

MERCED COUNTY LABOR FORCE ANALYSIS

NOVEMBER 4, 2013

Prepared for:

MERCED WORKFORCE INVESTMENT BOARD

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INTRODUCTION AND SUMMARY

INTRODUCTION

This report presents information on growing industry clusters in Merced County and related business demand for selected occupational skills. The report describes characteristics of the labor force and in particular focuses on the skills and employment needs of key population segments such as unemployed and underemployed workers, veterans, the disabled and workers in major ethnic groups.

The industry cluster analysis updates the recent work completed by the CSU Fresno Office of Community and Economic Development, in the report, "San Joaquin Valley Regional Industry Cluster Analysis and Action Plan," published in September 2012. In that report, six major industry clusters were identified and evaluated, including:

- Agriculture
- Energy
- Logistics
- Health Care
- Manufacturing
- Water Technology

The present report updates the analysis of the cluster beyond 2010 and provides projection of job growth and occupational demand to the year 2017, based on data provided by Employment Management Systems Inc. (EMSI).

In addition, the report provides a detailed demographic analysis of the workforce using the Public UMS data, which permits cross-tabulations of survey data collected through the American Community Survey (ACS). The resulting analysis is consistent with published ACS population totals for Merced County, but provides greater detail on the employment status and skills levels of selected demographic groups.

SUMMARY

Economic Conditions. The Merced County unemployment rate improved to 9.0% just prior to the recession in 2006, but reached a high of 19% by 2010. It has since declined to an annual average level of about 17% in 2012.

Industry Clusters. In 2010, Agriculture was the largest industry cluster in Merced County, with 19,788 jobs and a concentration 5.5 times the statewide average. Agricultural distribution jobs grew over the past decade and are projected to increase over the next five years. However, the Agriculture cluster as a whole declined between 2001 and 2010. Health Care is the second largest cluster with 5,960 jobs. This cluster is anticipated to increase in employment by 17 percent and is projected to add

close to 1,000 jobs between 2012 and 2017. Manufacturing is the third largest cluster in Merced County, at 2,866 jobs. EMSI does not foresee a growth for this cluster between 2012 and 2017. The Logistics cluster with 2,060 jobs and Energy with 1,005 jobs were the fourth and fifth clusters in Merced County. Logistics increased substantially between 2000 and 2010, while energy declined. The Water Technology cluster was not well represented in Merced County and provided 106 jobs in 2010. EMSI does not anticipated this cluster to provide more than 70 jobs between 2012 and 2017. Retail and tourism jobs are projected to grow between 2012 and 2017.

Labor Force Demographics and Skills. The report documents the correlation between education and employment, with unemployment rates much higher for non-college graduates. Whites and other non-Latino groups have higher rates of college graduation.

Under-utilized Workers. Non-college graduates also tend to be underutilized more often in the workforce and again, Latinos have lower full time utilization rates (46.2 percent) than do whites (57.1 percent). In terms of unemployment rates by industry, almost every sector posted double-digit unemployment rates, with key economic drivers such as agriculture (NAICS 11) and construction (NAICS 23) posting jobless rates of 17 percent and 22 percent respectively. Healthcare (NAICS 62) was one sector that exhibited relatively low unemployment rate of 9 percent, as did finance and insurance (NAICS 52), which also had a 9 percent unemployment rate.

Veterans. Based on the most recent ACS data, there are about 5,632 veterans in the labor force in the Merced County, representing about 5.0 percent of the labor force. It is estimated that 10.7 percent of veterans were unemployed in 2011, compared to 17.2 percent for the non-veterans labor force. Among the unemployed veterans, the largest group is in the 35-54 age group, which contains 336 out of a total of 604 unemployed veterans of all ages.

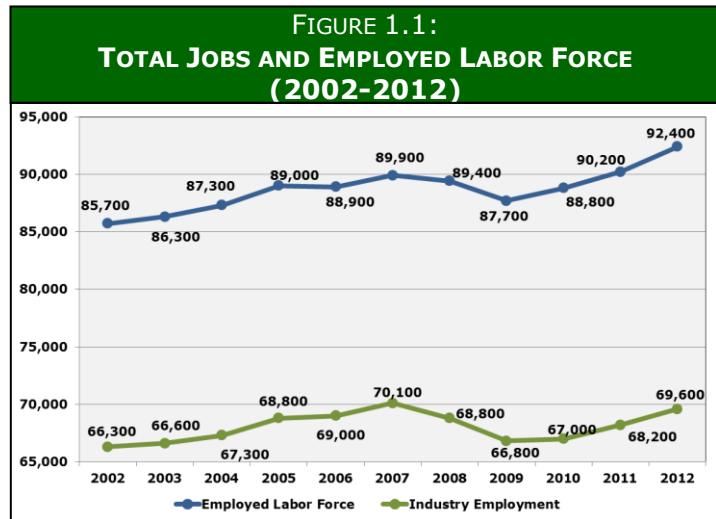
Disabled Workers. There are an estimated 11,097 disabled workers in the labor force, comprising 9.9 percent of all workers in the County. The unemployment rate for disabled workers in 2011 is estimated at 26.5 percent, compared to 16.0 percent for the non-disabled labor force. Disabled workers under 35 are experiencing high rates of unemployment versus those who are 35 and older.

Training Programs. The report screens all of the projected growth occupations against the list of WIB-approved training vendors and identifies which occupations appear to have available training programs in Merced County where there are gaps. The Health and Wellness cluster is projected to grow by 967 new jobs between 2012 and 2017, with most of the new jobs either in the lower-middle educational/training category, (i.e., relevant work experience) (121 new jobs between 2012 and 2017), or the lowest educational/training rung, (i.e., short-term OJT) (309) and moderate-term OJT (349). There are 5 occupations in the Health and Wellness cluster that are expected to increase in numbers; for 3 of these growing occupations, there are no job training programs in the County, according to the California EDD ETPL database.

1. LOCAL ECONOMIC CONDITIONS

EMPLOYMENT TRENDS

Employment growth in Merced County was on upward trend until 2007, after which it started to shrink. Between 2002 and 2007, the County added 3,800 jobs, reaching a peak of 70,100 wage and salary jobs (Figure 1.1). Job losses from the recession began to occur in 2008 and continued in 2009, when employment declined to less than 66,800 jobs. The employed labor force, which includes self-employed and out-commuters, followed a very similar pattern. After the 2008 recession, employers struggled to add new jobs but ended with 69,600 Jobs in 2012 which is 500 jobs lower than the peak in 2007. Additionally, the gap between wage and salary jobs available and the employed labor force increased between 2002 and 2012, especially after 2008 (Figure 1.1).



Source: ADE, Inc., California Economic Development Department

The county had 89,900 employed residents in 2007 but due to the recession, employment dropped and 2,200 residents lost their jobs by 2009 (Figure 1.1). In 2010, the unemployment rate peaked at 19.0 percent and then began to drop very slightly as employment recovered (Figure 1.2). By 2012, 92,400 residents were employed (Table 1.1).

**TABLE 1.1:
DEMOGRAPHIC AND LABOR FORCE TRENDS**

	2002	2012	2002-2012
Population estimates	222,733	261,708	17.5%
Labor Force	96,300	111,300	15.6%
Employed Labor Force	85,700	92,400	7.8%
Wage and Salary Jobs	66,300	70,766	6.8%

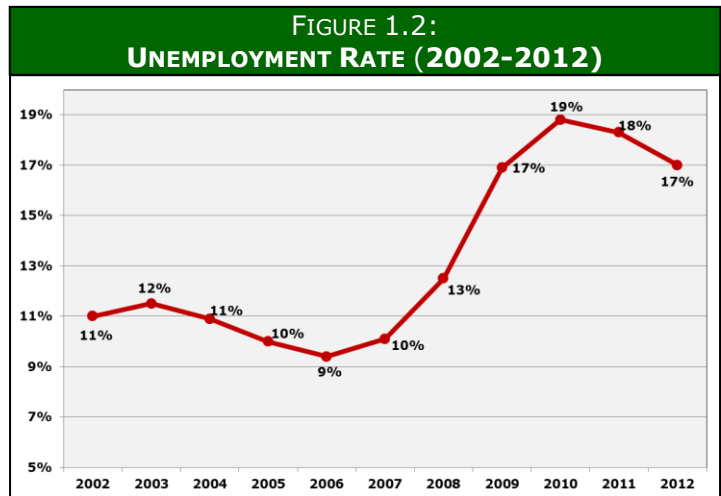
Source: ADE, Inc., Department of Finance, California Economic Development Department

Both the population and the county’s labor force (16 years and older) had a steady increase from 2002 to 2012 (Table 1.1). Population increased by 17.5 percent between 2002 and 2012; similarly, labor force had an increase of nearly 16 percent. However the percentage of residents who found employment between 2002 and 2012 increased by only 7.8 percent. Additionally, compared to labor force, jobs had a slower growth rate of 6.8 percent from 2002 while labor force grew by 15.6 percent (Table 1.1).

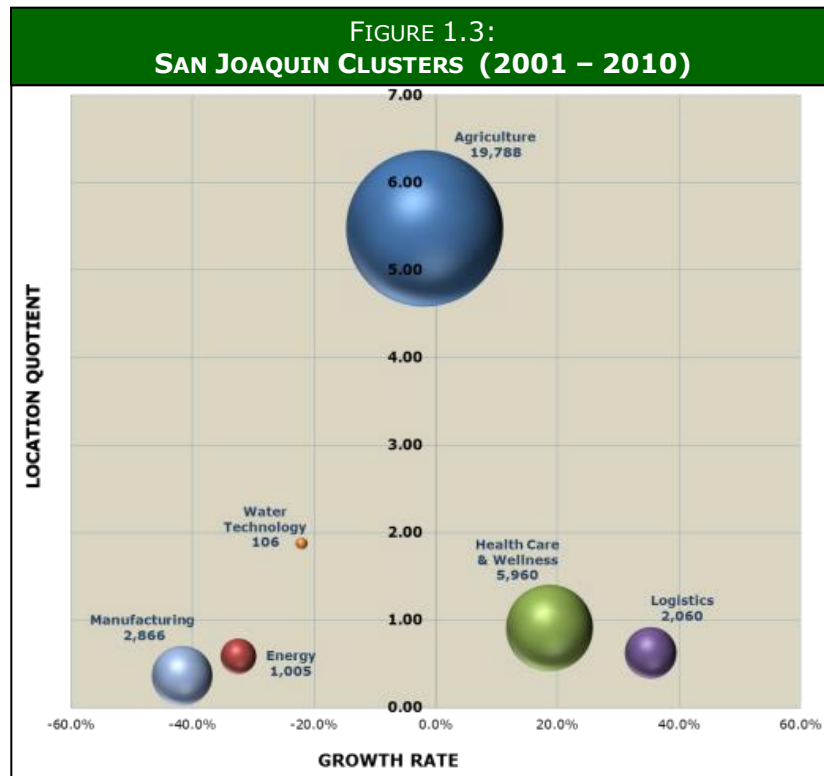
Number of wage and salary jobs is 37 percent lower than the labor force in Merced County. Some of this difference would be due to self-employment, but it is also clear there is a large out-commute for workers from the County to employment centers elsewhere in the Central Valley.

Agriculture was the largest cluster with 19,788 employees in 2010 (Figure 1.3). Health Care and Wellness with 5,960 employees and Manufacturing with 2,866 jobs were the second and third large

industries in Merced. Water Technology is the smallest industry with 106 employees. Logistics and Energy clusters have 2,060 and 1,005 employees, respectively. While the logistics cluster is not one of the larger industries in the county it has shown the highest growth rate over the past ten years. In addition to Logistics, Health Care is the only other cluster with a positive growth rate through 2010. The Manufacturing cluster, on the other hand, has the lowest growth rate between 2001 and 2010. Agriculture, Energy, and Water Technology also declined within the last decade. Agriculture is not only the largest industry but also the highest concentrated job sector. All other industries have similar concentration rates with Manufacturing as the least concentrated job sector (see Appendix A for industry cluster definitions by NAICS code).



Source: ADE, Inc., California Economic Development Department



Source: IMPLAN CEW

2. KEY DEMOGRAPHIC GROUPS

This chapter provides data on the educational levels and employment status for key demographic groups in the population. Data comes from the US Census’ American Community Survey (“ACS”) one-year sample for years 2009, 2010, and 2011, the most-current data available at the time of this analysis.

