

Regional Labor Market Assessment

Desert/Inland Empire Region

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Introduction

The Strong Workforce Program (SWP) legislation calls for a “regional planning process” that identifies regional priorities for SWP investments, based on labor market data. The overall purpose of the regional planning process is to inform the investments of “local share” SWP funds by individual community colleges and “regional share” investments by colleges working together.

Organized by occupational clusters, this report provides regional labor market demand data for occupations that are relevant for community college-level education and training programs. The report also provides regional supply data for community colleges and other education and training provider programs, for related occupations.

Given the innate challenges with employment forecasting, the data in this report may not accurately reflect the current regional labor market. Therefore, it is recommended that this report and any specific data within it be used as a starting point for dialogue with stakeholders in the regional planning process, as opposed to an end point that will determine investment decisions.

The next step is to engage with industry, employers and other stakeholders to explore potential issues, identify supporting evidence and develop solutions. Combined, these steps will help generate workforce priorities that are critical to the region’s growth and prosperity.

The intent of this report is to help stimulate discussion between community colleges and their regional partners to identify pressing workforce needs and challenges.

About the Data

The occupations included in this report are those most relevant to community college education and training. Occupations are provided by major occupational group to be more inclusive of employment opportunities for students. Major occupational groups are classified based on work performed and, in some cases, on the skills, education and/or training needed to perform the work at a competent level.¹ It should be noted that an occupation may be employed in any number of industries in a region.

Community college programs were identified for each major occupational group using the Taxonomy of Programs (TOP) coding system and are also included in this report. Other educational institutional programs were identified using the Classification of Instructional Programs (CIP) and then crosswalked to TOP codes. Program and award data represent the potential supply of students to the labor market for the related group of occupations. Please see Appendix A: Methodology, Data Sources, Key Terms and Concepts, and Implications for Analysis for further information.

Which Occupational Clusters Employ the Most Workers?

In the Standard Occupational Classification (SOC) system, individual occupations are organized into 23 “major groups,” which act as umbrellas for occupations that are similar yet require different amounts of education and training. This report focuses on 21 of the 23 major occupational groups. Most major groups include occupations that can be easily matched with community college programs and provide insight into which education and training programs could be most in-demand over time. For this regional assessment, only those major groups that met the individual occupational selection criteria are profiled.

The three community college occupational groups with the most workers in the Inland Empire region are Office and Administrative Support, Installation, Maintenance and Repair, and Sales and Related. The major groups that are expected to have the greatest number of new job openings in the Inland Empire region include: Office and Administrative Support Occupations, Healthcare Practitioners and Technical Occupations, and Healthcare Support Occupations (Exhibit 1).

Exhibit 2 displays the entry hourly earnings and median hourly earnings across the 21 major occupational groups.

Occupational groups with the most workers in 2015:

1. Office and Administrative Support
2. Installation, Maintenance and Repair
3. Sales and Related
4. Healthcare Practitioners and Technical
5. Construction and Extraction

Occupational groups with highest median wages jobs and most job openings over five years:

1. Healthcare Practitioners and Technical
2. Protective Services
3. Transportation and Material Moving
4. Installation, Maintenance and Repair
5. Office and Administrative Support

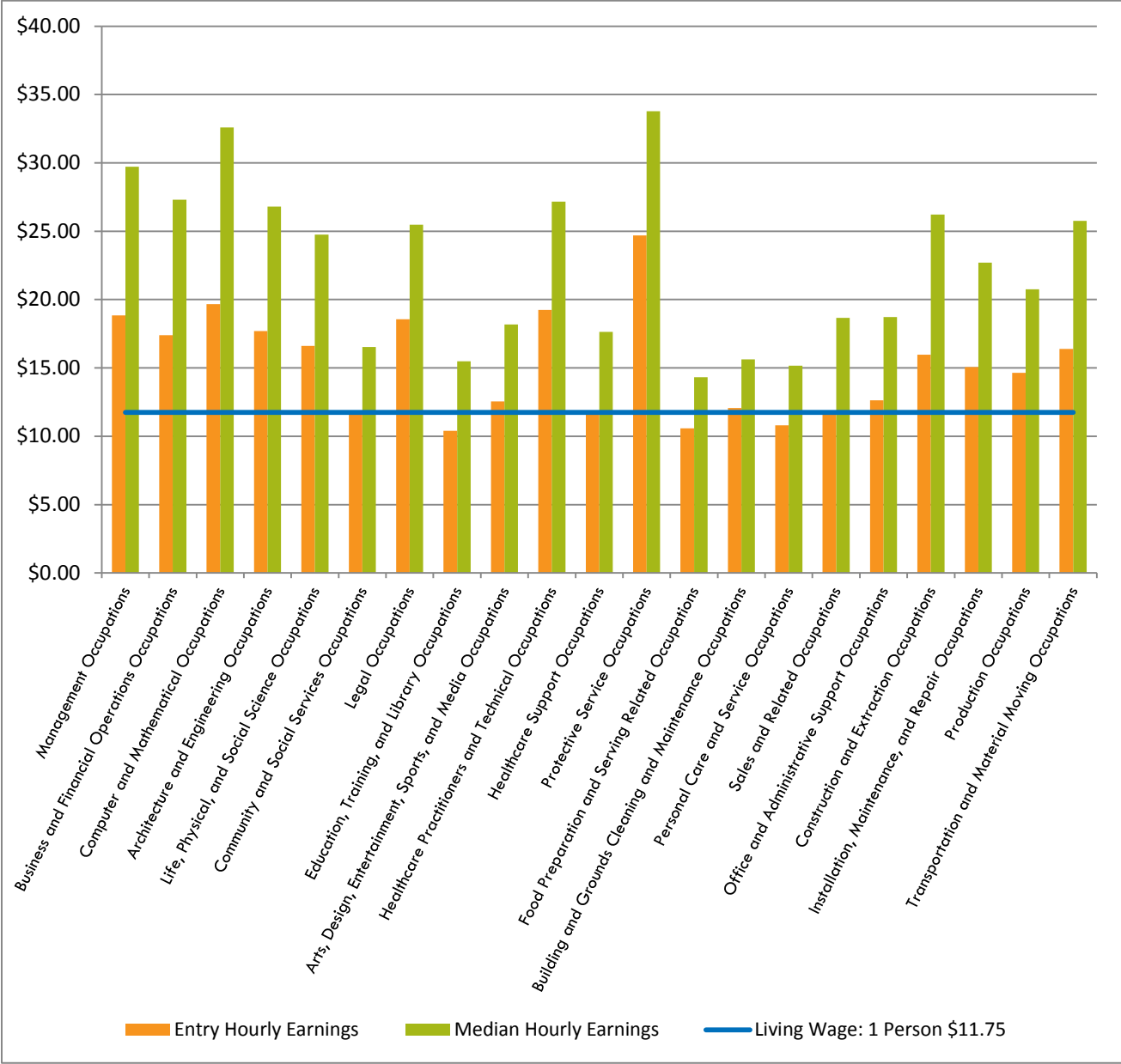
¹ Source: Bureau of Labor Statistics, Classification Principles and Coding Guidelines, 2010 SOC. http://www.bls.gov/soc/soc_2010_class_prin_cod_guide.pdf.

