
444	Building Material & Garden Supply Stores	403	15.4	488	Support Activities for Transportation	65	3.0
452	General Merchandise Stores	356	9.8	813	Membership Organizations & Associations	72	2.7
531	Real Estate	121	4.5	921	Executive, Legislative, & Gen Government	78	1.9
562	Waste Management and Remediation Service	152	13.8				
622	Hospitals	2533	19.0				
624	Social Assistance	867	12.5				
713	Amusement, Gambling & Recreation	49	1.7				
722	Food Services and Drinking Places	138	0.7				
814	Private Households	179	14.5				
926	Administration of Economic Programs	28	12.3				

Metro South West WIA
2001-2004
Selected Industries

Growth Industries at State and Local Level				Growth Industries at Local Level Only			
NAICS	**Industry**	**Absolute**	**Relative**	**NAICS**	**Industry**	**Absolute**	**Relative**
212	Mining (except Oil and Gas)	138	119.0	312	Beverage & Tobacco Product Manufacturing	65	7.2
236	Construction of Buildings	755	13.3	321	Wood Product Manufacturing	168	34.9
238	Specialty Trade Contractors	408	3.1	448	Clothing and Clothing Accessories Stores	457	5.3
441	Motor Vehicle and Parts Dealers	145	2.3	493	Warehousing and Storage	75	10.9
444	Building Material & Garden Supply Stores	73	1.9	515	Broadcasting (except Internet)	70	8.0
522	Credit Intermediation & Related Activity	380	6.2	921	Executive, Legislative, & Gen Government	364	12.0
531	Real Estate	138	2.6				
562	Waste Management and Remediation Service	131	17.7				
611	Educational Services	883	1.9				
623	Nursing and Residential Care Facilities	795	6.6				
624	Social Assistance	586	7.0				
711	Performing Arts and Spectator Sports	424	47.3				
713	Amusement, Gambling & Recreation	481	7.5				
722	Food Services and Drinking Places	2738	10.3				
814	Private Households	56	2.0				

New Bedford WIA
2001-2004
Selected Industries

Growth Industries at State and Local Level				Growth Industries at Local Level Only			
NAICS	**Industry**	**Absolute**	**Relative**	**NAICS**	**Industry**	**Absolute**	**Relative**
236	Construction of Buildings	104	14.5	114	Fishing, Hunting and Trapping	228	23.1
238	Specialty Trade Contractors	773	33.5	311	Food Manufacturing	513	31.0
444	Building Material & Garden Supply Stores	174	17.4	325	Chemical Manufacturing	500	
446	Health and Personal Care Stores	29	4.1	332	Fabricated Metal Product Manufacturing	123	31.7
522	Credit Intermediation & Related Activity	37	4.3	221	Utilities	54	17.7
531	Real Estate	157	43.2	488	Support Activities for Transportation	58	44.9
562	Waste Management and Remediation Service	111	24.2	493	Warehousing and Storage	650	
611	Educational Services	660	9.8	518	ISPs, Search Portals, & Data Processing	88	
621	Ambulatory Health Care Services	135	3.5	541	Professional and Technical Services	87	4.7
623	Nursing and Residential Care Facilities	506	15.2	561	Administrative and Support Services	401	31.4
624	Social Assistance	100	5.7	813	Membership Organizations & Associations	60	9.2
713	Amusement, Gambling & Recreation	133	13.5	921	Executive, Legislative, & Gen Government	167	24.3
722	Food Services and Drinking Places	350	5.4	925	Community and Housing Program Admin	156	
814	Private Households	285	40.7				

N. Middlesex
2001-2004
Selected Industries

Growth Industries at State and Local Level				Growth Industries at Local Level Only			
NAICS	**Industry**	**Absolute**	**Relative**	**NAICS**	**Industry**	**Absolute**	**Relative**
236	Construction of Buildings	253	30.7	448	Clothing and Clothing Accessories Stores	196	34.2
238	Specialty Trade Contractors	763	17.7	551	Management of Companies and Enterprises	473	33.5
424	Merchant Wholesalers, Nondurable Goods	404	31.8	921	Executive, Legislative, & Gen Government	174	14.9
441	Motor Vehicle and Parts Dealers	144	16.6	924	Administration of Environmental Programs	81	164.1
442	Furniture and Home Furnishings Stores	100	75.2				
452	General Merchandise Stores	40	4.7				
522	Credit Intermediation & Related Activity	243	19.6				
562	Waste Management and Remediation Service	108	44.3				
611	Educational Services	421	4.7				
621	Ambulatory Health Care Services	192	5.1				
622	Hospitals	182	5.1				
713	Amusement, Gambling & Recreation	47	4.4				
722	Food Services and Drinking Places	323	4.6				
812	Personal and Laundry Services	149	14.3				