EDUCATIONAL ATTAINMENT BY RACE/ETHNIC AND AGE CATEGORY

ACS estimates that there are 111,772 persons who are 16 years and older and in Merced County’s labor force, with 47,691 in the 35 to 54 prime working age category (Table 2.1)¹. Of the 47,691, 17,733 (or 37.2 percent) are White, 24,745 (51.9 percent) are Latino, and the 5,213 (10.9 percent) are some other race (e.g., Black, Asian-Pacific Islander, Other, and/or Two or More). Of the 17,733 persons who are White, 3,801 (21.4 percent) earned at least a Bachelor’s degree. In comparison, 4.7 percent of all prime working-age Latino adults in the labor force earned at least a Bachelor’s, or 1,170 out of 24,745. For persons in the Other category, an estimated 1,214 (23.2 percent) prime working age adults out of a labor force of 5,213 earned at least a Bachelor’s degree.

**TABLE 2.1:
LABOR FORCE BY RACE/ETHNICITY, AGE AND EDUCATIONAL ATTAINMENT:
MERCED COUNTY (2009-2011)
ALL PERSONS 16 IN MERCED COUNTY -- IN LABOR FORCE**

	16 - 19	20 - 29	30 - 34	35 - 54	55 - 64	65 & over	Merced County
	6,464	28,568	13,260	47,691	12,757	3,032	111,772
01 White	1,540	7,571	3,592	17,733	6,485	1,792	38,714
Did not earn HS dipl/GED or degree: not in school	6	226	223	1,218	656	317	2,646
High school graduate (includes equivalency)	533	1,808	1,468	4,760	1,554	345	10,468
Some college - no degree & not attending	8	2,227	760	5,525	1,904	479	10,904
Associates degree/still attending college	363	2,285	342	2,429	864	172	6,456
Bachelor's degree or higher	0	1,003	799	3,801	1,507	478	7,588
NA	630	23	0	0	0	0	653

¹As noted in Table 1.1, EDD estimates a higher labor force figure of 111,300 in 2012. We use the ACS figure in this chapter in order to present the demographic characteristics that are not available from EDD. For a detailed difference in methodology for estimating labor force between the US ACS and US Census CPS (on which California EDD’s findings are based), go to [//www.bls.gov/lau/acsqa.htm#Q08](http://www.bls.gov/lau/acsqa.htm#Q08) and [//www.bls.gov/lau/acsqa.htm#Q09](http://www.bls.gov/lau/acsqa.htm#Q09). It is also important to note that while the US Census CPS is the federal government’s official survey for purposes of tracking monthly and annual unemployment, the US ACS is based on a significantly larger sample of survey respondents.

	16 - 19	20 - 29	30 - 34	35 - 54	55 - 64	65 & over	Merced County
02 Latino	4,052	17,268	7,892	24,745	5,306	1,043	60,306
Did not earn HS dipl/GED or degree: not in school	221	3,058	2,908	13,881	3,179	452	23,698
High school graduate (includes equivalency)	1,962	5,258	1,762	4,680	806	256	14,724
Some college - no degree & not attending	224	3,555	1,601	3,616	946	175	10,117
Associates degree/still attending college	967	4,374	788	1,364	238	0	7,731
Bachelor's degree or higher	0	913	833	1,170	137	153	3,206
NA	678	110	0	34	0	8	830
03 Other	872	3,729	1,776	5,213	966	196	12,752
Did not earn HS dipl/GED or degree: not in school	0	252	130	656	175	21	1,235
High school graduate (includes equivalency)	174	1,004	135	1,143	233	49	2,738
Some college - no degree & not attending	56	1,156	804	1,536	317	44	3,913
Associates degree/still attending college	478	1,062	198	663	187	7	2,596
Bachelor's degree or higher	0	255	509	1,214	53	74	2,106
NA	164	0	0	0	0	0	164

Source: Applied Development Economics, Inc., based on US Census PUMS One-year Sample for Years 2009, 2010, and 2011 {Data Source: Steven Ruggles, J. Trent Alexander, Katie Genadek, Ronald Goeken, Matthew B. Schroeder, and Matthew Sobek. Integrated Public Use Microdata Series: Version 5.0 [Machine-readable database]. Minneapolis: University of Minnesota, 2010.}

The educational attainment gap between the Latinos and either the White or Other labor force is present across the various age cohorts. Starting with the 20s age cohort, we see that an estimated 913 out of 17,268 Latinos earned at least a Bachelor's degree, or 5.3 percent, which is substantially less than rate estimated for Whites (13.2 percent, or 1,003 out of 7,571) and while somewhat lower than Others (6.8 percent, or 255 out of 3,729). Across all age categories, approximately 19.6 percent of White or 16.5 percent of Other persons in the labor force earned at least a Bachelor's degree, versus 5.3 percent for Latinos.

The importance of a college degree becomes evident in the following table. While the overall annual unemployment rate for the historic downturn three-year period of 2009-2011 averaged 17.1 percent, for persons with at least a Bachelor's degree, the jobless rate was significantly lower. Across all age categories, White persons in the labor force with at least a Bachelor's experienced an unemployment rate of 5.4 percent, and while high compared to Whites, jobless rates for Latinos (9.9 percent) and Others (14.9 percent) with at least a BA were lower than the overall 17.1 percent County average, and for Latinos, lower than the unemployment rate for all prime working-age Latinos (or 12.5 percent). What is striking is that, whereas in places such as Stanislaus and San Joaquin Counties, persons with a college degree tend to exhibit significantly lower rates of unemployment relative to persons with no degrees across all ages and educational attainment levels, in the case of Merced County, some persons without a college degree performed relatively well with regard to unemployment (Table 2.2). Prime working-age Latinos with only a high school diploma (9.7 percent

unemployment) or some college - no degree (3.5 percent unemployment) have lower unemployment rates than the overall County average (17.1 percent) and the average for prime working-age Latinos with at least a Bachelor's (10.5 percent).

**TABLE 2.2:
UNEMPLOYMENT RATE BY RACE/ETHNICITY, AGE AND EDUCATIONAL ATTAINMENT:
MERCED COUNTY (2009-2011)
ALL PERSONS 16 IN MERCED COUNTY -- IN LABOR FORCE**

	16 - 19	20 - 29	30 - 34	35 - 54	55 - 64	65 & over	Merced County
	49%	23%	15%	12%	10%	7%	17%
01 White	63%	22%	20%	11%	8%	6%	15%
Did not earn HS dipl/GED or degree: not in school	0%	50%	48%	23%	10%	15%	23%
High school graduate (includes equivalency)	72%	30%	15%	11%	10%	7%	18%
Some college - no degree & not attending	0%	20%	38%	15%	8%	8%	16%
Associates degree/still attending college	50%	16%	6%	8%	8%	0%	13%
Bachelor's degree or higher	0%	16%	10%	3%	5%	0%	5%
NA	65%	0%	0%	0%	0%	0%	63%
02 Latino	45%	24%	14%	13%	13%	9%	18%
Did not earn HS dipl/GED or degree: not in school	37%	20%	16%	17%	18%	11%	17%
High school graduate (includes equivalency)	43%	33%	9%	10%	5%	18%	22%
Some college - no degree & not attending	85%	13%	15%	3%	5%	0%	11%
Associates degree/still attending college	35%	24%	20%	3%	15%	0%	21%
Bachelor's degree or higher	0%	14%	8%	10%	0%	0%	10%
NA	55%	100%	0%	100%	0%	0%	62%
03 Other	40%	25%	13%	12%	9%	0%	18%
Did not earn HS dipl/GED or degree: not in school	0%	25%	79%	18%	10%	0%	24%
High school graduate (includes equivalency)	67%	37%	21%	12%	10%	0%	25%
Some college - no degree & not attending	0%	13%	0%	3%	16%	0%	6%
Associates degree/still attending college	20%	24%	40%	21%	0%	0%	22%
Bachelor's degree or higher	0%	40%	5%	15%	0%	0%	15%
NA	82%	0%	0%	0%	0%	0%	82%

Source: Applied Development Economics, Inc., based on US Census PUMS One-year Sample for Years 2009, 2010, and 2011 {Data Source: Steven Ruggles, J. Trent Alexander, Katie Genadek, Ronald Goeken, Matthew B. Schroeder, and Matthew Sobek. Integrated Public Use Microdata Series: Version 5.0 [Machine-readable database]. Minneapolis: University of Minnesota, 2010.}

LABOR FORCE UTILIZATION

Here, we present data illustrating to what extent, if any, the region's labor force, including those who are employed, is not being fully utilized. This discussion further underscores the importance of a college degree. Of the 111,772 persons in the county labor force in any given year during the 2009-2011 period, 56,680 were employed full-time and all-year (i.e., 50.7 percent) (Table 2.3). On average, an estimated 57.1 percent of all prime working-age persons in the labor force who are White are fully utilized (22,117 out of 38,714), versus the rate for Latinos, or 46.2 percent (27,887 out of 60,306). However, for prime working-age Latinos with a Bachelor's degree, the full utilization rate increases to 76.89 percent (899 out of 1,170), thus underscoring the importance of a college degree. Moreover, relative to Whites, prime working-age Latinos with at least a Bachelor's in Merced County exhibit slightly lower rate of labor force underutilization; almost 23 percent of all prime working age Latinos are either unemployed or under-employed, versus approximately 24 percent of prime working-age Whites.

**TABLE 2.3:
FULLY UTILIZED LABOR FORCE: FULL-TIME AND ALL-YEAR WORKERS BY RACE/ETHNICITY, AGE AND
EDUCATIONAL ATTAINMENT: MERCED COUNTY (2009-2011)
ALL PERSONS 16 IN MERCED COUNTY -- IN LABOR FORCE**

	16 - 19	20 - 29	30 - 34	35 - 54	55 - 64	65 & over	Merced County
	188	11,725	7,029	28,905	7,589	1,244	56,680
01 White	21	3,264	2,035	11,929	4,025	842	22,117
Did not earn HS dipl/GED or degree: not in school	0	0	115	587	382	169	1,254
High school graduate (includes equivalency)	21	746	846	3,251	942	81	5,887
Some college - no degree & not attending	0	936	389	3,562	1,186	190	6,264
Associates degree/still attending college	0	985	215	1,653	492	92	3,438
Bachelor's degree or higher	0	574	469	2,876	1,023	309	5,251
NA	0	23	0	0	0	0	23
02 Latino	143	7,238	3,911	13,444	2,866	286	27,887
Did not earn HS dipl/GED or degree: not in school	0	1,382	1,099	6,388	1,717	111	10,697
High school graduate (includes equivalency)	31	1,892	1,092	2,819	441	77	6,352
Some college - no degree & not attending	0	1,990	804	2,397	514	25	5,730
Associates degree/still attending college	112	1,498	437	941	73	0	3,060
Bachelor's degree or higher	0	476	479	899	121	74	2,048
NA	0	0	0	0	0	0	0
03 Other	24	1,223	1,083	3,532	698	115	6,676
Did not earn HS dipl/GED or degree: not in school	0	162	27	416	111	0	716
High school graduate (includes equivalency)	0	250	87	810	177	23	1,347
Some college - no degree & not attending	0	528	535	1,213	245	38	2,559
Associates degree/still attending college	24	189	118	332	112	7	782
Bachelor's degree or higher	0	95	316	760	53	48	1,271
NA	0	0	0	0	0	0	0

Source: Applied Development Economics, Inc., based on US Census PUMS One-year Sample for Years 2009, 2010, and 2011 {Data Source: Steven Ruggles, J. Trent Alexander, Katie Genadek, Ronald Goeken, Matthew B. Schroeder, and Matthew Sobek. Integrated Public Use Microdata Series: Version 5.0 [Machine-readable database]. Minneapolis: University of Minnesota, 2010.}

What is partly driving the high rates of unemployment and underemployment for those without a college degree is the seasonal nature of Merced County's ag-based economy, which affects not just crop producers and animal operations but other industries linked to these two industries, such as food processing. Almost four percent of agricultural workers (NAICS 11) with college degree are unemployed, whereas in stark contrast 17.6 percent of all agricultural workers with no degree are unemployed (Table 2.4). Likewise for food processing (NAICS 31), where those with a college degree experience an unemployment rate of 6.1 percent and those without 13.7 percent. But some sectors such as those related to housing experience high unemployment rates in the double-digit for persons with a college degree, with even higher rates for those without a college degree, meaning that a college degree is not a guaranteed shield against economic headwinds. Slightly over 19 percent of all construction (NAICS 23) workers with a college degree were unemployed, versus 22 percent for those without a degree; for finance, 15.1 percent of all those with a degree experienced unemployment, versus 14.3 percent without a college degree.