**Exhibit 1: Five-year Projected Growth for Selected Occupations
by Major Group (2015-2020)**

Major Occupational Groups 2-digit code and title	2015 Jobs	5-Yr Change	5-Yr % Change	Annual Replacements	Annual Job Openings	Median Wages
11 - Management Occupations	19,653	469	2%	450	664	\$29.72
13 - Business & Financial Operations Occupations	15,762	1,021	6%	451	657	\$27.30
15 - Computer & Mathematical Occupations	8,725	846	10%	128	297	\$32.59
17 - Architecture & Engineering Occupations	4,648	9	0.2%	93	102	\$26.80
19 - Life, Physical & Social Science Occupations	2,102	109	5%	88	109	\$24.74
21 - Community & Social Services Occupations	3,750	749	20%	83	233	\$16.53
23 - Legal Occupations	3,757	210	6%	88	130	\$25.48
25 - Education, Training & Library Occupations	19,392	1,422	7%	543	827	\$15.48
27 - Arts, Design, Entertainment, Sports & Media Occupations	9,113	435	5%	263	351	\$18.18
29 - Healthcare Practitioners & Technical Occupations	53,654	7,976	15%	1,275	2,870	\$27.16
31 - Healthcare Support Occupations	34,564	6,916	20%	859	2,242	\$17.64
33 - Protective Service Occupations	17,189	1,080	6%	534	748	\$33.77
35 - Food Preparation & Serving Related Occupations	11,598	1,790	15%	349	708	\$14.32
37 - Building and Grounds Cleaning & Maintenance Occupations	2,449	102	4%	48	68	\$15.62
39 - Personal Care & Service Occupations	36,563	1,899	5%	1,089	1,474	\$15.16
41 - Sales & Related Occupations	57,948	3,472	6%	1,339	2,148	\$18.67
43 - Office & Administrative Support Occupations	113,495	8,289	7%	2,021	3,733	\$18.72
47 - Construction & Extraction Occupations	44,154	1,890	4%	932	1,357	\$26.23
49 - Installation, Maintenance & Repair Occupations	58,288	4,798	8%	1,470	2,440	\$22.71
51 - Production Occupations	23,000	294	1%	653	811	\$20.75
53 - Transportation & Material Moving Occupations	42,982	4,666	11%	872	1,820	\$25.77
Grand Total	582,787	48,441	8%	13,628	23,788	\$22.56

Source: EMSI

Exhibit 2: Comparison of Entry-Level & Median Wages with Living Wages by Occupational Group



Source: EMSI, MIT Living Wage Calculator: livingwage.mit.edu

Architecture & Engineering Occupations

Labor Market Demand

Exhibit 3 displays the labor market demand for occupations in the architecture and engineering major occupational group, including 2015 employment estimates, five-year projected growth, as well as demand for replacement workers. Replacement estimates include retirements and general separations, but not turnover within the occupation. As such, replacements and new job growth combined is a good measure of demand for workers.²

The occupation of electrical and electronics engineer technicians is projected to have 26 openings each year during the five-year projection period. Almost all the annual openings in this occupation are due to annual replacement needs.

Exhibit 3: Five-Year Projected Occupation Data for Architecture & Engineering Occupations

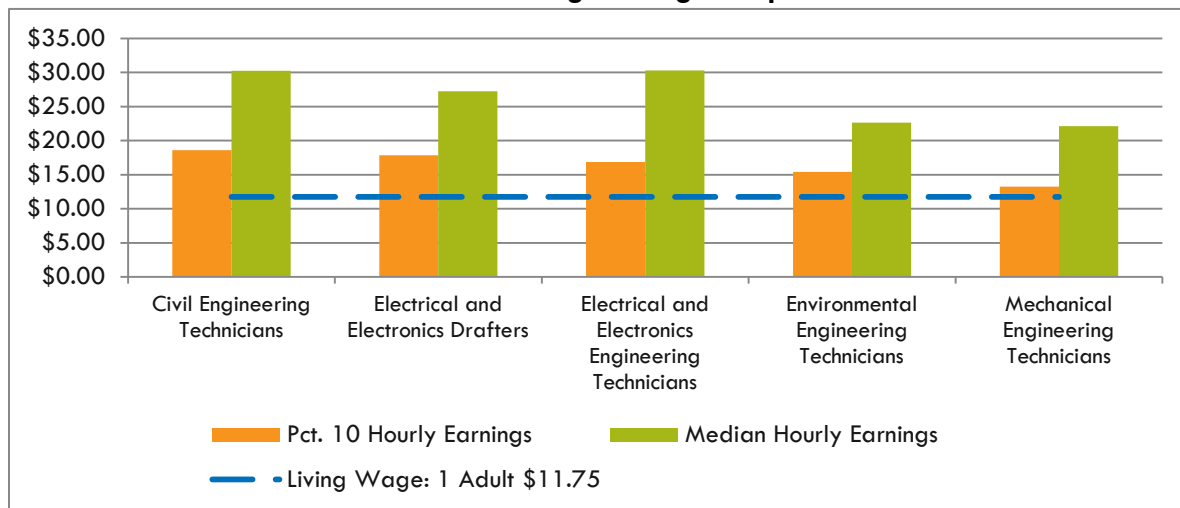
SOC	Architecture and Engineering Occupations	2015 Jobs	5-Yr Change	5-Yr % Change	Annual Replacements	Annual Openings
17-3023	Electrical and Electronics Engineering Technicians	991	4	0%	25	26
17-3022	Civil Engineering Technicians	335	9	3%	8	10
17-3025	Environmental Engineering Technicians	154	12	8%	4	6
17-3012	Electrical and Electronics Drafters	278	3	1%	4	5
17-3027	Mechanical Engineering Technicians	171	2	1%	4	5

Source: EMSI

Wages

In the Inland Empire, the living wage for one adult is \$11.75 per hour. Exhibit 4 compares the entry-level (10th percentile) and median wages (50th percentile) of architecture and engineering occupations to the region's living wages. As shown, the entry-level wage for all of the occupations meets or exceeds the living wage for one adult.

Exhibit 4: Comparison of Entry-Level & Median Wages with Living Wages for Architecture & Engineering Occupations



² Demand data provided by Economic Modeling Specialists, Intl. (EMSI), 2016.2 – QCEW Employees, Non-QCEW Employees, and Self-Employed.

Typical Education

Architecture and engineering occupations that met the requirements for inclusion in this report are presented in Exhibit 5, along with their typical entry-level educational requirement, typical on-the-job training requirement and percentage of workers in the field who hold a community college award or have completed some postsecondary courses, but no award. Nearly all the selected occupations in this group require an associate degree to enter these occupations.

Exhibit 5: Education and Training Requirements for Architecture and Engineering Occupations

SOC	Architecture and Engineering Occupations	Typical Entry-Level Education ³	Typical On-the-Job Training	% of Community College Award Holders or Some Postsecondary Coursework ⁴
17-3012	Electrical and Electronics Drafters	Associate degree	None	62%
17-3022	Civil Engineering Technicians	Associate degree	None	55%
17-3023	Electrical and Electronics Engineering Technicians	Associate degree	None	55%
17-3025	Environmental Engineering Technicians	Associate degree	None	55%
17-3027	Mechanical Engineering Technicians	Associate degree	None	55%

Source: Bureau of Labor Statistics, Current Population Survey

Education Supply and Capacity

The following are community college and other postsecondary programs that were identified as training students to meet workforce needs in architecture and engineering (See Appendix A for selection methodology).