N. Worcester
2001-2004
Selected Industries

Growth Industries at State and Local Level				Growth Industries at Local Level Only			
NAICS	Industry	Absolute	Relative	NAICS	Industry	Absolute	Relative
236	Construction of Buildings	193	24.4	313	Textile Mills	59	40.3
238	Specialty Trade Contractors	235	10.1	334	Computer and Electronic Product Mfg	78	3.9
425	Electronic Markets and Agents/Brokers	45	14.4	221	Utilities	52	14.1
441	Motor Vehicle and Parts Dealers	124	9.5	448	Clothing and Clothing Accessories Stores	64	11.6
444	Building Material & Garden Supply Stores	53	4.9	454	Non-store Retailers	88	24.0
522	Credit Intermediation & Related Activity	217	20.6	485	Transit and Ground Passenger Transport	150	17.0
531	Real Estate	45	11.2	541	Professional and Technical Services	244	11.9
562	Waste Management and Remediation Service	64	34.7	561	Administrative and Support Services	235	8.7
621	Ambulatory Health Care Services	79	2.3	923	Administration of HR Program	328	
622	Hospitals	272	11.7				
623	Nursing and Residential Care Facilities	413	15.1				
713	Amusement, Gambling & Recreation Ind	155	12.6				
722	Food Services and Drinking Places	288	5.8				
814	Private Households	151	52.9				

S. Coastal
2001-2004
Selected Industries

Growth Industries at State and Local Level				Growth Industries at Local Level Only			
NAICS	**Industry**	**Absolute**	**Relative**	**NAICS**	**Industry**	**Absolute**	**Relative**
212	Mining (except Oil and Gas)	110	37.3	315	Apparel Manufacturing	134	97.5
424	Merchant Wholesalers, Nondurable Goods	261	7.6	322	Paper Manufacturing	53	18.8
425	Electronic Markets and Agents/Brokers	139	10.7	327	Nonmetallic Mineral Product Mfg	56	14.4
441	Motor Vehicle and Parts Dealers	164	5.4	443	Electronics and Appliance Stores	258	22.8
444	Building Material & Garden Supply Str	490	25.0	445	Food and Beverage Stores	131	1.8
531	Real Estate	195	7.7	448	Clothing and Clothing Accessories Stores	139	4.3
562	Waste Management and Remediation Srv	77	8.0	451	Sporting Goods/Hobby/Book/Music Stores	113	8.0
611	Educational Services	643	4.6	484	Truck Transportation	123	16.8
621	Ambulatory Health Care Services	1,184	12.0	524	Insurance Carriers & Related Activities	174	2.3
622	Hospitals	600	8.7	561	Administrative and Support Services	221	2.3
623	Nursing and Residential Care Facilities	296	4.6	811	Repair and Maintenance	62	3.3
624	Social Assistance	167	4.6	813	Membership Organizations & Assoc.	320	17.5
711	Performing Arts and Spectator Sport	91	51.0	923	Administration of Human Resource Prog.	387	
713	Amusement, Gambling & Recreation	634	20.3	924	Administration of Environmental Program	50	
722	Food Services and Drinking Places	784	5.1				
812	Personal and Laundry Services	259	9.5				
814	Private Households	145	13.2				
926	Administration of Economic Prog.	27	35.9				

S. Essex
2001-2004
Selected Industries

Growth Industries at State and Local Level				Growth Industries at Local Level Only			
212	Mining (except Oil and Gas)	85		327	Nonmetallic Mineral Product Mfg	47	52.8
236	Construction of Buildings	275	18.9	333	Machinery Manufacturing	478	16.6
238	Specialty Trade Contractors	394	9.5	337	Furniture and Related Product Mfg	92	35.3
425	Electronic Markets and Agents/Brokers	55	5.3	445	Food and Beverage Stores	302	5.1
441	Motor Vehicle and Parts Dealers	63	2.2	454	Nonstore Retailers	197	16.4
442	Furniture and Home Furnishings Stores	220	27.8	524	Insurance Carriers & Related Activities	72	3.5
444	Building Material & Garden Supply Stores	66	3.2	541	Professional and Technical Services	482	6.6
522	Credit Intermediation & Related Activity	112	4.0	551	Mgmt of Companies and Enterprises	182	10.8
531	Real Estate	225	18.6				
611	Educational Services	38	0.3				
622	Hospitals	1,157	18.0				
623	Nursing and Residential Care Facilities	106	1.6				
711	Performing Arts and Spectator Sports	142	63.0				
713	Amusement, Gambling & Recreation	410	16.2				
812	Personal and Laundry Services	308	18.2				
814	Private Households	54	6.4				

