

# SECTION FOUR

## Assessing the Ability of Vocational Education in the Commonwealth to Supply Expected Labor Market Demand

How much of the expected demand for employment will likely be filled by graduates of the Commonwealth's twenty-six (26) regional vocational schools and 70 vocational programs within comprehensive high schools? Here we have projected the supply of vocational school seniors and seniors in vocational programs in comprehensive high schools taking into account current rates of post-high school education for these students.

Appendix C provides data on programmatic offerings of each of the regional vocational schools.

**Table 6** (see next two pages) provides the projections of final education completed by these high school seniors along with annual occupational demand through 2022 by education required.

Overall, currently there are just under 13,560 high school seniors in the Commonwealth's regional vocational schools and in the vocational tracks of comprehensive schools. Given recent past history, we expect nearly 6,075 of these to make graduation from their schools the highest level of formal education they will obtain. Another 2,820 or so will go onto some college, but not graduate. About 2,115 will go to community college and receive an associates degree or occupational certification. Nearly 2,550 or nearly one in five will go on to a B.A. degree or higher.

Our best projection of annual job openings through 2022 across all occupations and all education groups (as noted in Table 2) is 116,100. Hence, if the state's vocational schools continue to school the same number of students through 2022 as they do now, graduates from these schools could fill approximately 11.7 percent of all job openings over the decade.

However, given the future schooling of vocational school graduates and comprehensive high school graduates in vocational tracks, our projections suggest that about 15.7 percent of future jobs in the state requiring a high school degree or less will be filled by vocational school graduates; about 11 percent of job openings requiring some college; and more than one in five (23%) of job openings requiring an associates degree. They will even fill about 6 percent of the jobs requiring a B.A. or more.

The proportion of job openings potentially filled by vocational school graduates varies widely across the full set of 2-digit major occupations. In three of these 22 occupational categories, vocational school graduates would have had the appropriate training in high school (and further education) so that they could fill approximately half or more of the projected job openings. This includes more than 60 percent of the small number of expected openings in Farming, Fishing, and Forestry Occupations; nearly 53 percent in Architecture and Related Engineering Occupations; and more than 47 percent in Arts, Design, Entertainment, Sports, and Media Occupations. More than a quarter (28%) of the expected job openings in Computer and Mathematical Occupations in the state could be filled by students in the Commonwealth's vocational schools or vocational tracks in comprehensive high schools.

On the other hand, given present programs, vocational school graduates can be expected to fill only 23 percent of the job openings in both Production Occupations and Construction and Extraction Occupations. This suggests that the vocational schools might well devote more resources to their manufacturing and construction trades so as to help fulfill future demand for these important positions.

SECTION 4, TABLE 6

Annual Supply vs. Openings, Major Occupation Group Supply is from all schools; Openings are Statewide Projections		SUPPLY					OPENINGS					SUPPLY AS A PERCENT OF OPENINGS				
Occupation Type		High School or less	Some college	Associates degree	BA or more	Total	High School or less	Some college	Associates degree	BA or more	Total	High School or less	Some college	Associates degree	BA or more	Total
110000	Management Occupations	520	173	140	336	1,169	826	990	454	4,639	6,909	62.9%	17.4%	30.8%	7.2%	16.9%
130000	Business and Financial Operations Occupations	278	90	56	175	599	542	843	414	5,224	7,023	51.3%	10.7%	13.5%	3.3%	8.5%
150000	Computer and Mathematical Occupations	482	260	182	464	1,388	287	674	287	3,717	4,965	167.9%	38.6%	63.5%	12.5%	28.0%
170000	Architecture and Engineering Occupations	332	250	261	291	1,135	183	286	182	1,502	2,153	181.4%	87.4%	143.9%	19.4%	52.7%
190000	Life, Physical, and Social Science Occupations	31	17	12	51	111	81	122	62	1,729	1,994	38.2%	14.2%	19.4%	2.9%	5.6%
210000	Community and Social Services Occupations	33	26	13	21	93	389	469	238	1,967	3,062	8.5%	5.5%	5.5%	1.1%	3.1%
230000	Legal Occupations	3	0	1	2	6	29	44	43	691	807	8.6%	0.9%	2.2%	0.3%	0.7%
250000	Education, Training, and Library Occupations	346	190	157	275	968	591	805	372	4,673	6,442	58.6%	23.5%	42.2%	5.9%	15.0%
270000	Arts, Design, Entertainment, Sports, and Media Occupations	350	178	109	251	887	263	356	107	1,160	1,885	133.1%	49.9%	102.3%	21.6%	47.1%
290000	Healthcare Practitioners and Related Technical Occupations	166	150	330	209	855	606	1,365	1,644	4,934	8,548	27.3%	11.0%	20.1%	4.2%	10.0%
310000	Healthcare Support Occupations	210	164	115	38	527	1,688	1,349	577	573	4,188	12.5%	12.2%	19.9%	6.6%	12.6%
330000	Protective Service Occupations	22	14	18	13	67	637	739	294	853	2,522	3.4%	2.0%	6.1%	1.6%	2.7%
350000	Food Preparation and Serving Related Occupations	557	245	109	67	978	8,299	4,271	806	1,700	15,075	6.7%	5.7%	13.6%	3.9%	6.5%
370000	Building and Grounds Cleaning and Maintenance Occupations	147	65	31	31	274	2,304	611	154	274	3,342	6.4%	10.7%	20.3%	11.2%	8.2%
390000	Personal Care and Service Occupations	323	126	57	48	554	2,333	1,481	332	807	4,953	13.8%	8.5%	17.2%	5.9%	11.2%
410000	Sales and Related Occupations	165	74	55	88	382	4,508	3,381	800	3,683	12,373	3.7%	2.2%	6.9%	2.4%	3.1%
430000	Office and Administrative Support Occupations	111	81	47	42	281	5,053	4,265	1,443	3,290	14,051	2.2%	1.9%	3.3%	1.3%	2.0%
450000	Farming, Fishing, and Forestry Occupations	9	5	4	6	24	25	7	2	5	39	36.3%	82.3%	143.9%	112.1%	60.9%
470000	Construction and Extraction Occupations	596	211	121	50	978	2,754	846	235	361	4,196	21.7%	25.0%	51.3%	13.7%	23.3%
490000	Installation, Maintenance, and Repair Occupations	833	320	186	51	1,391	1,862	783	273	290	3,207	44.8%	40.9%	68.4%	17.5%	43.4%
510000	Production Occupations	498	152	99	39	788	2,287	652	221	325	3,485	21.8%	23.3%	44.9%	12.1%	22.6%
530000	Transportation and Material Moving Occupations	61	30	9	4	104	3,047	1,091	271	469	4,879	2.0%	2.7%	3.4%	1.0%	2.1%
TOTAL: ALL OCCUPATIONS		6,074	2,822	2,114	2,549	13,559	38,593	25,429	9,212	42,865	116,099	15.7%	11.1%	23.0%	5.9%	11.7%