In the Inland Empire, nine community colleges and seven private educational institutions offer training programs that support the architecture and engineering occupational group. Exhibit 6 displays the annual average number of awards (certificates and associate degrees) conferred by local community colleges and private educational institutions. In addition, this exhibit displays the annual average student community college headcount by program area.

Skills Builders Taking Architecture & Engineering Courses

Skills builders are students who take at least 1.5 units, don't obtain a community college award or transfer.

300 students reported wage gains

15% (\$10,521) median wage gains two years of exiting community college system.

Appendix B provides detailed data for skills builders by program area

³ Data source for typical entry-level education and typical on-the-job training is the Bureau of Labor Statistics.

⁴ Data source for educational attainment is the Current Population Survey, U.S. Census Bureau.

Exhibit 6: Average Annual Awards and Headcount for Architecture and Engineering Occupations

TOP06	TOP06 Title	2012-2015 Average						Skills Builders Median Wage Gain %
		CC Headcount	CC Associate Degrees	Certificates or Other Credit Awards	Non-credit Awards	Total CC Awards	Total Non-CC Awards	
020100	Architecture and Architectural Technology	574	15	17	0	31	-	337.6%
030300	Environmental Technology	972	0	0	0	0	-	8.8%
092400	Engineering Technology, General	488	10	5	0	15	-	22.9%
093400	Electronics and Electric Technology	525	9	19	0	29	113	(2.1%)
093410	Computer Electronics	221	11	5	0	16	28	-
093420	Industrial Electronics	167	-	-	-	-	-	-
093430	Telecommunications Technology	56	0	1	0	1	-	-
093440	Electrical Systems and Power Transmission	195	8	53	0	61	43	49.2%
093480	Laser and Optical Technology	16	-	-	-	-	-	-
093500	Electro-Mechanical Technology	72	-	-	-	-	-	-
094300	Instrumentation Technology	17	0	0	0	1	-	-
094500	Industrial Systems Technology and Maintenance	14	-	-	-	-	-	-
095220	Electrical	92	-	-	-	-	83	-
095300	Drafting Technology	1,014	22	39	0	61	50	45.5%
095310	Architectural Drafting	40	0	0	0	0	5	-
095330	Electrical, Electronic and Electro-Mechanical Drafting	15	-	-	-	-	-	-
095340	Mechanical Drafting	53	1	0	0	2	-	-
095600	Manufacturing and Industrial Technology	113	2	5	0	6	-	-
095730	Surveying	3	-	-	-	-	-	-
099900	Other Engineering and Related Industrial Technologies	0	0	1	0	1	-	-
220610	Geographic Information Systems	74	2	11	0	12	-	-
	Total	4,719	81	156	0	237	320	15.0%

Source: MIS, Data Mart

Arts, Design, Entertainment, Sports & Media Major Occupations

Labor Market Demand

Exhibit 7 displays the labor market demand for occupations in the arts, design, entertainment, sports and media major group, including employment estimates, five-year projected growth, as well as demand for replacement workers. Replacement estimates include retirements and general separations, but not turnover within the occupation. As such, replacements and new job growth combined is a good measure of demand for workers.⁵

Graphic designers are projected to have the most annual openings over the five-year projection period. Fashion designers will be the fastest growing occupation in the group, expanding by 24% and adding 44 new jobs by 2020. Interpreters and translators jobs will have 129 new job openings by 2020, or 40 job openings per year.

Exhibit 7: Five-Year Projected Occupation Data for Arts, Design, Entertainment, Sports and Media Occupations

SOC	Arts, Design, Entertainment, Sports & Media Occupations	2015 Jobs	5-Yr Change	5-Yr % Change	Annual Replacements	Annual Openings
27-1024	Graphic Designers	2,180	74	3%	54	69
27-4021	Photographers	1,311	53	4%	41	51
27-3091	Interpreters and Translators	797	129	16%	14	40
27-2011	Actors	760	5	1%	35	36
27-4011	Audio and Video Equipment Technicians	743	50	7%	15	25
27-1023	Floral Designers	490	3	1%	20	21
27-2012	Producers and Directors	411	14	3%	16	19
27-1022	Fashion Designers	183	44	24%	5	14
27-1021	Commercial and Industrial Designers	424	12	3%	11	13
27-3012	Public Address System and Other Announcers	222	8	4%	7	8

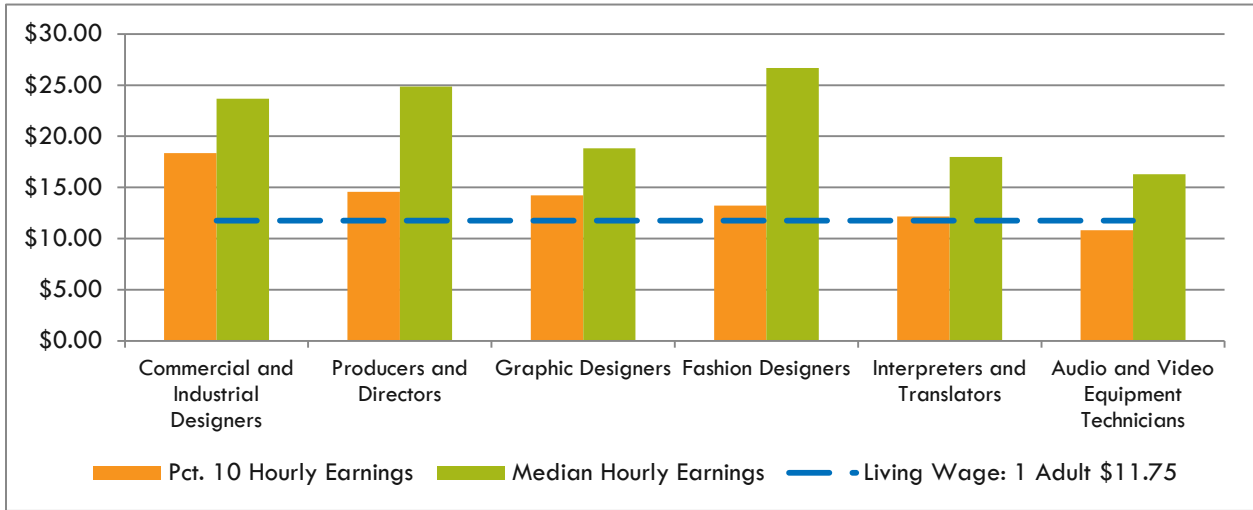
Wages

In the Inland Empire, the living wage for one adult is \$11.75 per hour.⁶ Exhibit 8 compares the entry-level and Median wages of arts, design, entertainment, sports and media occupations to the region's living wages. The entry-level wage for commercial and industrial designers is \$18.35, well above the living wage for the region.