S. Worcester
2001-2004
Selected Industries

Growth Industries at State and Local Level				Growth Industries at Local Level Only			
NAICS	**Industry**	**Absolute**	**Relative**	**NAICS**	**Industry**	**Absolute**	**Relative**
236	Construction of Buildings	303	16.2	325	Chemical Manufacturing	298	20.1
238	Specialty Trade Contractors	306	4.1	336	Transportation Equipment Manufacturing	54	16.3
424	Merchant Wholesalers, Nondurable Goods	89	2.1	221	Utilities	164	10.2
425	Electronic Markets and Agents/Brokers	174	15.5	445	Food and Beverage Stores	86	1.2
441	Motor Vehicle and Parts Dealers	414	11.8	447	Gasoline Stations	258	21.0
442	Furniture and Home Furnishings Stores	73	7.9	484	Truck Transportation	288	17.5
444	Building Material & Garden Supply Stores	218	10.1	512	Motion Picture & Sound Recording	83	39.6
452	General Merchandise Stores	128	3.5	523	Financial Investment & Related Activity	64	18.0
522	Credit Intermediation & Related Activity	497	17.4	561	Administrative and Support Services	1,780	16.0
611	Educational Services	2,748	11.6	811	Repair and Maintenance	376	15.6
713	Amusement, Gambling & Recreation	211	10.0	813	Membership Organizations & Associations	89	3.5
722	Food Services and Drinking Places	2,238	15.9				
814	Private Households	427	46.1				

Appendix B:

Identifying Growth Industries at the Local Workforce Investment Board Service Delivery Area, 2004 I – 2005 I

In the main body of the report, we analyzed industry employment developments at the state level for the 2004 I to 2005 I period. Wage and salary Job growth in the state resumed in the first quarter of 2004 after declining steadily for nearly three consecutive years. The analysis of state industry employment developments took place at both the major industrial sector level (two digit NAICS codes) and at the more disaggregated three digit NAICS level. A listing of the three digit NAICS industries in Massachusetts that added at least 300 net new wage and salary jobs over the 2004 I – 2005 I time period is displayed in Appendix Table B-1.

For each of the 16 WIA service delivery areas, we have identified all three digit NAICS industries that experienced any positive employment growth over the above time period. These growth industries in each WIA area were classified into the two following groups: those that were also growth industries at the state level (i.e. employment growth of 300 net new jobs or better) and those that did not meet our state growth criteria but that had a job growth of 40 or more at the local level.[1] For each of the 16 WIB areas there were a subset of industries that experienced job growth locally but not sufficiently high at the state level to meet the state job growth industry criteria. These local growth industries often included construction, manufacturing, wholesale trade, finance/insurance, and selected service industries. In some cases, these local industries grew quite strongly, adding 100 or more new wage and salary workers over the 2004 I – 2005 I period. Among such industries were food and beverage stores in the Berkshires, computer and electronic products manufacturing in Boston, credit intermediation agencies in Boston, and specialty trade contractors in Bristol, Hampden, Lower Merrimack, and Metro South West WIB areas. A listing of 3-digit NAICS industries that were not "state growth industries" but added 50 or more workers at the local level in at least four WIB areas between the first quarter of 2004 and the first quarter of 2005 is displayed in Table B-2. There were eleven such industries that met this criteria including two construction industries and three manufacturing industries, including fabricated metal products and machinery equipment.

[1] All three-digit NAICS industries in a local WIB area with 40 or more new jobs over the 2004 I – 2005 I time period were identified in this listing.

Table B-1: Three Digit NAICS Industries that Experienced an Increase in Wage and Salary Employment of 300 or More in Massachusetts between 2004 I – 2005 I

NAICS Code	Description	1Q 2004	1Q 2005	Absolute Change	Relative Change
	Total, all industries	3,066,992	3,089,691	22,699	0.7
	Construction				
236	Construction of Buildings	28,847	29,573	726	2.5
	Manufacturing				
311	Food Manufacturing	22,479	22,967	488	2.2
316	Leather and Allied Product Manufacturing	1,968	2,555	587	29.8
325	Chemical Manufacturing	16,254	17,135	881	5.4
	Trade, Transportation and Utilities				
444	Building Material & Garden Supply Stores	25,614	26,828	1,214	4.7
448	Clothing and Clothing Accessories Stores	37,726	38,269	543	1.4
452	General Merchandise Stores	41,913	42,629	716	1.7
493	Warehousing and Storage	7,799	8,611	812	10.4
	Information				
511	Publishing Industries	40,719	42,101	1,382	3.4
518	ISPs, Search Portals, & Data Processing	9,755	10,190	435	4.5
	Financial Activities				
523	Financial Investment & Related Activity	45,620	45,947	327	0.7
524	Insurance Carriers & Related Activities	61,812	63,159	1,347	2.2
531	Real Estate	29,612	30,536	924	3.1
	Professional and Business Services				
541	Professional and Technical Services	225,304	231,882	6,578	2.9
551	Management of Companies and Enterprises	63,874	65,274	1,400	2.2
561	Administrative and Support Services	139,346	142,045	2,699	1.9
562	Waste Management and Remediation Service	9,163	9,684	521	5.7
	Education and Health Services				
611	Educational Services	307,916	315,438	7,522	2.4
621	Ambulatory Health Care Services	125,769	126,787	1,018	0.8
622	Hospitals	168,179	171,739	3,560	2.1
623	Nursing and Residential Care Facilities	91,109	92,829	1,720	1.9
624	Social Assistance	62,210	63,559	1,349	2.2
	Leisure and Hospitality				
721	Accommodation	28,757	29,349	592	2.1
722	Food Services and Drinking Places	197,564	199,533	1,969	1.0
	Other Services				
813	Membership Organizations & Associations	33,825	34,394	569	1.7
814	Private Households	19,917	20,950	1,033	5.2