**TABLE 2.4:
LABOR FORCE AND UNEMPLOYMENT TRENDS BY ECONOMIC SECTOR AND BY COLLEGE DEGREE STATUS: MERCED COUNTY (2009-2011)**

	Degree			No Degree			Degree or No Degree		
	Employed	Not Employed	Unemployment rate of persons w/degree	Employed	Not Employed	Unemployment rate of persons with no degree	Employed	Not Employed	Unemployment Rate
11 Ag, Forestry, etc	862	33	4%	10,880	2,330	18%	11,742	2,363	17%
21 Mining, oil, gas	86	0	0%	25	0	0%	111	0	0%
22 Utilities	154	0	0%	774	123	14%	928	123	12%
23 Construction	541	128	19%	4,598	1,294	22%	5,139	1,422	22%
31 Manufacturing	429	28	6%	6,137	976	14%	6,566	1,004	13%
32 Manufacturing	207	27	12%	1,050	106	9%	1,257	134	10%
33 Manufacturing	261	18	6%	1,790	417	19%	2,051	435	17%
42 Wholesale	393	0	0%	3,143	1,134	27%	3,536	1,134	24%
44 Retail	881	59	6%	6,611	713	10%	7,492	772	9%
45 Retail	455	124	21%	3,371	757	18%	3,826	881	19%
48 Transportation/Warehousing	246	97	28%	2,588	431	14%	2,834	529	16%
49 Transportation/Warehousing	116	0	0%	838	128	13%	954	128	12%
51 Information	275	49	15%	1,067	178	14%	1,341	227	14%
52 Finance and Insurance	630	87	12%	936	69	7%	1,566	155	9%
53 Real Estate and Leasing	243	0	0%	1,176	295	20%	1,419	295	17%
54 Professional, Scientific and Technical	993	194	16%	1,085	95	8%	2,078	290	12%
55 Mgt. of Companies and Enterprises	0	0	0%	0	0	0%	0	0	0%
56 Administrative and Support	261	121	32%	2,621	813	24%	2,882	933	24%
56 Waste Management	0	0	0%	495	89	15%	495	89	15%
61 Education	4,721	119	2%	3,910	366	9%	8,631	485	5%
62 Health Care	3,389	275	8%	5,100	514	9%	8,489	789	9%
62 Social Assistance	674	18	3%	2,210	385	15%	2,883	403	12%
71 Arts, Entertainment and Rec.	243	0	0%	1,238	247	17%	1,480	247	14%
72 Accommodations	52	0	0%	123	199	62%	175	199	53%
72 Food Services	396	0	0%	5,531	876	14%	5,927	876	13%
81 Other Services	564	0	0%	3,437	267	7%	4,001	267	6%
92 Public Administration	2,022	142	7%	2,807	321	10%	4,829	463	9%
99 Unclassified	0	144	100%	0	4,020	100%	0	4,164	100%

Source: Applied Development Economics, Inc., based on US Census PUMS One-year Sample for Years 2009, 2010, and 2011 {Data Source: Steven Ruggles, J. Trent Alexander, Katie Genadek, Ronald Goeken, Matthew B. Schroeder, and Matthew Sobek. Integrated Public Use Microdata Series: Version 5.0 [Machine-readable database]. Minneapolis: University of Minnesota, 2010.}

VETERANS

Based on the most recent ACS data, there are about 5,632 veterans in the labor force in Merced County, representing about 5.0 percent of the labor force. It is estimated that 10.7 percent of veterans were unemployed in 2011, compared to 17.2 percent for the non-veterans labor force (Table 2.5). Among the unemployed veterans, the largest group is in the 35-54 age group, which contains 336 out of a total of 604 unemployed veterans of all ages.

**TABLE 2.5:
UNEMPLOYED PERSONS AND UNEMPLOYMENT RATES OF ALL PERSONS 16 AND OVER BY VETERAN STATUS
AND EDUCATIONAL ATTAINMENT MERCED COUNTY
PERSONS IN THE LABOR FORCE AND NOT EMPLOYED (US CENSUS ACS 3-YEAR 2009-2011)**

	16 - 19	20 - 29	30 - 34	35 - 54	55 - 64	65 & over	Merced County
Total Number of Unemployed Persons	3,136	6,709	2,025	5,692	1,312	205	19,079
Unemployment Rates	48.5%	23.5%	15.3%	11.9%	10.3%	6.8%	17.1%
01 Not a Veteran							
Number of Unemployed Persons Who Are Not Veterans	2,821	6,622	1,931	5,356	1,228	180	18,138
Unemployment Rates for Persons Who Are Not Veterans	46.6%	23.6%	15.0%	11.8%	11.1%	7.6%	17.2%
Did not earn HS dipl/GED or degree: not in school	35.8%	22.7%	20.4%	17.3%	16.8%	9.2%	18.2%
High school graduate (includes equivalency)	50.1%	33.6%	9.9%	10.2%	8.9%	12.9%	21.0%
Some college -- no degree and not attending	66.3%	15.3%	17.3%	9.7%	8.1%	6.7%	12.8%
Associates degree/still attending college	33.9%	21.5%	20.1%	6.6%	9.8%	0.0%	18.1%
Bachelor's degree or higher	0.0%	18.0%	8.2%	6.3%	4.9%	0.0%	8.4%
NA	56.8%	100.0%	0.0%	100.0%	0.0%	0.0%	61.5%
02 Veterans							
Number of Unemployed Persons Who Are Veterans	0	65	94	336	84	25	604
Unemployment Rates for Persons Who Are Veterans	0.0%	13.5%	23.2%	14.1%	5.0%	3.8%	10.7%
Did not earn HS dipl/GED or degree: not in school	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	14.2%
High school graduate (includes equivalency)	0.0%	6.2%	70.6%	21.2%	5.7%	0.0%	18.5%
Some college -- no degree and not attending	0.0%	17.8%	0.0%	8.8%	7.9%	0.0%	8.6%
Associates degree/still attending college	0.0%	54.1%	0.0%	26.2%	0.0%	0.0%	15.6%
Bachelor's degree or higher	0.0%	0.0%	0.0%	12.1%	1.7%	0.0%	4.6%
NA	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Source: Applied Development Economics, Inc., based on US Census PUMS One-year Sample for Years 2009, 2010, and 2011 {Data Source: Steven Ruggles, J. Trent Alexander, Katie Genadek, Ronald Goeken, Matthew B. Schroeder, and Matthew Sobek. Integrated Public Use Microdata Series: Version 5.0 [Machine-readable database]. Minneapolis: University of Minnesota, 2010.}

DISABLED WORKERS

There are an estimated 11,097 disabled persons in the labor force, comprising 9.9 percent of all workers in Merced County. The unemployment rate for disabled workers in 2011 is estimated at 26.5 percent, compared to 16.0 percent for the non-disabled labor force (Table 2.6). Unemployment rates appear to be higher for younger disabled workers under 34 relative to those who are older than 35. Disabled workers in the 35-54 prime working age category exhibit high rates of unemployment, at 68 percent.

**TABLE 2.6:
NUMBER OF UNEMPLOYED PERSONS AND UNEMPLOYMENT RATES OF ALL PERSONS 16 AND OVER BY DISABILITY STATUS AND EDUCATIONAL ATTAINMENT IN MERCED COUNTY
PERSONS IN THE LABOR FORCE AND NOT EMPLOYED (US CENSUS ACS 3-YEAR 2009-2011)**

	16 - 19	20 - 29	30 - 34	35 - 54	55 - 64	65 & over	Merced County
Total Number of Unemployed Persons	3,136	6,709	2,025	5,692	1,312	205	19,079
Unemployment Rates	48.5%	23.5%	15.3%	11.9%	10.3%	6.8%	17.1%
01 No Known Disability							
Number of Unemployed Persons w/No Known Disability	2,768	6,196	1,740	4,338	1,024	70	16,137
Unemployment Rates for Persons w/No Known Disability	45.9%	23.6%	14.1%	10.2%	9.3%	2.8%	16.0%
Did not earn HS dipl/GED or degree: not in school	16.6%	23.7%	16.3%	15.1%	15.3%	13.0%	16.4%
High school graduate (includes equivalency)	47.9%	34.3%	9.7%	9.6%	6.5%	0.0%	20.1%
Some college -- no degree and not attending	66.3%	13.7%	18.0%	8.0%	8.3%	0.0%	11.5%
Associates degree/still attending college	33.3%	21.4%	19.9%	7.7%	6.3%	0.0%	17.9%
Bachelor's degree or higher	0.0%	19.1%	8.4%	4.2%	4.7%	0.0%	7.2%
NA	58.0%	78.9%	0.0%	100.0%	0.0%	0.0%	60.1%
02 At Least One Disability							
Number of Unemployed Persons w/at Least One Disability	367	513	284	1,354	288	135	2,942
Unemployment Rates for Persons w/at Least One Disability	85.6%	22.2%	30.3%	26.8%	16.0%	24.3%	26.5%
Did not earn HS dipl/GED or degree: not in school	100.0%	9.6%	73.0%	32.3%	21.9%	10.1%	30.6%
High school graduate (includes equivalency)	83.4%	16.9%	39.7%	24.9%	20.8%	55.9%	29.9%
Some college -- no degree and not attending	0.0%	31.3%	0.0%	20.7%	6.3%	31.5%	19.4%
Associates degree/still attending college	48.0%	24.7%	0.0%	10.7%	19.3%	0.0%	18.4%
Bachelor's degree or higher	0.0%	0.0%	0.0%	68.0%	0.0%	0.0%	25.0%
NA	100.0%	100.0%	0.0%	0.0%	0.0%	0.0%	100.0%

Source: Applied Development Economics, Inc., based on US Census PUMS One-year Sample for Years 2009, 2010, and 2011 {Data Source: Steven Ruggles, J. Trent Alexander, Katie Genadek, Ronald Goeken, Matthew B. Schroeder, and Matthew Sobek. Integrated Public Use Microdata Series: Version 5.0 [Machine-readable database]. Minneapolis: University of Minnesota, 2010.}

3. EMPLOYMENT AND OCCUPATION PROJECTIONS

This section of the report provides the employment projections by cluster for the 2012 to 2017 period, as well as the related occupational demand by employers. The employment and occupational projections have been prepared by EMSI. The industry cluster definitions follow the Regional San Joaquin Valley analysis completed in 2012 (see Appendix B).²

- Agriculture
- Energy
- Health and Wellness
- Logistics
- Manufacturing
- Water Technology

The value of industry clusters is that they generally represent the economic base of the region, in which products and services are exported out of the county and draw income into the county. In this way, they create worker incomes that then support local serving industries such as retail and services businesses, which may also see employment growth. In the case of health and wellness, this cluster is not an export sector, but it is a growing industry with many high paid jobs and warrants attention on that basis.

EMPLOYMENT PROJECTIONS

Merced County had a job total of 70,766 in 2012. The total number of jobs is estimated to increase by 5,624 between 2012 and 2017. EMSI projects the total employment count reaching 76,390 during the 2012 to 2017 projection period (Table 3.1). While Table 3.1 presents the jobs projections in major NAICS sectors, the following points highlight the cluster projections which are provided in later tables of this chapter.

- Agriculture and Health and Wellness are the two clusters in Merced County with a considerable projected employment growth between 2012 and 2017.
- The Agriculture cluster with 1,005 new jobs is the top growing cluster (Table 3.2, 3.3, 3.4, 3.5). Distribution is the top hiring sub-cluster with a projected 1,161 new workers. The only non-growing sub-cluster for Agriculture is the processing sector, which will lose 798 jobs (Table 3.3).
- Health and Wellness had 5,857 jobs in total by 2012 and EMSI foresees an additional 967 jobs by the end of the projection period in 2017 (Table 3.7). As part of this cluster, EMSI expects 865 new jobs for the Health Care delivery sub-cluster.