⁵ Demand data provided by Economic Modeling Specialists, Intl. (EMSI), 2016.2 – QCEW Employees, Non-QCEW Employees, and Self-Employed.

⁶ MIT Living Wage Calculator: livingwage.mit.edu.

Exhibit 8: Comparison of Entry-Level & Median Wages with Living Wages for Arts, Design, Entertainment, Sports and Media Occupations



Typical Education

Arts, design, entertainment, sports and media occupations that met the requirement for inclusion in this report are presented in Exhibit 9 along with their typical entry-level educational requirement, typical on-the-job training requirement and percentage of workers in the field who hold a community college award or have completed some postsecondary courses, but no award. There are five occupations in this group that typically require a bachelor’s degree. Of those, at least 20% of current workers have a community college award or postsecondary coursework.

Exhibit 9: Education and Training Requirements, Arts, Design, Entertainment, Sports & Media Occupations

SOC	Arts, Design, Entertainment, Sports & Media Occupations	Typical Entry Level Education	Typical On-The-Job Training	% of Community College Award Holders or Some Postsecondary Coursework
27-1021	Commercial and Industrial Designers	Bachelor's degree	None	30%
27-1022	Fashion Designers	Bachelor's degree	None	30%
27-1023	Floral Designers	HS Diploma / equivalent	Moderate-term on-the-job training	30%
27-1024	Graphic Designers	Bachelor's degree	None	30%
27-2011	Actors	Some college, no degree	Long-term on-the-job training	22%
27-2012	Producers and Directors	Bachelor's degree	None	20%
27-3012	Public Address System and Other Announcers	HS Diploma / equivalent	Short-term on-the-job training	42%
27-3091	Interpreters and Translators	Bachelor's degree	Short-term on-the-job training	36%
27-4011	Audio and Video Equipment Technicians	Postsecondary Certificate	Short-term on-the-job training	45%
27-4021	Photographers	HS Diploma / equivalent	Long-term on-the-job training	33%

Education Supply and Capacity

For the occupations in the arts, design, entertainment, sports and media group, the following are community college and other postsecondary programs that were identified as training students to meet workforce needs. (See Appendix A for selection methodology.)

In the Inland Empire, 12 community college and five private educational institutions offer training programs that support this occupational group. Exhibit 10 displays the annual average number of awards (certificates and associate degrees) conferred by local community colleges and private educational institutions. In addition, this exhibit displays the annual average student community college headcount by program area.

Skills Builders Taking Arts, Design, Entertainment, Sports and Media Courses

Skills builders are students who take at least 1.5 units, don't obtain a community college award or transfer.

203 students with wage gains

21% (**\$2,415**) median wage gains two years of exiting community college system.

Appendix B provides detailed data for skills builders by program area.

Exhibit 10: Average Annual Awards and Headcount for Arts, Design, Entertainment, Sports & Media

TOP06	TOP06 Title	2012-2015 Average						Skills Builders Median Wage Gain %
		CC Headcount	CC Associate Degrees	Certificates or Other Credit Awards	Non-credit Awards	Total CC Awards	Total Non-CC Awards	
010920	Floriculture/Floristry	36	-	-	-	-	-	-
060400	Radio and Television	626	16	2	0	18	-	7.8%
060410	Radio	42	0	1	0	1	-	-
060420	Television (including combined TV/Film/Video)	724	3	8	0	11	-	134.2%
061220	Film Production	55	0	0	0	0	-	-
061400	Digital Media	399	7	5	0	12	-	-
061410	Multimedia	583	21	19	0	40	-	(7.4%)
061420	Electronic Game Design	625	2	4	0	6	-	51.5%
061440	Animation	334	0	6	0	6	-	-
061460	Computer Graphics and Digital Imagery	657	9	9	0	17	-	83.0%
085010	Sign Language Interpreting	220	6	12	0	17	-	-
100500	Commercial Music	735	19	18	0	37	15	45.8%
100600	Technical Theater	429	1	2	0	4	-	-
101100	Photography	1,193	-	-	-	-	-	-
101200	Applied Photography	951	13	13	0	27	3	(0.4%)
101300	Commercial Art	225	1	1	0	2	-	-
103000	Graphic Art and Design	757	8	31	0	39	63	(0.2%)
130300	Fashion	82	-	-	-	-	-	-
130310	Fashion Design	156	2	2	0	4	-	-
214000	Legal and Community Interpretation	105	8	17	0	24	-	-
	Total	8,936	116	150	0	266	81	21.3%

Building & Grounds Cleaning & Maintenance Occupations

Labor Market Demand

Exhibit 11 displays the labor market demand for the occupation of first-line supervisors of landscaping, lawn service and groundskeeping workers, which falls within the building and grounds-cleaning and maintenance group. The following table includes the occupation’s employment estimate, five-year projected growth and demand for replacement workers. Replacement estimates include retirements and general separations, but not turnover within the occupation. As such, replacements and new job growth combined is a good measure of demand for workers.⁷

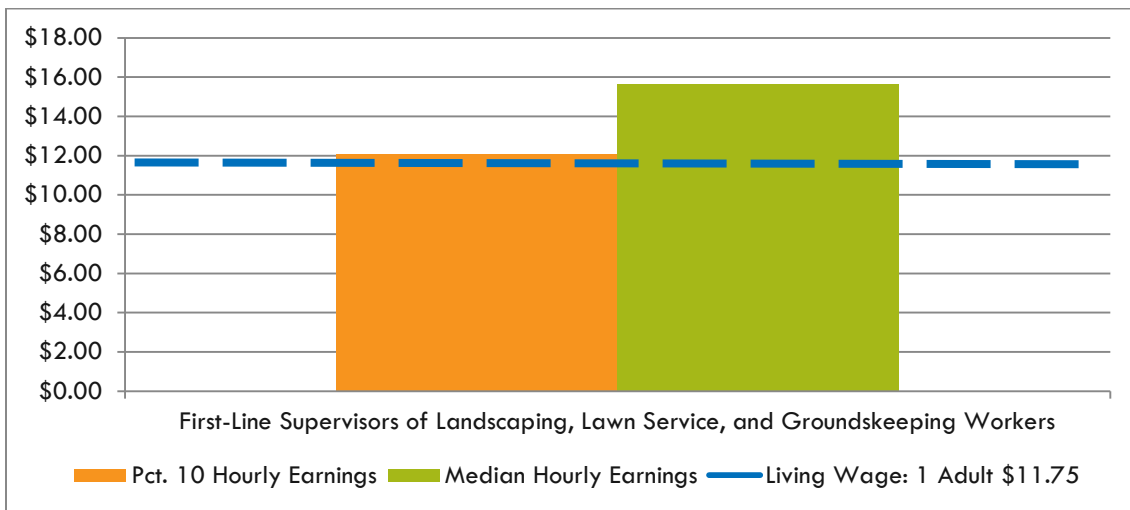
Exhibit 11: Five-Year Projected Occupation Data for Building & Grounds Cleaning & Maintenance Occupations

SOC	Building and Grounds Cleaning and Maintenance Occupations	2015 Jobs	5-Yr Change	5-Yr % Change	Annual Replacements	Annual Openings
37-1012	First-Line Supervisors of Landscaping, Lawn Service and Groundskeeping Workers	2,449	102	4%	48	68

Wages

In the Inland Empire, the living wage for one adult is \$11.75 per hour.⁸ Exhibit 12 compares the entry-level and median wages of first-line supervisors of landscaping, lawn service and groundskeeping workers to the region’s living wages. As shown, the entry-level wage for this occupation is just above the living wage for one adult in the Desert/Inland Empire Region.