For each local growth industry in each WIB area, we identify the level of employment in the first quarter of 2004, the level of employment in the first quarter of 2005, the absolute increase in wage and salary jobs between these two time periods, and the relative (i.e., percent) increase in employment over this twelve month period. Findings for each local WIB are presented in a separate table. The WIBs are arranged in alphabetical order.

Table B-2: Three Digit NAICS Industries that Experienced Growth in Employment of 50 or More Jobs at the Local Level in 4 or More WIB Areas in Massachusetts 2004 I – 2005 I

Code	Industry	Number of Areas with Job Growth
238	Specialty Trade Contractors	7
332	Fabricated Metal Product Manufacturing	6
333	Machinery Manufacturing	5
424	Merchant Wholesalers, Nondurable Goods	5
237	Heavy and Civil Engineering Construction	4
335	Electrical Equipment and Appliances	4
423	Merchant Wholesalers, Durable Goods	4
425	Electronic Markets and Agents/Brokers	4
517	Telecommunications	4
522	Credit Intermediation & Related Activity	4
713	Amusement, Gambling & Recreation Ind	4

Berkshire WIA
2004 I 2005 I
Selected Industries

Growth Industries at State and Local Level				Growth Industries at Local Level Only			
NAICS	Industry	Absolute	Relative	NAICS	Industry	Absolute	Relative
448	Clothing and Clothing Accessories Stores	34	3.7	238	Specialty Trade Contractors	62	3.9
452	General Merchandise Stores	82	9.7	314	Textile Product Mills	41	24.8
511	Publishing Industries	24	5.3	339	Miscellaneous Manufacturing	47	28.7
524	Insurance Carriers & Related Activities	21	3.2	445	Food and Beverage Stores	114	5.1
53	Real Estate and Rental and Leasing	33	4.8	492	Couriers and Messengers	126	n/a
531	Real Estate	37	8.3	813	Membership Organizations & Associations	75	7.1
541	Professional and Technical Services	42	1.6				
562	Waste Management and Remediation Service	26	11.7				
621	Ambulatory Health Care Services	35	1.4				
622	Hospitals	86	2.9				
623	Nursing and Residential Care Facilities	506	17.2				
624	Social Assistance	19	1.5				
722	Food Services and Drinking Places	119	2.8				
812	Personal and Laundry Services	37	5.0				
813	Membership Organizations & Associations	75	7.1				
814	Private Households	43	7.1				

Boston WIA
2004 I-2005 I
Selected Industries

Growth Industries at State and Local Level				Growth Industries at Local Level Only			
NAICS	Industry	Absolute	Relative	NAICS	Industry	Absolute	Relative
236	Construction of Buildings	208	5.8	326	Plastics & Rubber Products Manufacturing	67	11.9
325	Chemical Manufacturing	27	3.6	334	Computer and Electronic Product Mfg	171	11.4
448	Clothing and Clothing Accessories Stores	309	6.3	336	Transportation Equipment Manufacturing	77	24.0
493	Warehousing and Storage	59	4.5	424	Merchant Wholesalers, Nondurable Goods	347	10.2
511	Publishing Industries	198	2.9	442	Furniture and Home Furnishings Stores	53	6.8
518	ISPs, Search Portals, & Data Processing	121	16.7	451	Sporting Goods/Hobby/Book/Music Stores	74	4.2
524	Insurance Carriers & Related Activities	452	2.8	492	Couriers and Messengers	101	6.6
531	Real Estate	44	0.5	522	Credit Intermediation & Related Activity	980	5.8
541	Professional and Technical Services	911	1.7	525	Funds, Trusts & Other Financial Vehicles	133	7.3
561	Administrative and Support Services	912	2.8				
611	Educational Services	1,024	2.4				
621	Ambulatory Health Care Services	75	0.5				
622	Hospitals	1,938	2.8				
623	Nursing and Residential Care Facilities	124	2.1				
721	Accommodation	729	8.2				
722	Food Services and Drinking Places	1,061	3.5				
813	Membership Organizations & Associations	128	1.4				
814	Private Households	65	3.8				