² Applied Development Economics. *San Joaquin Valley Regional Industry Cluster Analysis and Action Plan*. CSU Fresno Office of Community and Economic Development. September 2012.

- Energy and Manufacturing clusters in Merced County are projected to decline by 2017 (Table 3.6 and Table 3.9).
- Non-cluster related employment with projected gains include retail, government, and tourism (accommodations, food services, arts and entertainment) (Table 3.1).

**TABLE 3.1:
EMPLOYMENT PROJECTIONS BY MAJOR INDUSTRIES, MERCED COUNTY**

NAICS Code	Description	2012 Jobs	2017 Jobs	Change	% Change
62	Health Care and Social Assistance	6,203	7,363	1,160	19%
42	Wholesale Trade	2,198	3,255	1,057	48%
44	Retail Trade	7,398	8,390	992	13%
90	Government	16,078	16,847	769	5%
72	Accommodation and Food Services	4,301	4,829	528	12%
11	Agriculture, Forestry, Fishing and Hunting	12,389	12,878	489	4%
81	Other Services (except Public Administration)	2,863	3,332	469	16%
56	Administrative and Support and Waste Management and Remediation Services	2,043	2,485	442	22%
54	Professional, Scientific, and Technical Services	1,483	1,897	414	28%
48	Transportation and Warehousing	2,080	2,453	373	18%
23	Construction	1,660	1,796	136	8%
55	Management of Companies and Enterprises	810	899	89	11%
71	Arts, Entertainment, and Recreation	410	442	32	8%
53	Real Estate and Rental and Leasing	579	609	30	5%
61	Educational Services (Private)	73	100	27	37%
99	Unclassified Industry	148	165	17	11%
21	Mining, Quarrying, and Oil and Gas Extraction	14	16	2	14%
52	Finance and Insurance	985	972	(13)	(1%)
51	Information	399	292	(107)	(27%)
22	Utilities	288	62	(226)	(78%)
31	Manufacturing	8,367	7,309	(1,058)	(13%)
TOTAL		70,766	76,390	5,624	8%

Source: EMSI 2013.2 Class of Worker Dataset QCEW Employees

AGRICULTURE CLUSTER

Agriculture oriented jobs include activities such as farm production, food processing, distribution, and support services. We have grouped the agriculture related industries into these four categories based on the significant role they play in the agriculture economy.

Food and farm product-related wholesale trade activities, transportation services, and warehousing jobs are grouped as Distribution. Retail related jobs in grocery and supermarkets establishments are also part of the Distribution group. The distribution job sector, will add net 1,161 new positions by 2017 with a 37 percent growth rate. In this group, EMSI reports that wholesalers of fresh fruit and vegetables, groceries and related products, meat products, and farm supplies are expected to increase employment by 989 net jobs. Supermarkets and grocery stores except convenience stores (NAICS 445110) also add 164 new jobs between 2012 and 2017 (Table 3.2).

TABLE 3.2: JOB PROJECTIONS BY CLUSTER – DISTRIBUTION					
NAICS Code	Description	2012 Jobs	2017 Jobs	Change	% Change
424480	Fresh Fruit and Vegetable Merchant Wholesalers	864	1,506	642	74%
424410	General Line Grocery Merchant Wholesalers	385	567	182	47%
445110	Supermarkets and Other Grocery (except Convenience) Stores	1,373	1,537	164	12%
424910	Farm Supplies Merchant Wholesalers	151	251	100	66%
424470	Meat and Meat Product Merchant Wholesalers	97	152	55	57%
445120	Convenience Stores	103	130	27	26%
445210	Meat Markets	38	54	16	42%
424490	Other Grocery and Related Products Merchant Wholesalers	45	55	10	22%
424520	Livestock Merchant Wholesalers	41	50	9	22%
445310	Beer, Wine, and Liquor Stores	26	25	(1)	(4%)
445299	All Other Specialty Food Stores	18	15	(3)	(17%)
424450	Confectionery Merchant Wholesalers	47	12	(35)	(74%)
TOTAL		3,188	4,354	1,166	37%

Source: EMSI 2013.2 Class of Worker Dataset QCEW Employees

In the Processing group we have included activities related to manufacturing, packaging, food and beverage processing, all of which are classified as manufacturing (NAICS 31). In Merced County the food manufacturing sector (NAICS 311) is estimated to decline by 801 jobs by 2017. The job loss in this sector is the main reason for the processing sub-cluster's shrinking size. Overall, EMSI estimates this component of the Agricultural cluster will lose 798 jobs by 2017.

TABLE 3.3: JOB PROJECTIONS BY CLUSTER – PROCESSING					
NAICS Code	Description	2012 Jobs	2017 Jobs	Change	% Change
311513	Cheese Manufacturing	938	996	58	6%
312130	Wineries	295	343	48	16%
311612	Meat Processed from Carcasses	215	247	32	15%
311119	Other Animal Food Manufacturing	127	114	(13)	(10%)
322211	Corrugated and Solid Fiber Box Manufacturing	120	107	(13)	(11%)
311423	Dried and Dehydrated Food Manufacturing	358	340	(18)	(5%)
311999	All Other Miscellaneous Food Manufacturing	48	20	(28)	(58%)
332439	Other Metal Container Manufacturing	95	63	(32)	(34%)
311911	Roasted Nuts and Peanut Butter Manufacturing	194	147	(47)	(24%)
311511	Fluid Milk Manufacturing	209	131	(78)	(37%)
311615	Poultry Processing	2,096	1,934	(162)	(8%)
311411	Frozen Fruit, Juice, and Vegetable Manufacturing	952	726	(226)	(24%)
311421	Fruit and Vegetable Canning	576	257	(319)	(55%)
TOTAL		6,223	5,425	(798)	(13%)

Source: EMSI 2013.2 Class of Worker Dataset QCEW Employees

The Production group includes animal and crop production. The Production group is expected to increase employment by 364 net jobs (Table 3.4). Crop Harvesting (NAICS 115113) is the only sector to decrease in size by 2017.

The final group of industries under the Agriculture cluster includes all establishments that support agriculture related activities. A diverse set of services from water utilities, construction, business support services, professional services, fertilizer and chemicals, and repair services are all included under the supporting services group. Altogether, EMSI projects a modest 273 job increase between 2012 and 2017, similar to the production sector. Temporary help services (NAICS 561320) would gain 150 jobs while the agriculture related manufacturing jobs will lose 58 jobs in total (Table 3.5).

TABLE 3.4: JOB PROJECTIONS BY CLUSTER – PRODUCTION					
NAICS Code	Description	2012 Jobs	2017 Jobs	Change	% Change
115115	Farm Labor Contractors and Crew Leaders	2,641	2,755	114	4%
111	Crop Production	4,708	4,817	109	2%
112	Animal Production	3,052	3,145	93	3%
115114	Postharvest Crop Activities (except Cotton Ginning)	956	1,040	84	9%
115116	Farm Management Services	86	98	12	14%
115113	Crop Harvesting, Primarily by Machine	196	148	(48)	(24%)
TOTAL		11,639	12,003	364	3%

Source: EMSI 2013.2 Class of Worker Dataset QCEW Employees

TABLE 3.5: JOB PROJECTIONS BY CLUSTER – SUPPORT					
NAICS Code	Description	2012 Jobs	2017 Jobs	Change	% Change
561320	Temporary Help Services	423	573	150	35%
541380	Testing Laboratories	79	130	51	65%
237110	Water and Sewer Line and Related Structures Construction	132	177	45	34%
423820	Farm and Garden Machinery and Equipment Merchant Wholesalers	128	154	26	20%
561730	Landscaping Services	186	209	23	12%
561710	Exterminating and Pest Control Services	87	108	21	24%
541940	Veterinary Services	141	158	17	12%
811310	Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance	69	85	16	23%
444210	Outdoor Power Equipment Stores	32	14	(18)	(56%)
332311	Prefabricated Metal Building and Component Manufacturing	108	83	(25)	(23%)
333111	Farm Machinery and Equipment Manufacturing	102	69	(33)	(32%)
TOTAL		1,487	1,760	273	18%

Source: EMSI 2013.2 Class of Worker Dataset QCEW Employees

ENERGY CLUSTER

Energy cluster will lose 173 jobs by 2017. This cluster is comprised of establishments engaged in alternative energy generation, production, and distribution, energy efficiency, equipment manufacturing, petroleum production and distribution, and power generation and transmission. EMSI estimates a large loss of 153 jobs by 2017 for hydroelectric power generation (NAICS 221111). Establishments related to this sub-sector engage in operating hydroelectric power generation. These facilities use water power to drive a turbine and produce electric energy. The electric energy produced in these establishments is provided to electric power transmission systems or to electric power distribution systems. (Table 3.6).

**TABLE 3.6:
JOB PROJECTIONS BY CLUSTER – ENERGY**

NAICS Code	Description	2012 Jobs	2017 Jobs	Change	% Change	Sub-Cluster
237110	Water and Sewer Line and Related Structures Construction	132	177	45	34%	1
23822	Plumbing, Heating, and Air-Conditioning Contractors	270	299	29	11%	3
811310	Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance	69	85	16	23%	6
424710	Petroleum Bulk Stations and Terminals	25	34	9	36%	5
423610	Electrical Apparatus and Equipment, Wiring Supplies, and Related Equipment Merchant Wholesalers	18	26	8	44%	2
335122	Commercial, Industrial, and Institutional Electric Lighting Fixture Manufacturing	97	55	(42)	(43%)	4
23821	Electrical Contractors and Other Wiring Installation Contractors	93	51	(42)	(45%)	3
221210	Natural Gas Distribution	84	41	(43)	(51%)	6
221111	Hydroelectric Power Generation	164	11	(153)	(93%)	6
TOTAL		952	779	(173)	(18%)	
Energy Sub-Clusters						
1 - Alternative Energy Generation/Production		5 - Petroleum Production & Petroleum Distribution				
2 - Alternative Energy Distribution		6 - Power Generation and Transmission				
3 - Energy Efficiency		7 - Research & Services				
4 - Equipment Manufacturing						

Source: EMSI 2013.2 Class of Worker Dataset QCEW Employees

HEALTH AND WELLNESS CLUSTER

This cluster is projected to have a positive increase in its employment by adding 967 additional employees. Ambulatory and health care services (NAICS 621) and Hospitals (NAICS 622) are covered under this cluster. Other sectors such as medical device manufacturing, pharmaceuticals, supplies and services, and wellness and fitness services are also part of this cluster. For Merced County, offices of physicians (NAICS 621111) provide the highest job growth by adding 270 new employees (Table 3.7).

**TABLE 3.7:
JOB PROJECTIONS BY CLUSTER – HEALTH AND WELLNESS**

NAICS Code	Description	2012 Jobs	2017 Jobs	Change	% Change	Sub-Cluster
621111	Offices of Physicians (except Mental Health Specialists)	1,137	1,407	270	24%	1
622110	General Medical and Surgical Hospitals (Private)	1,534	1,707	173	11%	1
623110	Nursing Care Facilities	793	944	151	19%	1
623220	Residential Mental Health and Substance Abuse Facilities	247	342	95	38%	1
446110	Pharmacies and Drug Stores	341	433	92	27%	5
621340	Offices of Physical, Occupational and Speech Therapists, and Audiologists	152	228	76	50%	1
621610	Home Health Care Services	141	193	52	37%	1
621910	Ambulance Services	149	196	47	32%	1
623311	Continuing Care Retirement Communities	101	139	38	38%	1
621498	All Other Outpatient Care Centers	141	175	34	24%	1
621410	Family Planning Centers	63	85	22	35%	1
621210	Offices of Dentists	393	413	20	5%	1
621511	Medical Laboratories	55	68	13	24%	1
623990	Other Residential Care Facilities	135	146	11	8%	1
423490	Other Professional Equipment and Supplies Merchant Wholesalers	19	29	10	53%	4
423450	Medical, Dental, and Hospital Equipment and Supplies Merchant Wholesalers	12	19	7	58%	1
621310	Offices of Chiropractors	51	37	(14)	(27%)	1
621493	Freestanding Ambulatory Surgical and Emergency Centers	34	14	(20)	(59%)	1
624310	Vocational Rehabilitation Services	198	177	(21)	(11%)	1
623210	Residential Mental Retardation Facilities	61	39	(22)	(36%)	1
623312	Homes for the Elderly	100	33	(67)	(67%)	1
TOTAL		5,857	6,824	967	17%	
Health and Wellness Sub-Clusters						
1 - Health Care Delivery		4 - Supplies and Services				
2 - Medical Device Manufacturing		5 - Wellness and Fitness				
3 - Pharmaceuticals						

Source: EMSI 2013.2 Class of Worker Dataset QCEW Employees

LOGISTICS CLUSTER

Under the logistics cluster, in Merced County, local truck transportation (NAICS 484) will add 477 jobs. This industry included the most number of employees since 2012 compared to other sectors under logistics. Under this industry, local specialized freight (except used goods) trucking (NAICS 484220) will add 391 new jobs. In general, the Logistics cluster is estimated to grow by 24 percent adding 467 net jobs (Table 3.8).