Exhibit 12: Comparison of Entry & Experience Wages with Living Wages for Building & Grounds Cleaning & Maintenance



⁷ Demand data provided by Economic Modeling Specialists, Intl. (EMSI), 2016.2 – QCEW Employees, Non-QCEW Employees, and Self-Employed.

⁸ MIT Living Wage Calculator: livingwage.mit.edu .

Typical Education

Only one occupation related to building and grounds cleaning and maintenance met the requirement for inclusion in this report. Educational requirements are presented in Exhibit 13 along with typical on-the-job training requirements and percentage of workers in the field who hold a community college award or have completed some postsecondary courses, but no award. The typical entry-level education for first-line supervisors of landscaping, lawn service and groundskeeping workers is a high school diploma, but at least 33% of workers in this occupation have a degree or some postsecondary coursework that can be earned at a California Community College.

Exhibit 13: Education and Training Requirements for Building & Grounds Cleaning & Maintenance Occupations

SOC	Building and Grounds Cleaning and Maintenance Occupation	Typical Entry Level Education	Typical On-The-Job Training	% of Community College Award Holders or Some Postsecondary Coursework
37-1012	First-Line Supervisors of Landscaping, Lawn Service and Groundskeeping Workers	HS Diploma/equivalent	None	33%

Education Supply and Capacity

For the occupations in building and grounds cleaning and maintenance, the following are community college and other postsecondary programs that were identified as training students to meet workforce needs. (See Appendix A for selection methodology.)

In the Inland Empire, three community colleges offer training programs that support the building and grounds cleaning and maintenance occupational group. Exhibit 14 displays the annual average number of awards (certificates and associate degrees) conferred by local community colleges and private educational institutions. There are no skills builder data associated with the supply data set below.

Exhibit 14: Average Annual Awards and Headcount for Building & Grounds Cleaning & Maintenance Occupations

TOP06	TOP06 Title	2012-2015 Average						Skills Builders Median Wage Gain %
		CC Headcount	CC Associate Degrees	Certificates or Other Credit Awards	Noncredit Awards	Total CC Awards	Total Non-CC Awards	
010900	Horticulture	266	11	27	0	38	-	-
010910	Landscape Design and Maintenance	67	-	-	-	-	-	-
010930	Nursery Technology	0	0	4	0	4	-	-
010940	Turfgrass Technology	62	8	15	0	23	-	-
	Total	396	19	46	0	64	-	-

Business & Financial Operations Occupations

Labor Market Demand

Exhibit 15 displays the labor market demand for occupations in the business and financial operations group, including employment estimates, five-year projected growth, as well as demand for replacement workers. Replacement estimates include retirements and general separations, but not turnover within the occupation. As such, replacements and new job growth combined is a good measure of demand for workers.⁹

Cost estimators is the largest occupation with the most projected annual job openings. The occupation of training and development specialists is projected to add 181 new jobs during the five-year projection period.

Exhibit 15: Five-Year Projected Occupation Data for Business & Financial Operations Occupations

SOC	Business and Financial Operations Occupations	2015 Jobs	5-Yr Change	5-Yr % Change	Annual Replacements	Annual Openings
13-1051	Cost Estimators	2,597	144	6%	93	121
13-1023	Purchasing Agents, Except Wholesale, Retail and Farm Products	2,087	105	5%	60	81
13-1031	Claims Adjusters, Examiners and Investigators	2,212	58	3%	66	78
13-1151	Training and Development Specialists	1,583	181	11%	41	78
13-1022	Wholesale and Retail Buyers, Except Farm Products	1,158	144	12%	42	71
13-2072	Loan Officers	2,012	72	4%	45	59
13-2082	Tax Preparers	1,077	120	11%	29	53
13-1081	Logisticians	917	101	11%	14	34
13-1141	Compensation, Benefits and Job Analysis Specialists	509	37	7%	13	21
13-2071	Credit Counselors	441	54	12%	8	19

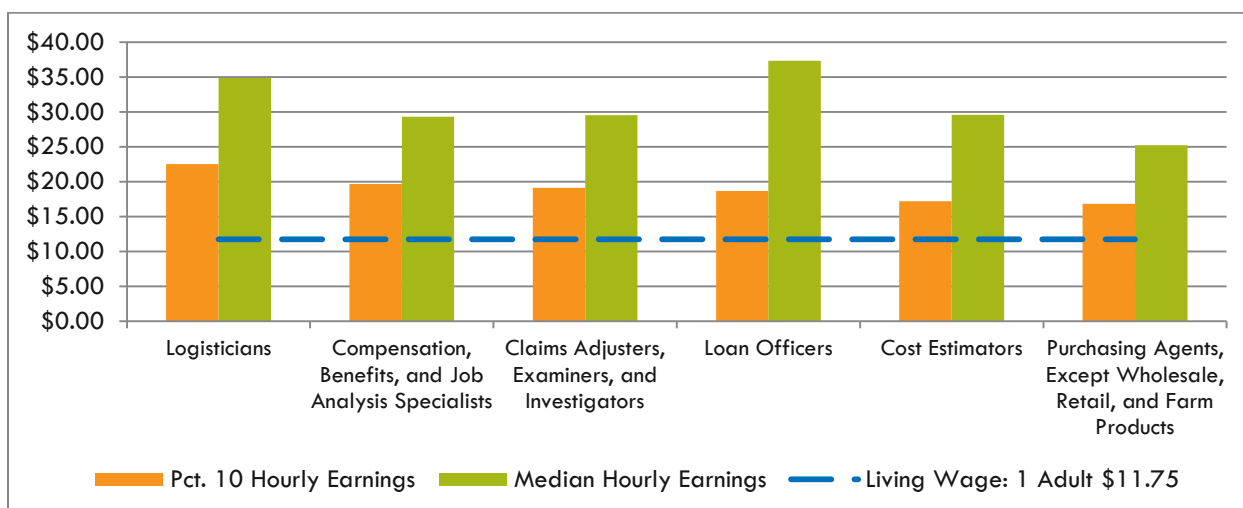
Wages

In the Inland Empire, the living wage for one adult is \$11.75 per hour.¹⁰ Exhibit 16 compares the entry-level and median wages of business and financial operations occupations to the region's living wages. As shown, the entry-level wage for all six of the business and financial operations occupations meet or exceed the living wage for one adult. The entry-level wage for logisticians is almost twice the living wage for the region.

⁹ Demand data provided by Economic Modeling Specialists, Intl. (EMSI), 2016.2 – QCEW Employees, Non-QCEW Employees, and Self-Employed.

¹⁰ MIT Living Wage Calculator: livingwage.mit.edu.