SOURCE: Senior Enrollment by School and Vocational Program, Massachusetts Department of Elementary and Secondary Education, Alignment between Vocational Education Programs and Occupations, U.S. Bureau of Labor Statistics, O\*NET, Openings: U.S. Bureau of Labor Statistics

## SECTION 4

Appendix D provides data on the supply of students and job openings for the 22 two-digit occupations for each of the state's 16 Workforce Investment Areas (WIAs).

As the Appendix makes clear, there is wide disparity across WIAs in the proportion of projected job openings that potentially can be filled by students graduating from vocational technical schools or vocational programs within comprehensive high schools.

In the Boston WIA, at present graduation rates only 4 percent of the expected job openings could be filled by students from the regional or local vocational programs. Indeed, not much more than 7 percent of the openings that require high school or less will apparently be filled in this way.

The Metro North WIA is not much better in this regard with just 7 percent of all job openings that could be filled by vocational program graduates.

In contrast, more than a quarter (26.9%) of the projected job openings in the Berkshire WIA could be filled with these graduates; more than 38% of the openings in the Bristol WIA; nearly 47 percent in the Greater New Bedford WIA; and topping the list, more than half (51%) in the Greater Lowell Workforce Investment Area.

This suggests that various regions of the Commonwealth will be in much better shape to meet the needs of employers than others. It also suggests the possible need of focusing more attention on vocational education in areas like Boston, the Metro North Region, Metro Southwest, and the Cape & Islands.

Close inspection of [Appendix D](#) suggests that the vocational technical regional schools in many districts can more than fulfill the job openings for those occupations requiring no more than a high school education. For example, the vocational programs serving the Berkshire Workforce Investment Area could more than fulfill the workforce needs for new and replacement workers in Management Occupations; Business and Financial Operations Occupations; Computer and Mathematical Occupations; Architecture and Engineering Occupations; Arts, Design, Entertainment, Sports, and Media Occupations; and Installation, Maintenance and

Repair Occupations. Moreover, these schools will also train students going on to post-secondary education needed to fulfill more than enough openings requiring some college or an associates degree in Architecture and Engineering Occupations and in Arts, Design, Entertainment, Sports, and Media Occupations.

This begins to demonstrate just how important the Commonwealth's vocational schools and technical programs are to meeting many of the state's employment needs into the future.

At the same time, these WIA-based results suggest where more could be done by vocational schools to meet future labor force demand. In the Boston WIA, for example, the regional vocational programs are only on track to fill four percent of the expected job openings in Construction; 14 percent in Installation, Maintenance, and Repair Occupations; and 29 percent of Production Occupation openings. In the Metro North WIA, the vocational programs in this region are expected to fulfill less than 33% of Installation, Maintenance, and Repair Occupations and less than one of five openings in Construction and Production Occupations.

The best record for meeting projected labor market demand in these traditional blue-collar fields are in such regions as Central Massachusetts, the North Central region, the Berkshires, Bristol, Greater New Bedford, Greater Lowell, and the Lower Merrimack Valley.

*"This begins to demonstrate just how important the Commonwealth's vocational schools and technical programs are to meeting many of the state's employment needs into the future."*