Bristol WIA
2004 I-2005 I
Selected Industries

Growth Industries at State and Local Level				Growth Industries at Local Level Only			
NAICS	**Industry**	**Absolute**	**Relative**	**NAICS**	**Industry**	**Absolute**	**Relative**
236	Construction of Buildings	49	3.6	238	Specialty Trade Contractors	239	6.2
311	Food Manufacturing	161	14.6	322	Paper Manufacturing	50	6.1
444	Building Material & Garden Supply Stores	147	7.8	326	Plastics & Rubber Products Manufacturing	245	35.7
448	Clothing and Clothing Accessories Stores	121	4.5	332	Fabricated Metal Product Manufacturing	95	3.9
493	Warehousing and Storage	458	32.2	336	Transportation Equipment Manufacturing	191	100.0
524	Insurance Carriers & Related Activities	159	10.5	424	Merchant Wholesalers, Nondurable Goods	103	2.3
531	Real Estate	26	3.6	441	Motor Vehicle and Parts Dealers	65	2.4
551	Management of Companies and Enterprises	776	25.6	443	Electronics and Appliance Stores	90	8.5
562	Waste Management and Remediation Service	79	13.1	448	Clothing and Clothing Accessories Stores	121	4.5
622	Hospitals	122	1.8	517	Telecommunications	173	12.6
623	Nursing and Residential Care Facilities	527	9.8				
722	Food Services and Drinking Places	31	0.3				
813	Membership Organizations & Associations	36	2.2				
814	Private Households	39	3.1				

Brockton WIA
2004 I-2005 I
Selected Industries

Growth Industries at State and Local Level				Growth Industries at Local Level Only			
NAICS	**Industry**	**Absolute**	**Relative**	**NAICS**	**Industry**	**Absolute**	**Relative**
311	Food Manufacturing	42	3.7	337	Furniture and Related Product Mfg	48	10.4
493	Warehousing and Storage	136		522	Credit Intermediation & Related Activity	135	9.9
541	Professional and Technical Services	243	9.3	711	Performing Arts and Spectator Sports	56	
551	Management of Companies and Enterprises	484	21.2	713	Amusement, Gambling & Recreation	133	21.2
561	Administrative and Support Services	821	31.5				
562	Waste Management and Remediation Services	88	30.6				
611	Educational Services	182	2.0				
621	Ambulatory Health Care Services	89	1.9				
622	Hospitals	99	2.1				
721	Accommodation	21	10.7				
722	Food Services and Drinking Places	69	1.0				
813	Membership Organizations & Associations	45	3.8				
814	Private Households	58	8.3				

Cape Cod WIA
2004 I-2005 I
Selected Industries

Growth Industries at State and Local Level				Growth Industries at Local Level Only			
NAICS	**Industry**	**Absolute**	**Relative**	**NAICS**	**Industry**	**Absolute**	**Relative**
236	Construction of Buildings	125	5.9	237	Heavy and Civil Engineering Construction	56	7.0
452	General Merchandise Stores	106	8.4	238	Specialty Trade Contractors	71	1.8
531	Real Estate	30	2.1	483	Water Transportation	114	
561	Administrative and Support Services	128	5.3	488	Support Activities for Transportation	56	25.5
562	Waste Management and Remediation Service	44	11.4	492	Couriers and Messengers	351	
611	Educational Services	31	0.4				
621	Ambulatory Health Care Services	130	2.5				
622	Hospitals	49	1.3				
623	Nursing and Residential Care Facilities	79	2.0				
624	Social Assistance	172	8.9				
813	Membership Organizations & Associations	78	7.9				
814	Private Households	31	3.9				

Franklin-Hampshire WIA
2004 I-2005 I
Selected Industries

Growth Industries at State and Local Level				Growth Industries at Local Level Only			
NAICS	Industry	Absolute	Relative	NAICS	Industry	Absolute	Relative
311	Food Manufacturing	49	12.8	333	Machinery Manufacturing	52	8.2
448	Clothing and Clothing Accessories Stores	46	9.3	337	Furniture and Related Product Mfg	47	29.9
493	Warehousing and Storage	20		425	Electronic Markets and Agents/Brokers	190	86.1
531	Real Estate	137	27.8	447	Gasoline Stations	56	9.5
561	Administrative and Support Services	233	12.0	921	Executive, Legislative, & Gen Government	82	6.0
623	Nursing and Residential Care Facilities	57	1.8				
624	Social Assistance	44	2.5				