Exhibit 16: Comparison of Entry-Level & Median Wages with Living Wages for Business & Financial Operations



Typical Education

Business and financial operations occupations that met the requirement for inclusion in this report are presented in Exhibit 17 along with their typical entry-level educational requirement, typical on-the-job training requirement and percentage of workers in the field who hold a community college award or have completed some postsecondary courses, but no award. For the eight occupations in this group that typically require a bachelor’s degree, at least 34% of current workers have a community college award or postsecondary coursework.

Exhibit 17: Education and Training Requirements for Business and Financial Operations Occupations

SOC	Business and Financial Operations Occupations	Typical Entry Level Education	Typical On-The-Job Training	% of Community College Award Holders or Some Postsecondary Coursework
13-1022	Wholesale and Retail Buyers, Except Farm Products	Bachelor's degree	Long-term on-the-job training	37%
13-1023	Purchasing Agents, Except Wholesale, Retail and Farm Products	Bachelor's degree	Long-term on-the-job training	37%
13-1031	Claims Adjusters, Examiners and Investigators	HS Diploma / equivalent	Long-term on-the-job training	35%
13-1051	Cost Estimators	Bachelor's degree	None	41%
13-1081	Logisticians	Bachelor's degree	None	39%
13-1141	Compensation, Benefits and Job Analysis Specialists	Bachelor's degree	None	33%
13-1151	Training and Development Specialists	Bachelor's degree	None	34%
13-2071	Credit Counselors	Bachelor's degree	Moderate-term on-the-job training	34%
13-2072	Loan Officers	Bachelor's degree	Moderate-term on-the-job training	34%
13-2082	Tax Preparers	HS Diploma / equivalent	Moderate-term on-the-job training	34%

Education Supply and Capacity

For the occupations in business and financial operations, the following are community college and other postsecondary programs that were identified as training students to meet workforce needs. (See Appendix A for selection methodology.)

In the Inland Empire, 12 community colleges and 12 private educational institutions offer training programs that support the business and financial operations occupation group. Exhibit 18 displays the annual average number of awards (certificates and associate degrees) conferred by local community colleges and private educational institutions.

Skills Builders Taking Business & Financial Operations Courses

Skills builders are students who take at least 1.5 units, don't obtain a community college award or transfer.

755 students with wage gains

24% (**\$4,813**) annual wage gains achieved

Appendix B provides detailed data for skills builders by program area.

Exhibit 18: Average Annual Awards and Headcount for Business & Financial Operations

TOP06	TOP06 Title	2012-2015 Average						Skills Builders Median Wage Gain %
		CC Headcount	CC Associate Degrees	Certificates or Other Credit Awards	Noncredit Awards	Total CC Awards	Total Non-CC Awards	
050100	Business and Commerce, General	5,846	143	26	0	168	46	28.3%
050200	Accounting	7,534	106	108	0	213	36	22.2%
050210	Tax Studies	339	0	2	0	2	-	28.8%
050400	Banking and Finance	213	1	0	0	1	15	-
050500	Business Administration	3,336	398	14	0	412	48	23.6%
050800	International Business and Trade	352	0	9	0	9	-	-
050900	Marketing and Distribution	1,186	8	9	0	17	1	18.3%
050920	Purchasing	11	-	-	-	-	-	-
051000	Logistics and Materials Transportation	379	12	16	0	28	29	7.0%
051100	Real Estate	1,259	11	41	0	52	-	11.3%
051110	Escrow	0	4	0	0	4	-	-
095200	Construction Crafts Technology	492	4	7	0	11	-	180.9%
	Total	20,950	686	232	0	918	176	23.5%

Community & Social Services Occupations

Labor Market Demand

Exhibit 19 displays the labor market demand for occupations in the community and social services group, including employment estimates, five-year projected growth, as well as demand for replacement workers. Replacement estimates include retirements and general separations, but not turnover within the occupation. As such, replacements and new job growth combined is a good measure of demand for workers.¹¹

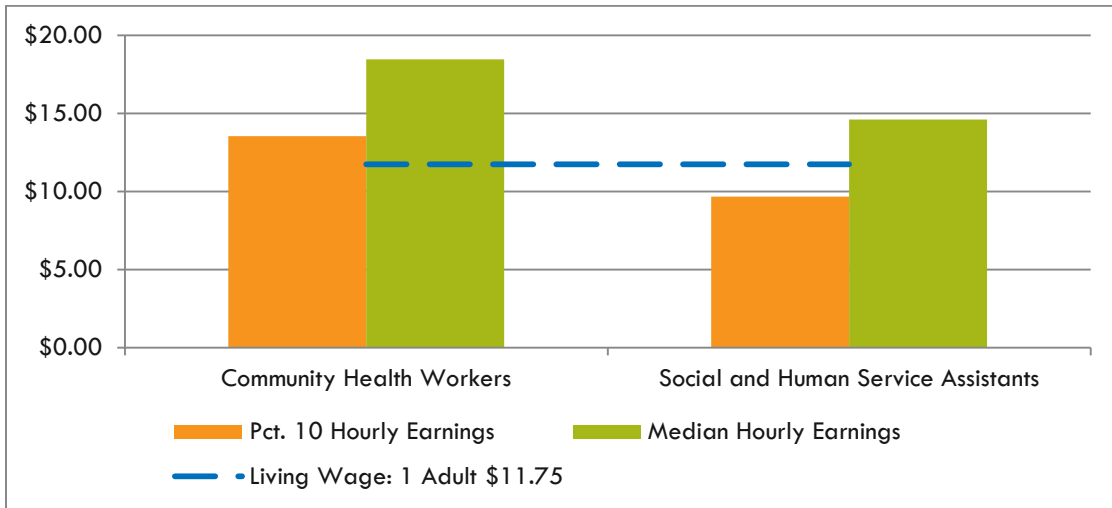
Exhibit 19: Five-Year Projected Occupation Data for Community and Social Services Occupations

SOC	Community and Social Services Occupations	2015 Jobs	5-Yr Change	5-Yr % Change	Annual Replacements	Annual Openings
21-1093	Social and Human Service Assistants	3,310	661	20%	74	206
21-1094	Community Health Workers	440	88	20%	10	27

Wages

In the Inland Empire, the living wage for one adult is \$11.75 per hour.¹² Exhibit 20 compares the entry-level and median wages of community and social services occupations to the region's living wages. As shown, the median wage of community health workers meets or exceeds the living wage for one adult in the region.

Exhibit 20: Comparison of Entry & Experience Wages with Living Wages for Community and Social Services



¹¹ Demand data provided by Economic Modeling Specialists, Intl. (EMSI), 2016.2 – QCEW Employees, Non-QCEW Employees, and Self-Employed.

¹² MIT Living Wage Calculator: livingwage.mit.edu.

Typical Education

Community and social services occupations that met the requirement for inclusion in this report are presented in Exhibit 21 along with their typical entry-level educational requirement, typical on-the-job training requirement, and percentage of workers in the field who hold a community college award or have completed some postsecondary courses, but no award. Although both occupations in this group typically require a high school diploma or equivalent, at least 31% of current workers have a community college award or completed postsecondary coursework.