TABLE 3.8:
JOB PROJECTIONS BY CLUSTER – LOGISTICS

NAICS Code	Description	2012 Jobs	2017 Jobs	Change	% Change	Sub-Cluster
484220	Specialized Freight (except Used Goods) Trucking	713	1,104	391	55%	2
484110	General Freight Trucking, Local	271	357	86	32%	2
485410	School and Employee Bus Transportation	205	266	61	30%	4
492110	Couriers and Express Delivery Services	104	132	28	27%	3
488510	Freight Transportation Arrangement	18	26	8	44%	3
485510	Charter Bus Industry	45	34	(11)	(24%)	4
484121	General Freight Trucking, Long-Distance, Truckload	282	248	(34)	(12%)	2
493110	General Warehousing and Storage	268	185	(83)	(31%)	2
TOTAL		1,953	2,420	467	24%	
Logistics Sub-Clusters						
1 - Air, Rail, Water Transportation		3 - Other Services				
2 - Freight & Warehousing		4 - Transit				

Source: EMSI 2013.2 Class of Worker Dataset QCEW Employees

WATER TECHNOLOGY CLUSTER

In Merced, the only sector under the Water Technology cluster that is expected to have an employment increase is related to wholesalers of farm supplies; however, it is unclear if it is related to irrigation or other water-related activities, so we have included the jobs in the broader manufacturing and agricultural clusters instead.

MANUFACTURING CLUSTER

The Manufacturing cluster is projected to lose 126 jobs compared to 139 jobs by 2017. Industries that would grow or decline by less than 10 employees are not listed (Table 3.9).

TABLE 3.9:
JOB PROJECTIONS BY CLUSTER – MANUFACTURING

NAICS Code	Description	2012 Jobs	2017 Jobs	Change	% Change
323115	Digital Printing	570	666	96	16.8%
339950	Sign Manufacturing	39	62	23	59.0%
336212	Truck Trailer Manufacturing	109	129	20	18.3%
315991	Hat, Cap, and Millinery Manufacturing	30	17	(13)	(43.3%)
332311	Prefabricated Metal Building and Component Mfg	108	83	(25)	(23.1%)
321214	Truss Manufacturing	100	54	(46)	(46.0%)
327320	Ready-Mix Concrete Manufacturing	73	23	(50)	(68.5%)
336612	Boat Building	181	50	(131)	(72.4%)

TOTAL	1,210	1,084	(126)	(10.4%)
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Source: EMSI 2013.2 Class of Worker Dataset QCEW Employees

OCCUPATIONAL DEMAND BY CLUSTER

To assess the projected occupational demand created by employment increase in any of the above clusters, we tabulated the occupational staffing patterns for each of clusters. EMSI gives us the ability to identify specific occupations that will create the highest number of jobs between 2012 and 2017. Analyzing the staffing pattern for the county provides knowledge of the future demand for workforce training and educational requirements.

AGRICULTURE CLUSTER

Heavy & Tractor-Trailer Truck Drivers (SOC 53-3032) and Laborers & Freight, Stock & Material Movers (SOC 53-7062) are two of the largest growing agriculture related occupation in the county. As part of the SOC 53 these occupations employ 341 and 114 persons by 2017. The other occupational category with more than 150 new employees is the farmworkers and laborers, crop and nursery harvesters, and greenhouse workers (SOC 45-2092) with 193 new occupations. This occupation category relates to the Production sub-cluster while the former two categories are related to Distribution. This table shows that occupational estimates are corresponding with the employment projection tables presented in the previous section. As mentioned before, distribution and production are the growing sub-clusters under Agriculture and the growing occupational trend responds to this projection as well (Table 3.10).

**TABLE 3.10:
AGRICULTURE CLUSTER**

SOC	OCCUPATION	EMPLOYED IN INDUSTRY GROUP (2012)	EMPLOYED IN INDUSTRY GROUP (2017)	2012-2017 CHANGE	% CHANGE	MEDIAN HOURLY EARNINGS	EDUCATION LEVEL*
53-3032	Heavy and Tractor-Trailer Truck Drivers	679	1,020	341	50%	\$14.73	1
45-2092	Farmworkers and Laborers, Crop, Nursery, & Greenhouse	6,270	6,463	193	3%	\$8.76	1
53-7062	Laborers and Freight, Stock, and Material Movers, Hand	749	863	114	15%	\$1.52	1
41-4012	Sales Reps, Wholesale & Manufacturing, Except Tech. & Scientific Products	123	230	107	87%	\$26.89	2
53-3031	Driver/Sales Workers	209	315	106	51%	\$13.68	1
41-2011	Cashiers	547	632	85	16%	\$9.24	1
43-5081	Stock Clerks and Order Fillers	265	323	58	22%	\$9.89	1
53-3033	Light Truck or Delivery Services Drivers	138	193	55	40%	\$13.62	1
53-7051	Industrial Truck and Tractor Operators	141	165	24	17%	\$17.03	1
43-4051	Customer Service Reps	38	61	23	61%	\$15.28	1
53-1031	First-Line Supervisors of Transp. & Material-Moving Machine & Vehicle Operators	34	54	20	59%	\$24.70	4
53-7064	Packers and Packagers, Hand	345	365	20	6%	\$8.84	1

SOC	OCCUPATION	EMPLOYED IN INDUSTRY GROUP (2012)	EMPLOYED IN INDUSTRY GROUP (2017)	2012-2017 CHANGE	% CHANGE	MEDIAN HOURLY EARNINGS	EDUCATION LEVEL*
49-3031	Bus and Truck Mechanics and Diesel Engine Specialists	33	52	19	58%	\$19.97	5
51-3021	Butchers and Meat Cutters	127	145	18	14%	\$11.48	3
47-2061	Construction Laborers	64	82	18	28%	\$14.10	1
37-3011	Landscaping and Groundskeeping Workers	154	172	18	12%	\$12.81	1
43-5071	Shipping, Receiving, and Traffic Clerks	42	59	17	40%	\$12.68	1
43-1011	First-Line Supervisors of Office & Admin. Support Workers	54	70	16	30%	\$21.55	4
11-9013	Farmers, Ranchers, and Other Agricultural Managers	547	562	15	3%	\$37.01	4
43-6014	Secretaries/ Admin. Assist's, Except Legal/Medical/Executive	34	49	15	44%	\$15.01	1
41-1011	First-Line Supervisors of Retail Sales Workers	85	99	14	16%	\$16.55	4
35-3021	Combined Food Preparation and Serving Workers, Including Fast Food	91	104	13	14%	\$8.99	1
45-2093	Farmworkers, Farm, Ranch, and Aquacultural Animals	495	508	13	3%	\$13.14	1
37-2021	Pest Control Workers	48	61	13	27%	\$14.75	2
11-1021	General and Operations Mgrs	149	161	12	8%	\$42.57	1
53-1021	First-Line Supervisors of Helpers, Laborers, and Material Movers, Hand	24	35	11	46%	\$20.33	4
41-2031	Retail Salespersons	42	53	11	26%	\$9.98	1
45-2091	Agricultural Equipment Operators	377	387	10	3%	\$9.53	1
49-9071	Maintenance and Repair Workers, General	37	47	10	27%	\$17.12	2
43-9799	Office and Administrative Support Workers, All Other	83	93	10	12%	\$12.17	1
11-2022	Sales Managers	18	28	10	56%	\$31.13	8
35-2021	Food Preparation Workers	181	187	6	3%	\$8.83	1
51-3091	Food and Tobacco Roasting, Baking, and Drying Machine Operators and Tenders	113	101	(12)	(11%)	\$14.30	2
51-3022	Meat, Poultry, and Fish Cutters and Trimmers	436	423	(13)	(3%)	\$9.17	1
51-3093	Food Cooking Machine Operators and Tenders	76	62	(14)	(18%)	\$10.93	1
51-9399	Production Workers, All Other	131	117	(14)	(11%)	\$13.24	2
51-9061	Inspectors, Testers, Sorters, Samplers, and Weighers	155	140	(15)	(10%)	\$14.45	2
51-3023	Slaughterers and Meat Packers	251	235	(16)	(6%)	\$9.14	2
51-1011	First-Line Supervisors of Production & Operating Wkrs	168	148	(20)	(12%)	\$27.17	4
45-2041	Graders and Sorters, Agricultural Products	719	694	(25)	(3%)	\$8.92	1
51-9198	Helpers--Production Workers	201	173	(28)	(14%)	\$10.61	1
49-9071	Maintenance and Repair Workers, General	214	186	(28)	(13%)	\$17.12	2
51-2092	Team Assemblers	242	190	(52)	(21%)	\$11.14	2
53-7051	Industrial Truck and Tractor Operators	289	233	(56)	(19%)	\$17.03	1
51-3092	Food Batchmakers	468	386	(82)	(18%)	\$11.78	1
51-9111	Packaging and Filling Machine Operators and Tenders	820	691	(129)	(16%)	\$12.23	2

SOC	OCCUPATION	EMPLOYED IN INDUSTRY GROUP (2012)	EMPLOYED IN INDUSTRY GROUP (2017)	2012-2017 CHANGE	% CHANGE	MEDIAN HOURLY EARNINGS	EDUCATION LEVEL*
1	- Short-term on-the-job training		6	- Associate's degree			
2	- Moderate-term on-the-job training		7	- Bachelor's degree			
3	- Long-term on-the-job training		8	- Bachelor's or higher degree, plus work experience			
4	- Work experience in a related occupation		9	- First professional degree			
5	- Postsecondary non-degree award		10	- Masters			

Source: EMSI 2013.2 Class of Worker Dataset-QCEW Employees

ENERGY CLUSTER

In General, the Energy cluster does not include a high occupation count compared to Agriculture, Health and Wellness, or Logistics. Occupations that directly serve the Energy cluster do not show growth in Merced County. Most of the occupations with a considerable growth provide research, management, or construction and extraction services. As a result we have not included a table for the Energy cluster in order to prevent double counting the demand for general occupation types. For example, management analysts (SOC 13-1111) is anticipated to have 20 persons by 2017; however, organizing studies, evaluating and designing systems and procedures is a service that other clusters require as well.

HEALTH AND WELLNESS CLUSTER

The occupations under Health and Wellness cluster show a total change of 19 percent or 616 workers being hired between 2012 and 2017. Healthcare practitioners and technical occupations (SOC 29-0000) is estimated to grow by 258 persons. The third largest growing occupation is the nursing aides (SOC 31-1012) by 69 new employees (Table 3.11). Nursing aids and medical assistants are also anticipated to grow by 134 persons.