Hampden WIA
2004 I-2005 I
Selected Industries

Growth Industries at State and Local Level				Growth Industries at Local Level Only			
NAICS	**Industry**	**Absolute**	**Relative**	**NAICS**	**Industry**	**Absolute**	**Relative**
236	Construction of Buildings	77	6.5	238	Specialty Trade Contractors	98	2.4
325	Chemical Manufacturing	26	8.7	326	Plastics & Rubber Products Manufacturing	153	7.9
452	General Merchandise Stores	184	5.4	332	Fabricated Metal Product Manufacturing	211	4.0
493	Warehousing and Storage	52	7.5	333	Machinery Manufacturing	157	6.0
523	Financial Investment & Related Activity	24	3.0	339	Miscellaneous Manufacturing	275	8.9
531	Real Estate	103	6.1	423	Merchant Wholesalers, Durable Goods	52	1.8
541	Professional and Technical Services	143	2.6	484	Truck Transportation	57	2.8
561	Administrative and Support Services	368	6.0	713	Amusement, Gambling & Recreation	106	5.3
611	Educational Services	132	0.6	921	Executive, Legislative, & Gen Government	103	6.3
621	Ambulatory Health Care Services	262	2.3				
622	Hospitals	186	1.7				
813	Membership Organizations & Associations	28	1.2				
814	Private Households	285	7.5				
928	National Security & International Affair	165	20.0				

Lower Merrimack WIA
2004 I-2005 I
Selected Industries

Growth Industries at State and Local Level				Growth Industries at Local Level Only			
NAICS	Industry	Absolute	Relative	NAICS	Industry	Absolute	Relative
316	Leather and Allied Product Manufacturing	44	6.0	238	Specialty Trade Contractors	292	8.5
452	General Merchandise Stores	26	4.4	331	Primary Metal Manufacturing	23	33.8
511	Publishing Industries	202	17.4	337	Furniture and Related Product Mfg	48	18.1
524	Insurance Carriers & Related Activities	45	3.7	446	Health and Personal Care Stores	98	9.0
531	Real Estate	56	6.3	484	Truck Transportation	52	11.0
541	Professional and Technical Services	441	5.3	522	Credit Intermediation & Related Activity	211	12.1
561	Administrative and Support Services	95	1.8	713	Amusement, Gambling & Recreation	109	7.7
562	Waste Management and Remediation Service	90	10.6	921	Executive, Legislative, & Gen Government	108	3.3
611	Educational Services	76	0.6	922	Justice, Public Order, and Safety Activities	163	9.2
621	Ambulatory Health Care Services	143	2.3				
623	Nursing and Residential Care Facilities	39	0.8				
624	Social Assistance	144	4.6				
721	Accommodation	28	5.2				
814	Private Households	25	3.8				

Metro North WIA
2004 I-2005 I
Selected Industries

Growth Industries at State and Local Level				Growth Industries at Local Level Only			
NAICS	**Industry**	**Absolute**	**Relative**	**NAICS**	**Industry**	**Absolute**	**Relative**
311	Food Manufacturing	449	13.3	336	Transportation Equipment Manufacturing	43	3.3
325	Chemical Manufacturing	353	11.5	442	Furniture and Home Furnishings Stores	317	23.7
444	Building Material & Garden Supply Stores	232	8.4	485	Transit and Ground Passenger Transport	253	10.8
448	Clothing and Clothing Accessories Stores	32	0.8	525	Funds, Trusts & Other Financial Vehicles	80	86.6
452	General Merchandise Stores	195	5.0				
493	Warehousing and Storage	131	8.7				
511	Publishing Industries	887	12.5				
518	ISPs, Search Portals, & Data Processing	771	45.9				
523	Financial Investment & Related Activity	118	10.0				
531	Real Estate	60	2.2				
541	Professional and Technical Services	2,188	5.4				
551	Management of Companies and Enterprises	15	0.2				
562	Waste Management and Remediation Service	72	6.0				
611	Educational Services	36	0.1				
621	Ambulatory Health Care Services	253	2.0				
622	Hospitals	119	0.8				
623	Nursing and Residential Care Facilities	139	1.8				
624	Social Assistance	314	4.0				
721	Accommodation	68	2.1				
813	Membership Organizations & Associations	38	1.4				
814	Private Households	28	2.0				