Exhibit 21: Education and Training Requirements for Community and Social Services Occupations

SOC	Community and Social Services Occupations	Typical Entry Level Education	Typical On-The-Job Training	% of Community College Award Holders or Some Postsecondary Coursework
21-1093	Social and Human Service Assistants	HS Diploma / equivalent	Short-term on-the-job training	40%
21-1094	Community Health Workers	HS Diploma / equivalent	Short-term on-the-job training	31%

Education Supply and Capacity

For the occupations in community and social services, the following are community college and other postsecondary programs that were identified as training students to meet workforce needs. (See Appendix A for selection methodology.)

In the Inland Empire, 10 community college and two private educational institutions offer training programs that support the community and social services occupational group. Exhibit 22 displays the annual average number of awards (certificates and associate degrees) conferred by local community colleges and private educational institutions. In addition, this exhibit displays the annual average student community college headcount by program area.

Skills Builders Taking Community & Social Services Courses

Skills builders are students who take at least 1.5 units, don't obtain a community college award or transfer.

80 students with wage gains

78% (\$9,862) annual wage gains achieved

Appendix B provides detailed data for skills builders by program area.

Exhibit 22: Average Annual Awards and Headcount for Community & Social Services Occupations

TOP06	TOP06 Title	2012-2015 Average						Skills Builders Median Wage Gain %
		CC Headcount	CC Associate Degrees	Certificates or Other Credit Awards	Non-credit Awards	Total CC Awards	Total Non-CC Awards	
130100	Family and Consumer Sciences, General	444	0	0	0	0	-	-
130560	Parenting and Family Education	442	0	1	0	1	-	-
130900	Gerontology	419	6	8	0	14	-	63.3%
210400	Human Services	979	40	33	0	73	-	70.7%
210440	Alcohol and Controlled Substances	1,196	11	115	0	126	54	84.9%
210450	Disability Services	4	-	-	-	-	-	-
	Total	3,484	57	157	0	215	54	77.5%

Computer & Mathematical Occupations

Labor Market Demand

Exhibit 23 displays the labor market demand for occupations in the computer and mathematical group, including employment estimates, five-year projected growth, as well as demand for replacement workers. Replacement estimates include retirements and general separations, but not turnover within the occupation. As such, replacements and new job growth combined is a good measure of demand for workers.¹³

Computer user support specialists is the largest occupation with the most projected job openings, followed by network and computer systems administrators and web developers.

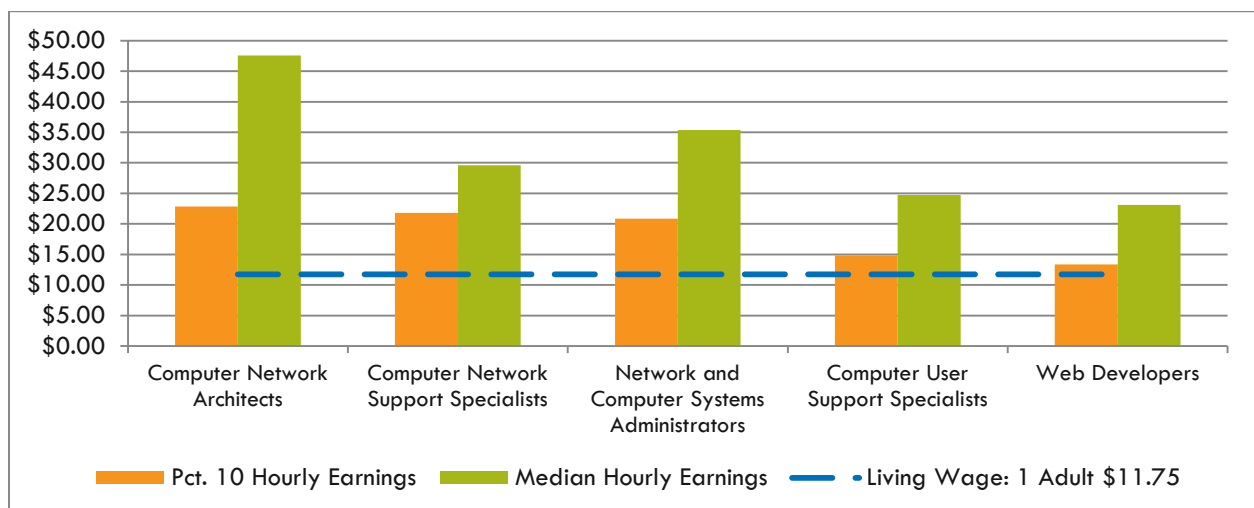
Exhibit 23: Five-Year Projected Occupation Data for Computer & Mathematical Occupations

SOC	Computer and Mathematical Occupations	2015 Jobs	5-Yr Change	5-Yr % Change	Annual Replacements	Annual Openings
15-1151	Computer User Support Specialists	3,472	371	11%	48	122
15-1142	Network and Computer Systems Administrators	1,992	160	8%	29	61
15-1134	Web Developers	993	149	15%	14	44
15-1152	Computer Network Support Specialists	966	95	10%	13	32
15-1143	Computer Network Architects	303	23	8%	8	12

Wages

In the Inland Empire, the living wage for one adult is \$11.75 per hour.¹⁴ Exhibit 24 compares the entry-level and median wages of computer and mathematical occupations to the region's living wages. As shown, the entry-level wage for all five of the computer and mathematical occupations meets or exceeds the living wage for one adult.

Exhibit 24: Comparison of Entry & Experience Wages with Living Wages for Computer & Mathematical Occupations



¹³ Demand data provided by Economic Modeling Specialists, Intl. (EMSI), 2016.2 – QCEW Employees, Non-QCEW Employees, and Self-Employed.

¹⁴ MIT Living Wage Calculator: livingwage.mit.edu.

Typical Education

Computer and mathematical occupations that met the requirement for inclusion in this report are presented in Exhibit 25 along with their typical entry-level educational requirement, typical on-the-job training requirement and percentage of workers in the field who hold a community college award or have completed some postsecondary courses, but no award. For the two occupations in this group that typically require a bachelor's degree, at least 37% of current workers have a community college award or postsecondary coursework.

Exhibit 25: Education and Training Requirements for Computer and Mathematical Occupations

SOC	Computer and Mathematical Occupations	Typical Entry-Level Education	Typical On-The-Job Training	% of Community College Award Holders or Some Postsecondary Coursework
15-1134	Web Developers	Associate degree	None	27%
15-1142	Network and Computer Systems Administrators	Bachelor's degree	None	40%
15-1143	Computer Network Architects	Bachelor's degree	None	37%
15-1151	Computer User Support Specialists	Some college, no degree	None	45%
15-1152	Computer Network Support Specialists	Associate degree	None	45%

Education Supply and Capacity

For computer and mathematical occupations, the following are community college and other postsecondary programs that were identified as training students to meet workforce needs. (See Appendix A for selection methodology.)

In the Inland Empire, 12 community college and nine private educational institutions offer training programs that support the computer and mathematical occupational group. Exhibit 26 displays the annual average number of awards (certificates and associate degrees) conferred by local community colleges and private educational institutions. In addition, this exhibit displays the annual average student community college headcount by program area.

Skills Builders Taking Computer & Mathematical Courses

Skills builders are students who take at least 1.5 units, don't obtain a community college award or transfer.