**TABLE 3.11:
HEALTH AND WELLNESS CLUSTER**

SOC	OCCUPATION	EMPLOYED IN INDUSTRY GROUP (2012)	EMPLOYED IN INDUSTRY GROUP (2017)	2012-2017 CHANGE	% CHANGE	MEDIAN HOURLY EARNINGS	EDUCATION LEVEL*
29-1111	Registered Nurses	554	663	109	20%	\$30.23	6
43-6013	Medical Secretaries	445	528	83	19%	\$14.07	2
31-1012	Nursing Aides, Orderlies, and Attendants	522	591	69	13%	\$11.89	5
31-9092	Medical Assistants	420	485	65	15%	\$12.18	2
29-2061	Licensed Practical and Licensed Vocational Nurses	168	199	31	18%	\$21.07	5
29-2041	Emergency Medical Technicians and Paramedics	68	97	29	43%	\$16.69	5
29-2052	Pharmacy Technicians	72	98	26	36%	\$18.25	2
31-1011	Home Health Aides	126	152	26	21%	\$10.00	1
43-4171	Receptionists and Information Clerks	112	137	25	22%	\$11.18	1
29-1123	Physical Therapists	28	44	16	57%	\$38.93	9
41-2011	Cashiers	96	111	15	16%	\$9.24	1
43-9061	Office Clerks, General	99	114	15	15%	\$13.60	1
29-1051	Pharmacists	35	49	14	40%	\$62.22	9
29-1069	Physicians and Surgeons, All Other	58	71	13	22%	\$106.01	9

39-9021	Personal Care Aides	50	63	13	26%	\$10.06	1
43-1011	First-Line Supervisors of Office and Administrative Support Workers	73	85	12	16%	\$21.55	4
31-2022	Physical Therapist Aides	49	61	12	24%	\$10.73	2
31-9799	Healthcare Support Workers, All Other	116	127	11	9%	\$16.06	1
11-9111	Medical and Health Services Managers	73	84	11	15%	\$55.64	7
43-3021	Billing and Posting Clerks	71	82	11	15%	\$14.98	1
29-2037	Radiologic Technologists and Technicians	48	58	10	21%	\$30.60	6
1 - Short-term on-the-job training		6 - Associate's degree					
2 - Moderate-term on-the-job training		7 - Bachelor's degree					
3 - Long-term on-the-job training		8 - Bachelor's or higher degree, plus work experience					
4 - Work experience in a related occupation		9 - First professional degree					
5 - Postsecondary non-degree award		10 - Masters					

Source: EMSI 2013.2 Class of Worker Dataset-QCEW Employees

LOGISTICS CLUSTER

Similar to other counties with employment growth in Logistics, Merced follows the same projected staffing pattern. The occupation with a highly considerable positive change between 2012 and 2017 is the heavy tractor trailer drivers (SOC 53-3032) with 239 employees (Table 3.12).

TABLE 3.12: LOGISTICS CLUSTER							
SOC	OCCUPATION	EMPLOYED IN INDUSTRY GROUP (2012)	EMPLOYED IN INDUSTRY GROUP (2017)	2012- 2017 CHANGE	% CHANGE	MEDIAN HOURLY EARNINGS	EDU- CATION LEVEL*
53-3032	Heavy and Tractor-Trailer Truck Drivers	757	996	239	32%	\$14.73	1
53-3022	Bus Drivers, School or Special Client	119	162	43	36%	\$19.20	2
53-7062	Laborers and Freight, Stock, and Material Movers, Hand	180	203	23	13%	\$11.52	1
53-3033	Light Truck or Delivery Services Drivers	75	89	14	19%	\$13.62	1
49-3031	Bus and Truck Mechanics and Diesel Engine Specialists	37	51	14	38%	\$19.97	5
43-9061	Office Clerks, General	38	49	11	29%	\$13.60	1
43-5032	Dispatchers, Except Police, Fire, and Ambulance	31	42	11	35%	\$20.77	2
53-7051	Industrial Truck and Tractor Operators	71	60	(11)	(15%)	\$17.03	1
1 - Short-term on-the-job training		6 - Associate's degree					
2 - Moderate-term on-the-job training		7 - Bachelor's degree					
3 - Long-term on-the-job training		8 - Bachelor's or higher degree, plus work experience					
4 - Work experience in a related occupation		9 - First professional degree					
5 - Postsecondary non-degree award		10 - Masters					

Source: EMSI 2013.2 Class of Worker Dataset-QCEW Employees

MANUFACTURING CLUSTER

As indicated previously, the Manufacturing cluster is projected to decline between 2012 and 2017. EMSI does not anticipate occupational demand for this cluster. As a result we have not included a table for occupational changes for this cluster.

4. SKILLS ANALYSIS

In this section of the report we focus on analyzing the unemployed labor force who had previously worked in any one of the industry clusters in an effort to analyze the match (or mismatch) between the labor force and future jobs. In general, it does appear that the educational profile of the County's underutilized labor force matches the educational and training requirements of future jobs.

Of the County's clusters, agriculture is projected to grow the most new jobs between 2012 and 2017, at 1,130 over a five year period, or 226 per year on average (Table 4.1). The bulk of the 1,100 new jobs are in the lowest education and training categories of short-term OJT (1,233) and moderate-term OJT, although the number of jobs requiring moderate-term OJT (-169) is expected to decline. While a substantial number of new jobs are projected in the Agricultural cluster over the next five years, it is important to remember the seasonal nature of this cluster, which helps explain this cluster's high unemployment numbers. There are slightly over 4,800 persons who are unemployed who previously worked in industries within the Agricultural cluster. Of the 4,800 unemployed persons, the bulk is in the lower educational attainment rung, of no high school diploma (2,397). Another 2,100 are in the lower-middle educational attainment rung of some college (754) and high school diploma (1,392). On the surface, with respect to educational qualifications, the unemployed labor force with previous experience in Agricultural cluster industries matches the educational and training requirements of anticipated jobs within the Agricultural cluster, as both are in the lower- and lower-middle rungs of educational ladder.

**TABLE 4.1:
COMPARISON OF UNEMPLOYED LABOR FORCE BY CLUSTER BY EDUCATIONAL ATTAINMENT TO NEW JOBS
BY SAME CLUSTER BY EDUCATION AND TRAINING: MERCED COUNTY
(AGRICULTURE - ALL SUB CLUSTERS)**

Educational Attainment	Unemployed Labor Force in Sub-Cluster			Education and Training Requirements	Job Projections By Educational Attainment		
	Mgrs/ Supervisors	Not Managers	Total Underutilized Labor Force		Mgrs/ Supervisors	Not Managers	Total
01 Advanced degree	0	50	50	01 Advanced degree	0	0	0
02 Bachelor's	76	0	76	02 Bachelor's	37	0	37
03 Associate's	0	41	41	03 Associate's	0	0	0
04 Some college	144	610	754	04 Work experience in related occupation	0	0	0
05 HS diploma/GED	362	1,030	1,392	05 Long-term OJT	0	29	29
06 No HS diploma/GED	511	1,886	2,397	06 Moderate-term OJT	0	-169	-169
99 NA	0	130	130	07 Short-term OJT	0	1,233	1,233
	1,093	3,746	4,839		37	1,093	1,130

Source: ADE, Inc. based on US Census PUMS One-year Sample for years 2009–2011 and EMSI Occupational Projections.

The second fastest growing cluster is Health and Wellness, which is projected to grow by 967 new jobs, most (although not all) of which are in the lowest educational/training categories, i.e. short-term OJT (309) and moderate-term OJT (349)(Table 4.2). There are also a number of projected jobs within the lower-middle educational/training rung, i.e. relevant work experience (121), and the highest educational/training rung, (i.e. advanced degree) (188). Regarding the underutilized labor force with experience in the Health and Wellness cluster, unemployed persons are fairly distributed across all educational categories, indicating on the surface a match between the backgrounds of the labor force and educational requirement of anticipated new jobs, although the labor force is tilted toward the lower-middle (some college at 178 and high school diploma at 213), middle (Associates degree at 53), and higher rungs (Master's and above at 108 and BA at 82) of the educational ladder.

**TABLE 4.2:
COMPARISON OF UNEMPLOYED LABOR FORCE BY CLUSTER BY EDUCATIONAL ATTAINMENT TO NEW JOBS
BY SAME CLUSTER BY EDUCATION AND TRAINING: MERCED COUNTY
(HEALTHCARE - ALL SUB CLUSTERS)**

Educational Attainment	Unemployed Labor Force in Sub-Cluster			Education and Training Requirements	Job Projections By Educational Attainment		
	Mgrs/ Supervisors	Not Managers	Total Underutilized Labor Force		Mgrs/ Supervisors	Not Managers	Total
01 Advanced degree	108	0	108	01 Advanced degree	188	0	188
02 Bachelor's	44	38	82	02 Bachelor's	0	0	0
03 Associate's	0	53	53	03 Associate's	0	0	0
04 Some college	0	178	178	04 Work experience in related occupation	121	0	121
05 HS diploma/GED	36	177	213	05 Long-term OJT	0	0	0
06 No HS diploma/GED	41	47	89	06 Moderate-term OJT	0	349	349
99 NA	0	0	0	07 Short-term OJT	0	309	309
	230	493	723		309	658	967

Source: ADE, Inc. based on US Census PUMS One-year Sample for years 2009–2011 and EMSI Occupational Projections.

The Logistics cluster is expected to generate the most jobs after the Health and Wellness cluster, at 467 over five years, or 93 per year on average (see Table 4.3). The new jobs are all in the lowest educational and training categories, (i.e., short-term OJT) (397) and moderate-term OJT (70). With respect to the labor force, there are slightly over 100 persons who are unemployed who previously worked in industries within the Logistics cluster. Of the 100 unemployed persons, 28 do not have a high school diploma, 39 have a high school diploma, and 50 have at least a Master's degree. While there are a number of unemployed persons who do not fit the profile for new jobs given their advanced educational background, in general, the unemployed labor force with previous experience in Logistics cluster industries matches the educational and training requirements of anticipated jobs, given the number of unemployed persons and anticipated number of new jobs in the lower-middle or lowest educational categories.

**TABLE 4.3:
COMPARISON OF UNEMPLOYED LABOR FORCE BY CLUSTER BY EDUCATIONAL ATTAINMENT TO NEW JOBS
BY SAME CLUSTER BY EDUCATION AND TRAINING: MERCED COUNTY
(LOGISTICS - ALL SUB CLUSTERS)**

Educational Attainment	Unemployed Labor Force in Sub-Cluster			Education and Training Requirements	Job Projections By Educational Attainment		
	Mgrs/ Supervisors	Not Managers	Total Underutilized Labor Force		Mgrs/ Supervisors	Not Managers	Total
01 Advanced degree	0	50	50	01 Advanced degree	0	0	0
02 Bachelor's	0	0	0	02 Bachelor's	0	0	0
03 Associate's	0	0	0	03 Associate's	0	0	0
04 Some college	0	0	0	04 Work experience in related occupation	0	0	0
05 HS diploma/GED	0	39	39	05 Long-term OJT	0	0	0
06 No HS diploma/GED	0	28	28	06 Moderate-term OJT	0	70	70
99 NA	0	0	0	07 Short-term OJT	0	397	397
	0	117	117		0	467	467

Source: ADE, Inc. based on US Census PUMS One-year Sample for years 2009–2011 and EMSI Occupational Projections.

5. TRAINING RESOURCES

This section identifies whether training programs exist for the occupations in the growing industry clusters, which are Agriculture, Health and Welfare, Energy, and Logistics. In Table 5.1 below, occupations under any of the five clusters that are assigned a dash (“---”) are not expected to grow. Occupations assigned a number including zero (“0”) are expected to grow and the assigned number reflects the number of job training programs whose services are relevant to the corresponding occupation. For example, pharmacy technicians (OCCSOC 29-2052) is an occupation within the Health and Wellness cluster that does not require a college degree but moderate-term OJT; this occupation is expected to increase in number, and there are two job training programs that are specific to this occupation. There will be an increase in the number of veterinary technicians (OCCSOC 29-2056) with Agriculture in the near future but there are no job training programs specifically targeting this occupation, according to the California EDD ETPL database.

There are approximately 29 occupations that are expected to increase in numbers within the Agricultural cluster (Table 5.1). For 22 of these occupations, there are no job training programs, according to the California EDD ETPL database. There are 5 growing occupations within Health and Wellness; for 3 of these growing occupations, there are no job training programs. There are 5 growing occupations in Logistics and, for 3 of these occupations there are no job training programs.