Metro South West WIA
2004 I-2005 I
Selected Industries

Growth Industries at State and Local Level				Growth Industries at Local Level Only			
NAICS	Industry	Absolute	Relative	NAICS	Industry	Absolute	Relative
311	Food Manufacturing	219	9.0	212	Mining (except Oil and Gas)	222	
325	Chemical Manufacturing	290	9.2	237	Heavy and Civil Engineering Construction	152	4.6
444	Building Material & Garden Supply Stores	171	4.6	238	Specialty Trade Contractors	993	8.4
452	General Merchandise Stores	229	4.5	334	Computer and Electronic Product Mfg	950	3.2
493	Warehousing and Storage	107	15.7	337	Furniture and Related Product Mfg	42	5.0
511	Publishing Industries	416	3.4	423	Merchant Wholesalers, Durable Goods	1,173	7.0
531	Real Estate	196	3.8	424	Merchant Wholesalers, Nondurable Goods	709	13.3
551	Management of Companies and Enterprises	1,606	8.7	443	Electronics and Appliance Stores	102	4.1
561	Administrative and Support Services	920	4.2	446	Health and Personal Care Stores	100	2.5
611	Educational Services	837	1.7	485	Transit and Ground Passenger Transport	118	5.2
621	Ambulatory Health Care Services	634	3.5	522	Credit Intermediation & Related Activity	368	5.7
623	Nursing and Residential Care Facilities	153	1.2	525	Funds, Trusts & Other Financial Vehicles	50	70.6
624	Social Assistance	218	2.4	711	Performing Arts and Spectator Sports	99	8.9
722	Food Services and Drinking Places	516	1.8	924	Administration of Environmental Programs	150	
813	Membership Organizations & Associations	152	4.6				
928	National Security & International Affair	25	1.4				

New Bedford WIA
2004 I - 2005 I
Selected Industries

Growth Industries at State and Local Level				Growth Industries at Local Level Only			
NAICS	**Industry**	**Absolute**	**Relative**	**NAICS**	**Industry**	**Absolute**	**Relative**
316	Leather and Allied Product Manufacturing	207	119.2	114	Fishing, Hunting and Trapping	74	7.4
325	Chemical Manufacturing	27	5.4	332	Fabricated Metal Product Manufacturing	111	23.6
444	Building Material & Garden Supply Stores	118	11.2	337	Furniture and Related Product Mfg	40	38.5
448	Clothing and Clothing Accessories Stores	34	3.5	425	Electronic Markets and Agents/Brokers	70	28.1
452	General Merchandise Stores	128	7.3	484	Truck Transportation	79	24.7
531	Real Estate	52	11.8	712	Museums, Parks and Historical Sites	61	
561	Administrative and Support Services	255	20.5				
611	Educational Services	303	3.9				
621	Ambulatory Health Care Services	56	1.4				
623	Nursing and Residential Care Facilities	86	2.3				
624	Social Assistance	177	9.8				
813	Membership Organizations & Associations	76	12.4				
814	Private Households	26	2.7				

N. Middlesex WIA
2004 I - 2005 I
Selected Industries

Growth Industries at State and Local Level				Growth Industries at Local Level Only			
NAICS	**Industry**	**Absolute**	**Relative**	**NAICS**	**Industry**	**Absolute**	**Relative**
236	Construction of Buildings	82	8.8	332	Fabricated Metal Product Manufacturing	90	7.1
311	Food Manufacturing	70	15.7	333	Machinery Manufacturing	219	13.0
531	Real Estate	50	8.4	335	Electrical Equipment and Appliances	107	26.0
541	Professional and Technical Services	820	10.2	424	Merchant Wholesalers, Nondurable Goods	252	15.9
551	Management of Companies and Enterprises	393	20.9	425	Electronic Markets and Agents/Brokers	51	7.9
622	Hospitals	154	4.1	488	Support Activities for Transportation	60	50.8
623	Nursing and Residential Care Facilities	45	1.5	522	Credit Intermediation & Related Activity	74	5.0
624	Social Assistance	43	2.7	711	Performing Arts and Spectator Sports	68	
814	Private Households	34	9.1	811	Repair and Maintenance	79	5.3

N. Worcester WIA
2004 I - 2005 I
Selected Industries

Growth Industries at State and Local Level				Growth Industries at Local Level Only			
NAICS	Industry	Absolute	Relative	NAICS	Industry	Absolute	Relative
236	Construction of Buildings	69	8.2	323	Printing and Related Support Activities	43	4.4
444	Building Material & Garden Supply Stores	108	10.2	327	Nonmetallic Mineral Product Mfg	58	25.3
531	Real Estate	43	10.7	333	Machinery Manufacturing	193	15.2
541	Professional and Technical Services	122	5.3	713	Amusement, Gambling & Recreation	89	6.3
561	Administrative and Support Services	687	29.0	722	Food Services and Drinking Places	242	4.8
611	Educational Services	88	0.9				
623	Nursing and Residential Care Facilities	43	1.4				
722	Food Services and Drinking Places	242	4.8				
814	Private Households	35	8.6				
928	National Security & International Affair	28	19.1				

S. Coastal WIA
2004 I - 2005 I
Selected Industries

Growth Industries at State and Local Level				Growth Industries at Local Level Only			
NAICS	**Industry**	**Absolute**	**Relative**	**NAICS**	**Industry**	**Absolute**	**Relative**
236	Construction of Buildings	47	2.5	237	Heavy and Civil Engineering Construction	130	7.7
238	Specialty Trade Contractors	221	2.6	334	Computer and Electronic Product Mfg	52	6.3
311	Food Manufacturing	345	44.0	423	Merchant Wholesalers, Durable Goods	63	1.6
325	Chemical Manufacturing	115	33.7	424	Merchant Wholesalers, Nondurable Goods	274	7.6
444	Building Material & Garden Supply Stores	120	5.4	453	Miscellaneous Store Retailers	78	4.2
448	Clothing and Clothing Accessories Stores	355	11.1	454	Non-store Retailers	66	7.6
452	General Merchandise Stores	427	10.6	484	Truck Transportation	53	6.6
511	Publishing Industries	37	2.8	517	Telecommunications	115	6.8
524	Insurance Carriers & Related Activities	1,424	18.1	713	Amusement, Gambling & Recreation	66	2.2
531	Real Estate	207	8.1	812	Personal and Laundry Services	90	3.1
541	Professional and Technical Services	696	7.5	921	Executive, Legislative, & Gen Government	79	4.2
561	Administrative and Support Services	73	0.8	922	Justice, Public Order, and Safety Activities	266	7.7
562	Waste Management and Remediation Service	34	3.3				
611	Educational Services	757	4.8				
623	Nursing and Residential Care Facilities	261	3.9				
624	Social Assistance	240	6.3				
722	Food Services and Drinking Places	367	2.4				
814	Private Households	28	2.2				

S. Essex WIA
2004 I - 2005 I
Selected Industries

Growth Industries at State and Local Level				Growth Industries at Local Level Only			
NAICS	**Industry**	**Absolute**	**Relative**	**NAICS**	**Industry**	**Absolute**	**Relative**
238	Specialty Trade Contractors	50	1.2	333	Machinery Manufacturing	108	3.3
316	Leather and Allied Product Manufacturing	24	6.6	335	Electrical Equipment and Appliances	269	32.1
325	Chemical Manufacturing	36	2.5	441	Motor Vehicle and Parts Dealers	69	2.3
444	Building Material & Garden Supply Stores	66	3.6	442	Furniture and Home Furnishings Stores	74	7.7
531	Real Estate	93	6.7	443	Electronics and Appliance Stores	99	10.5
541	Professional and Technical Services	142	1.8	445	Food and Beverage Stores	166	2.8
622	Hospitals	385	5.2	446	Health and Personal Care Stores	78	4.2
624	Social Assistance	118	4.0	454	Non-store Retailers	82	5.9
721	Accommodation	24	2.2	922	Justice, Public Order, and Safety Activities	94	3.0
722	Food Services and Drinking Places	87	0.7				

S. Worcester WIA
2004 I-2005 I
Selected Industries

Growth Industries at State and Local Level				Growth Industries at Local Level Only			
NAICS	**Industry**	**Absolute**	**Relative**	**NAICS**	**Industry**	**Absolute**	**Relative**
236	Construction of Buildings	92	4.7	237	Heavy and Civil Engineering Construction	124	6.9
325	Chemical Manufacturing	71	4.0	322	Paper Manufacturing	58	6.1
444	Building Material & Garden Supply Stores	232	10.2	327	Nonmetallic Mineral Product Mfg	98	4.1
448	Clothing and Clothing Accessories Stores	101	5.3	335	Electrical Equipment and Appliances	55	5.7
493	Warehousing and Storage	65	18.5	337	Furniture and Related Product Mfg	302	50.6
523	Financial Investment & Related Activity	33	8.3	339	Miscellaneous Manufacturing	124	9.4
541	Professional and Technical Services	276	2.5	221	Utilities	96	5.8
561	Administrative and Support Services	460	4.0	445	Food and Beverage Stores	248	3.5
562	Waste Management and Remediation Service	52	5.4	451	Sporting Goods/Hobby/Book/Music Stores	108	8.5
622	Hospitals	241	1.9	488	Support Activities for Transportation	77	57.4
624	Social Assistance	257	5.0	512	Motion Picture & Sound Recording	98	52.4
722	Food Services and Drinking Places	99	0.6	711	Performing Arts and Spectator Sports	594	
814	Private Households	203	16.5	812	Personal and Laundry Services	59	2.6
928	National Security & International Affair	123	52.1	922	Justice, Public Order, and Safety Activities	312	7.6

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