**TABLE 5.1:
NUMBER OF JOB TRAINING PROGRAMS FOR OCCUPATIONS IN TOP GROWING CLUSTERS: MERCED COUNTY**

OCCSOC	Description	Agriculture (29/22)	Health and Wellness (5/3)	Logistics (5/3)	Required Education/Training
11-1021	General and Operations Managers	2	---	---	Bachelor's
13-1078	Human Resources, Training, and Labor Relations Specialists, All Other	0	---	---	Bachelor's
13-2011	Accountants and Auditors	0	---	---	Bachelor's
29-1051	Pharmacists	---	0	---	Advanced degree
29-2052	Pharmacy Technicians	---	2	---	Moderate-term OJT
29-2056	Veterinary Technologists and Technicians	0	---	---	Associate's
31-9095	Pharmacy Aides	---	1	---	Short-term OJT
37-2021	Pest Control Workers	0	---	---	Moderate-term OJT
37-3011	Landscaping and Groundskeeping Workers	0	---	---	Short-term OJT
41-1011	First-Line Supervisors of Retail Sales Workers	---	0	---	Work experience in related occupation
41-2011	Cashiers	0	0	---	Short-term OJT
41-4012	Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	0	---	---	Moderate-term OJT
41-9011	Demonstrators and Product Promoters	0	---	---	Short-term OJT
43-1011	First-Line Supervisors of Office and Administrative Support Workers	0	---	---	Work experience in related occupation
43-3031	Bookkeeping, Accounting, and Auditing Clerks	2	---	---	Moderate-term OJT
43-4051	Customer Service Representatives	1	---	---	Short-term OJT
43-5081	Stock Clerks and Order Fillers	1	---	---	Short-term OJT
43-6014	Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	5	---	---	Short-term OJT
43-9061	Office Clerks, General	0	---	---	Short-term OJT
43-9799	Office and Administrative Support Workers, All Other	0	---	---	Short-term OJT
45-2041	Graders and Sorters, Agricultural Products	---	---	---	Short-term OJT
45-2092	Farmworkers and Laborers, Crop, Nursery, and Greenhouse	0	---	---	Short-term OJT
47-2061	Construction Laborers	0	---	---	Short-term OJT
47-2073	Operating Engineers and Other Construction Equipment Operators	0	---	---	Moderate-term OJT
49-3041	Farm Equipment Mechanics and Service Technicians	0	---	---	Long-term OJT
49-9041	Industrial Machinery Mechanics	0	---	---	Long-term OJT
49-9071	Maintenance and Repair Workers, General	0	---	---	Moderate-term OJT

OCCSOC	Description	Agriculture (29/22)	Health and Wellness (5/3)	Logistics (5/3)	Required Education/Training
51-2011	Aircraft Structure, Surfaces, Rigging, and Systems Assemblers	---	---	0	Moderate-term OJT
51-2092	Team Assemblers	---	---	---	Moderate-term OJT
51-3092	Food Batchmakers	---	---	---	Short-term OJT
51-9061	Inspectors, Testers, Sorters, Samplers, and Weighers	0	---	---	Moderate-term OJT
51-9111	Packaging and Filling Machine Operators and Tenders	---	---	---	Moderate-term OJT
51-9198	Helpers--Production Workers	0	---	---	Short-term OJT
53-3022	Bus Drivers, School or Special Client	---	---	0	Moderate-term OJT
53-3031	Driver/Sales Workers	0	---	---	Short-term OJT
53-3032	Heavy and Tractor-Trailer Truck Drivers	1	---	1	Short-term OJT
53-3033	Light Truck or Delivery Services Drivers	1	---	1	Short-term OJT
53-7051	Industrial Truck and Tractor Operators	---	---	---	Short-term OJT
53-7062	Laborers and Freight, Stock, and Material Movers, Hand	0	---	0	Short-term OJT
53-7064	Packers and Packagers, Hand	0	---	---	Short-term OJT

Source: Applied Development Economics, based on EMSI and California EDD LMID

Below we identify the WIA-approved job training providers that correspond to the occupational needs in the table above. There are 4 job training providers providing services that are relevant to growing occupations in the Agricultural cluster, one provider whose services are relevant to Health and Wellness occupations, and one other provider whose services are aimed at occupations in Logistics (Table 5.2).

TABLE 5.2: SPECIFIC JOB TRAINING PROVIDERS OFFERING TRAINING FOR OCCUPATIONS IDENTIFIED IN TOP GROWING CLUSTERS		
Agriculture (4)	Health and Welfare (1)	Logistics (1)
CENTRAL VALLEY OPPORTUNITY CNT WINTON CA 95388	BOSTON REED MERCED CA 95348	CENTRAL VALLEY OPPORTUNITY CNT WINTON CA 95388
MERCED ADULT SCHOOL Computer Based Instruction		
MERCED COLLEGE Internet		
MERCED COUNTY OFFICE OF ED. MERCED CA 95341		

Source: Applied Development Economics, based on California EDD WIB ("Eligible Training Provider List")

APPENDIX A: CLUSTER DEFINITIONS

AGRICULTURE CLUSTER

CLUSTER COMPONENTS BY NAICS CODE	
Agriculture Cluster - Production	
111	Crop Production
112	Animal Production
1141	Fishing
115112	Soil Preparation, Planting, Cultivating
115113	Crop Harvesting, Primarily by Machine
115114	Postharvest Crop Activities
115115	Farm Labor Contractors and Crew Leaders
115116	Farm Mgmt Svcs
115210	Support Activities for Animal Production
Agriculture Cluster - Processing	
311	Food Manufacturing
312	Beverage and Tobacco Product Manufacturing
321920	Wood Container and Pallet Mfg
322211	Corrugated and Solid Fiber Box Mfg
Agriculture Cluster - Distribution	
424410	General Line Grocery Merchant Wholesalers
424430	Dairy Product Wholesalers
424450	Confectionery Wholesalers
424470	Meat & Meat Product Wholesalers
424480	Fresh Fruit/Veg Wholesalers
424490	Other Grocery Wholesalers
424820	Wine, Alcoholic Beverage Wholesalers
424910	Farm Supplies Wholesalers
424930	Flower, Nursery Stock, and Florists' Supplies Merchant Wholesalers
445110	Supermarkets, Other Grocery
445120	Convenience Stores
445210	Meat Markets
445230	Fruit and Vegetable Markets
445291	Baked Goods Stores
445292	Confectionery and Nut Stores
445299	All Other Specialty Food Stores
445310	Beer, Wine, and Liquor Stores
481111	Scheduled Passenger Air Transportation
481211	Nonscheduled Chartered Passenger Air Trans
482	Rail Transportation
484110	General Freight Trucking, Local
484121	General Freight Trucking, Long-Distance, Truckload
484122	General Freight Trucking, Long-Distance, Less Than Truckload
484220	Specialized Freight Trucking, Local
484230	Specialized Freight Trucking, Long-Dist.
488119	Other Airport Operations
488190	Other Support Activities for Air Transportation
488510	Freight Transportation Arrangement
493110	General Warehousing & Storage
493120	Refrigerated Warehousing and Storage

APPENDIX A: CONTINUED

AGRICULTURE CLUSTER (CONTINUED)

CLUSTER COMPONENTS BY NAICS CODE	
Agriculture Cluster - Support	
221310	Water Supply and Irrigation Systems
237110	Water & Sewer Line & Related Construction
325314	Fertilizer (Mixing Only) Manufacturing
325320	Pesticide and Other Agricultural Chemical Manufacturing
333111	Farm Machinery, Equip Mfg
423820	Farm, Garden Machinery, Equip Wholesalers
423830	Industrial Machinery and Equipment Merchant Wholesalers
423840	Industrial Supplies Merchant Wholesalers
423850	Service Establishment Equipment and Supplies Merchant Wholesalers
444220	Nursery, Garden Ctr, Farm Supply Stores
522292	Real Estate Credit
532490	Other Commercial and Industrial Machinery and Equipment Rental and Leasing
541380	Testing Laboratories
541613	Marketing Consulting Services
541840	Media Representatives
541870	Advertising Material Distribution Services
541890	Other Services Related to Advertising
541940	Veterinary Services
551114	Corporate, Subsidiary, Regional Offices
561110	Office Administrative Services
561311	Employment Placement Agencies
561320	Temporary Help Services
561710	Exterminating and Pest Control Services
561730	Landscaping Services
562920	Materials Recovery Facilities
811310	Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance

Source: ADE, Inc.; data from EMSI.

Notes: Industries included in the cluster each account for a minimum of 10 jobs.

APPENDIX A: CONTINUED

ENERGY CLUSTER

CLUSTER COMPONENTS BY NAICS CODE			
ALTERNATIVE ENERGY GENERATION/PRODUCTION			
23711	Water and Sewer Line and Related Structures Construction	311223	Other Oilseed Processing
23816	Roofing Contractors	325193	Ethyl Alcohol Manufacturing
ALTERNATIVE ENERGY DISTRIBUTION			
423610	Electrical Apparatus and Equipment, Wiring Supplies, and Related Equipment Merchant Wholesalers	423720	Plumbing and Heating Equipment and Supplies (Hydronics) Merchant Wholesalers
423690	Other Electronic Parts and Equipment Merchant Wholesalers		
ENERGY EFFICIENCY			
23821	Electrical Contractors and Other Wiring Installation Contractors	23831	Drywall and Insulation Contractors
23822	Plumbing, Heating, and Air-Conditioning Contractors		
EQUIPMENT MANUFACTURING			
333132	Oil and Gas Field Machinery and Equipment Manufacturing	335110	Electric Lamp Bulb and Part Manufacturing
333414	Heating Equipment (except Warm Air Furnaces) Manufacturing	335121	Residential Electric Lighting Fixture Manufacturing
333611	Turbine and Turbine Generator Set Units Manufacturing	335122	Commercial, Industrial, and Institutional Electric Lighting Fixture Manufacturing
334512	Automatic Environmental Control Manufacturing for Residential, Commercial, and Appliance Use	335129	Other Lighting Equipment Manufacturing
334515	Instrument Manufacturing for Measuring and Testing Electricity and Electrical Signals	335311	Power, Distribution, and Specialty Transformer Manufacturing
334517	Irradiation Apparatus Manufacturing		
PETROLEUM PRODUCTION & PETROLEUM DISTRIBUTION			
211111	Crude Petroleum and Natural Gas Extraction	424710	Petroleum Bulk Stations and Terminals
211112	Natural Gas Liquid Extraction	424720	Petroleum and Petroleum Products Merchant Wholesalers (except Bulk Stations and Terminals)
212399	All Other Nonmetallic Mineral Mining	486110	Pipeline Transportation of Crude Oil
213111	Drilling Oil and Gas Wells	486210	Pipeline Transportation of Natural Gas
324110	Petroleum Refineries	486910	Pipeline Transportation of Refined Petroleum Products
324199	All Other Petroleum and Coal Products Manufacturing		
POWER GENERATION AND TRANSMISSION			
221111	Hydroelectric Power Generation	221122	Electric Power Distribution
221112	Fossil Fuel Electric Power Generation	221210	Natural Gas Distribution
221113	Nuclear Electric Power Generation	237120	Oil and Gas Pipeline and Related Structures Construction
221119	Other Electric Power Generation	237130	Power and Communication Line and Related Structures Construction
221121	Electric Bulk Power Transmission and Control		
RESEARCH & SERVICES			
541	Professional, Scientific, and Technical Services	533110	Lessors of Nonfinancial Intangible Assets (except Copyrighted Works)
523910	Miscellaneous Intermediation	811219	Other Electronic and Precision Equipment Repair and Maintenance
523999	Miscellaneous Financial Investment Activities	811310	Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance

APPENDIX A: CONTINUED

HEALTH AND WELLNESS CLUSTER

CLUSTER COMPONENTS BY NAICS CODE			
HEALTH CARE DELIVERY			
621111	Offices of Physicians (except Mental Health Specialists)	621512	Diagnostic Imaging Centers
621112	Offices of Physicians, Mental Health Specialists	621512	Diagnostic Imaging Centers
621210	Offices of Dentists	621610	Home Health Care Services
621310	Offices of Chiropractors	621910	Ambulance Services
621320	Offices of Optometrists	621991	Blood and Organ Banks
621330	Offices of Mental Health Practitioners (except Physicians)	622110	General Medical and Surgical Hospitals
621340	Offices of Physical, Occupational and Speech Therapists, and Audiologists	622210	Psychiatric and Substance Abuse Hospitals
621391	Offices of Podiatrists	622310	Specialty (except Psychiatric and Substance Abuse) Hospitals
621410	Family Planning Centers	623110	Nursing Care Facilities
621420	Outpatient Mental Health and Substance Abuse Centers	623210	Residential Mental Retardation Facilities
621491	HMO Medical Centers	623220	Residential Mental Health and Substance Abuse Facilities
621492	Kidney Dialysis Centers	623311	Continuing Care Retirement Communities
621493	Freestanding Ambulatory Surgical and Emergency Centers	623312	Homes for the Elderly
621498	All Other Outpatient Care Centers	623990	Other Residential Care Facilities
621511	Medical Laboratories	624310	Vocational Rehabilitation Services
MEDICAL DEVICE MANUFACTURING			
339112	Surgical and Medical Instrument Manufacturing	339115	Ophthalmic Goods Manufacturing
339113	Surgical Appliance and Supplies Manufacturing	339116	Dental Laboratories
339114	Dental Equipment and Supplies Manufacturing		
PHARMACEUTICALS			
325411	Medicinal and Botanical Manufacturing	325413	In-Vitro Diagnostic Substance Manufacturing
325412	Pharmaceutical Preparation Manufacturing	325414	Biological Product (except Diagnostic) Manufacturing
SUPPLIES AND SERVICES			
423450	Medical, Dental, and Hospital Equipment and Supplies Merchant Wholesalers	424210	Drugs and Druggists' Sundries Merchant Wholesalers
423460	Ophthalmic Goods Merchant Wholesalers	813212	Voluntary Health Organizations
423490	Other Professional Equipment and Supplies Merchant Wholesalers		
WELLNESS AND FITNESS			
446110	Pharmacies and Drug Stores	532291	Home Health Equipment Rental
446130	Optical Goods Stores	621399	Offices of All Other Miscellaneous Health Practitioners
446191	Food (Health) Supplement Stores	621999	All Other Miscellaneous Ambulatory Health Care Services
446199	All Other Health and Personal Care Stores	812191	Diet and Weight Reducing Centers

APPENDIX A: CONTINUED

LOGISTICS CLUSTER

CLUSTER COMPONENTS BY NAICS CODE			
AIR, RAIL, WATER TRANSPORTATION			
481111	Scheduled Passenger Air Transportation	483211	Inland Water Freight Transportation
481112	Scheduled Freight Air Transportation	483212	Inland Water Passenger Transportation
481211	Nonscheduled Chartered Passenger Air Transportation	488111	Air Traffic Control
481212	Nonscheduled Chartered Freight Air Transportation	488119	Other Airport Operations
481219	Other Nonscheduled Air Transportation	488190	Other Support Activities for Air Transportation
482	Rail Transportation	488210	Support Activities for Rail Transportation
483111	Deep Sea Freight Transportation	488310	Port and Harbor Operations
483112	Deep Sea Passenger Transportation	488320	Marine Cargo Handling
483113	Coastal and Great Lakes Freight Transportation	488330	Navigational Services to Shipping
483114	Coastal and Great Lakes Passenger Transportation	488390	Other Support Activities for Water Transportation
FREIGHT & WAREHOUSING			
484110	General Freight Trucking, Local	493110	General Warehousing and Storage
484121	General Freight Trucking, Long-Distance, Truckload	493120	Refrigerated Warehousing and Storage
484122	General Freight Trucking, Long-Distance, Less Than Truckload	493130	Farm Product Warehousing and Storage
484210	Used Household and Office Goods Moving	493190	Other Warehousing and Storage
484220	Specialized Freight (except Used Goods) Trucking, Local	541614	Process, Physical Distribution, and Logistics Consulting Services
484230	Specialized Freight (except Used Goods) Trucking, Long-Distance	561910	Packaging and Labeling Services
OTHER SERVICES			
488410	Motor Vehicle Towing	488999	All Other Support Activities for Transportation
488490	Other Support Activities for Road Transportation	492110	Couriers and Express Delivery Services
488510	Freight Transportation Arrangement	492210	Local Messengers and Local Delivery
488991	Packing and Crating		
RELATED MANUFACTURING			
336120	Heavy Duty Truck Manufacturing	336611	Ship Building and Repairing
336510	Railroad Rolling Stock Manufacturing	336612	Boat Building
TRANSIT			
485111	Mixed Mode Transit Systems	485310	Taxi Service
485112	Commuter Rail Systems	485410	School and Employee Bus Transportation
485113	Bus and Other Motor Vehicle Transit Systems	485510	Charter Bus Industry
485119	Other Urban Transit Systems	485991	Special Needs Transportation
485210	Interurban and Rural Bus Transportation	485999	All Other Transit and Ground Passenger Transportation

APPENDIX A: CONTINUED

MANUFACTURING CLUSTER (CROSS-CLUSTER)

CLUSTER COMPONENTS BY NAICS CODE			
HEALTH & WELLNESS MANUFACTURING			
339112	Surgical and Medical Instrument Manufacturing	325411	Medicinal and Botanical Manufacturing
339113	Surgical Appliance and Supplies Manufacturing	325412	Pharmaceutical Preparation Manufacturing
339114	Dental Equipment and Supplies Manufacturing	325413	In-Vitro Diagnostic Substance Manufacturing
339115	Ophthalmic Goods Manufacturing	325414	Biological Product (except Diagnostic) Manufacturing
339116	Dental Laboratories		
FOOD PROCESSING			
311111	Dog and Cat Food Manufacturing	311920	Coffee and Tea Manufacturing
311119	Other Animal Food Manufacturing	311930	Flavoring Syrup and Concentrate Manufacturing
311211	Flour Milling	311941	Mayonnaise, Dressing, and Other Prepared Sauce Manufacturing
311212	Rice Milling	311942	Spice and Extract Manufacturing
311213	Malt Manufacturing	311991	Perishable Prepared Food Manufacturing
311221	Wet Corn Milling	311999	All Other Miscellaneous Food Manufacturing
311222	Soybean Processing	312111	Soft Drink Manufacturing
311223	Other Oilseed Processing	312112	Bottled Water Manufacturing
311225	Fats and Oils Refining and Blending	312113	Ice Manufacturing
311230	Breakfast Cereal Manufacturing	312120	Breweries
311311	Sugarcane Mills	312130	Wineries
311312	Cane Sugar Refining	312140	Distilleries
311313	Beet Sugar Manufacturing	312210	Tobacco Stemming and Redrying
311320	Chocolate and Confectionery Manufacturing from Cacao Beans	312221	Cigarette Manufacturing
311330	Confectionery Manufacturing from Purchased Chocolate	312229	Other Tobacco Product Manufacturing
311340	Nonchocolate Confectionery Manufacturing	313111	Yarn Spinning Mills
311411	Frozen Fruit, Juice, and Vegetable Manufacturing	313112	Yarn Texturizing, Throwing, and Twisting Mills
311412	Frozen Specialty Food Manufacturing	313113	Thread Mills
311421	Fruit and Vegetable Canning	313210	Broadwoven Fabric Mills
311422	Specialty Canning	313221	Narrow Fabric Mills
311423	Dried and Dehydrated Food Manufacturing	313230	Nonwoven Fabric Mills
311511	Fluid Milk Manufacturing	313241	Weft Knit Fabric Mills
311512	Creamery Butter Manufacturing	313249	Other Knit Fabric and Lace Mills
311513	Cheese Manufacturing	316110	Leather and Hide Tanning and Finishing
311514	Dry, Condensed, and Evaporated Dairy Product Manufacturing	321113	Sawmills
311520	Ice Cream and Frozen Dessert Manufacturing	321920	Wood Container and Pallet Manufacturing
311611	Animal (except Poultry) Slaughtering	322211	Corrugated and Solid Fiber Box Manufacturing
311612	Meat Processed from Carcasses	322212	Folding Paperboard Box Manufacturing
311613	Rendering and Meat Byproduct Processing	322213	Setup Paperboard Box Manufacturing
311615	Poultry Processing	322214	Fiber Can, Tube, Drum, and Similar Products Manufacturing

APPENDIX A: CONTINUED

MANUFACTURING CLUSTER (CROSS-CLUSTER) (CONTINUED)

CLUSTER COMPONENTS BY NAICS CODE			
FOOD PROCESSING (CONTINUED)			
311711	Seafood Canning	322215	Nonfolding Sanitary Food Container Manufacturing
311712	Fresh and Frozen Seafood Processing	322291	Sanitary Paper Product Manufacturing
311811	Retail Bakeries	325411	Medicinal and Botanical Manufacturing
311812	Commercial Bakeries	325414	Biological Product (except Diagnostic) Manufacturing
311813	Frozen Cakes, Pies, and Other Pastries Manufacturing	326111	Plastics Bag and Pouch Manufacturing
311821	Cookie and Cracker Manufacturing	326160	Plastics Bottle Manufacturing
311822	Flour Mixes and Dough Manufacturing from Purchased Flour	327213	Glass Container Manufacturing
311823	Dry Pasta Manufacturing	332115	Crown and Closure Manufacturing
311830	Tortilla Manufacturing	332431	Metal Can Manufacturing
311911	Roasted Nuts and Peanut Butter Manufacturing	332439	Other Metal Container Manufacturing
311919	Other Snack Food Manufacturing	339112	Surgical and Medical Instrument Manufacturing
ENERGY RELATED MANUFACTURING			
333132	Oil and Gas Field Machinery and Equipment Manufacturing	311225	Fats and Oils Refining and Blending
333414	Heating Equipment (except Warm Air Furnaces) Manufacturing	311613	Rendering and Meat Byproduct Processing
333611	Turbine and Turbine Generator Set Units Manufacturing	322299	All Other Converted Paper Product Manufacturing
334512	Automatic Environmental Control Manufacturing for Residential, Commercial, and Appliance Use	333298	All Other Industrial Machinery Manufacturing
334515	Instrument Manufacturing for Measuring and Testing Electricity and Electrical Signals	334413	Semiconductor and Related Device Manufacturing
334517	Irradiation Apparatus Manufacturing	334519	Other Measuring and Controlling Device Manufacturing
335110	Electric Lamp Bulb and Part Manufacturing	335312	Motor and Generator Manufacturing
335121	Residential Electric Lighting Fixture Manufacturing	335314	Relay and Industrial Control Manufacturing
335122	Commercial, Industrial, and Institutional Electric Lighting Fixture Manufacturing	335999	All Other Miscellaneous Electrical Equipment and Component Manufacturing
335129	Other Lighting Equipment Manufacturing	311223	Other Oilseed Processing
335311	Power, Distribution, and Specialty Transformer Manufacturing	325193	Ethyl Alcohol Manufacturing
311225	Fats and Oils Refining and Blending	324110	Petroleum Refineries
335311	Power, Distribution, and Specialty Transformer Manufacturing	324199	All Other Petroleum and Coal Products Manufacturing
LOGISTICS MANUFACTURING			
336120	Heavy Duty Truck Manufacturing	336611	Ship Building and Repairing
336510	Railroad Rolling Stock Manufacturing		
WATER TECHNOLOGY MANUFACTURING			
326122	Plastics Pipe and Pipe Fitting Manufacturing	333319	Other Commercial and Service Industry Machinery Manufacturing
333111	Farm Machinery and Equipment Manufacturing	333911	Pump and Pumping Equipment Manufacturing

APPENDIX A: CONTINUED

MANUFACTURING CLUSTER (CROSS-CLUSTER) (CONTINUED)

CLUSTER COMPONENTS BY NAICS CODE			
HEALTH & WELLNESS MANUFACTURING			
339112	Surgical and Medical Instrument Manufacturing	325411	Medicinal and Botanical Manufacturing
339113	Surgical Appliance and Supplies Manufacturing	325412	Pharmaceutical Preparation Manufacturing
339114	Dental Equipment and Supplies Manufacturing	325413	In-Vitro Diagnostic Substance Manufacturing
339115	Ophthalmic Goods Manufacturing	325414	Biological Product (except Diagnostic) Manufacturing
339116	Dental Laboratories		
OTHER			
31-33	All Manufacturing Industries not listed above		

WATER TECHNOLOGY CLUSTER

CLUSTER COMPONENTS BY NAICS CODE			
2007 NAICS U.S. TITLE			
326122	Plastic Pipe and Pipe Fitting Manufacturing	333911	Pump and Pumping Equipment Manufacturing
333111	Farm Machinery and Equipment Manufacturing	423830	Industrial Machinery and Equipment Merchant Wholesalers
333319	Other Commercial and Service Industry Machinery Manufacturing	424910	Farm Supplies Merchant Wholesalers