469 students with wage gains

26% (**\$4,854**) annual wage gains achieved

Exhibit 26: Average Annual Awards and Headcount for Computer & Mathematical Occupations

TOP06	TOP06 Title	2012-2015 Average						Skills Builders Median Wage Gain %
		CC Headcount	CC Associate Degrees	Certificates or Other Credit Awards	Non-credit Awards	Total CC Awards	Total Non-CC Awards	
061420	Electronic Game Design	625	2	4	0	6	-	51.5%
061430	Website Design and Development	182	2	2	0	5	2	-
070100	Information Technology, General	2,808	0	33	0	33	1	60.3%
070200	Computer Information Systems	8,026	83	61	0	144	5	18.6%
070600	Computer Science (Transfer)	688	5	0	0	5	-	-
070700	Computer Software Development	14	-	-	-	-	-	-
070710	Computer Programming	2,315	16	32	0	48	-	26.2%
070730	Computer Systems Analysis	223	-	-	-	-	55	-
070800	Computer Infrastructure and Support	289	0	1	0	1	49	18.8%
070810	Computer Networking	457	0	129	0	129	140	21.1%
070820	Computer Support	171	0	0	0	0	19	-
070900	World Wide Web Administration	393	0	5	0	5	-	33.7%
070910	E-Commerce (Technology emphasis)	39	-	-	-	-	-	-
079900	Other Information Technology	279	0	13	0	13	-	29.2%
220610	Geographic Information Systems	74	2	11	0	12	-	-
	Total	16,583	110	293	0	403	270	25.8%

Construction & Extraction Occupations

Labor Market Demand

Exhibit 27 displays the labor market demand for occupations in the construction and extraction group, including employment estimates, five-year projected growth, as well as demand for replacement workers. Replacement estimates include retirements and general separations, but not turnover within the occupation. As such, replacements and new job growth combined is a good measure of demand for workers.¹⁵

The largest occupation, that of carpenters, has the most projected job openings, followed by electricians. Plumbers, pipefitters and steamfitters have the third highest number of projected openings. Insulation workers are projected to grow 29% in the next five-year period, but with only 13 annual openings.

Exhibit 27: Five-Year Projected Occupation Data for Construction & Extraction Occupations

SOC	Construction and Extraction Occupations	2015 Jobs	5-Yr Change	5-Yr % Change	Annual Replacements	Annual Openings
47-2031	Carpenters	16,409	258	2%	357	409
47-2111	Electricians	6,301	654	10%	114	245
47-2152	Plumbers, Pipefitters, and Steamfitters	4,444	493	11%	67	166
47-1011	First-Line Supervisors of Construction Trades and Extraction Workers	6,627	168	3%	111	145
47-2073	Operating Engineers and Other Construction Equipment Operators	3,413	179	5%	70	105
47-2211	Sheet Metal Workers	1,314	106	8%	37	58
47-4011	Construction and Building Inspectors	1,043	43	4%	32	40
47-2071	Paving, Surfacing, and Tamping Equipment Operators	704	14	2%	23	25
47-2132	Insulation Workers, Mechanical	126	36	29%	6	13
47-2231	Solar Photovoltaic Installers	240	24	10%	4	9

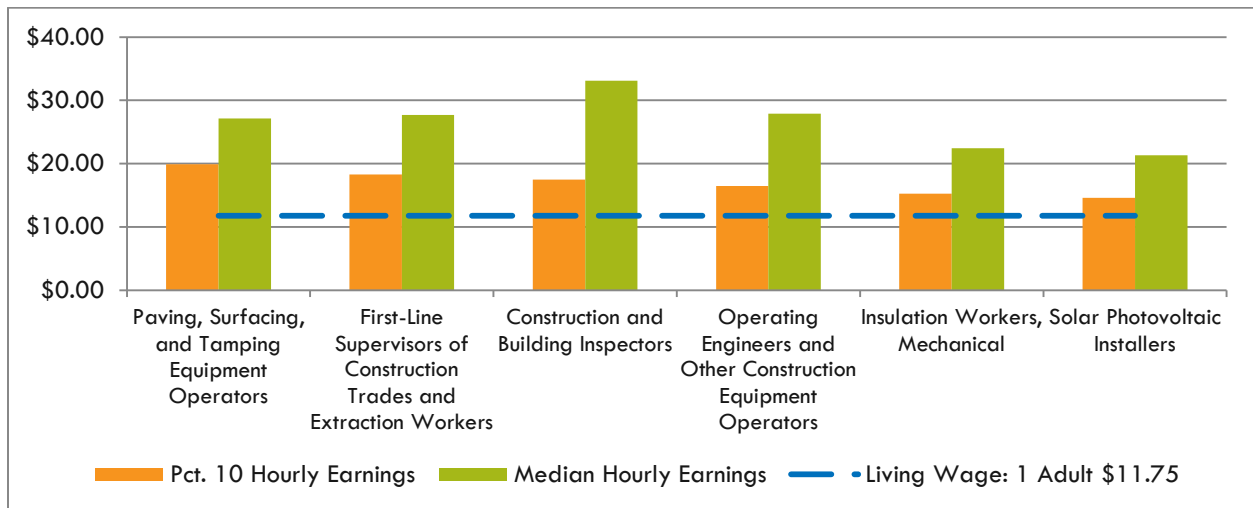
Wages

In the Inland Empire, the living wage for one adult is \$11.75 per hour.¹⁶ Exhibit 28 compares the entry-level and median wages of construction and extraction occupations to the region's living wages. As shown, the entry-level wage for all six of the construction and extraction occupations meets or exceeds the living wage for one adult.

¹⁵ Demand data provided by Economic Modeling Specialists, Intl. (EMSI), 2016.2 – QCEW Employees, Non-QCEW Employees, and Self-Employed.

¹⁶ MIT Living Wage Calculator: livingwage.mit.edu.

Exhibit 28: Comparison of Entry-Level & Median Wages with Living Wages for Construction & Extraction Occupations



Typical Education

Construction and extraction occupations that met the requirement for inclusion in this report are presented in Exhibit 29 along with their typical entry-level educational requirement, typical on-the-job training requirement and percentage of workers in the field who hold a community college award or have completed some postsecondary courses, but no award.

Exhibit 29: Education and Training Requirements for Construction & Extraction Occupations

SOC	Construction and Extraction Occupations	Typical Entry-Level Education	Typical On-The-Job Training	% of Community College Award Holders or Some Postsecondary Coursework
47-1011	First-Line Supervisors of Construction Trades and Extraction Workers	HS Diploma / equivalent	None	33%
47-2031	Carpenters	HS Diploma / equivalent	Apprenticeship	26%
47-2071	Paving, Surfacing and Tamping Equipment Operators	HS Diploma / equivalent	Moderate-term on-the-job training	8%
47-2073	Operating Engineers and Other Construction Equipment Operators	HS Diploma / equivalent	Moderate-term on-the-job training	24%
47-2111	Electricians	HS Diploma / equivalent	Apprenticeship	47%
47-2132	Insulation Workers, Mechanical	HS Diploma / equivalent	Apprenticeship	28%
47-2152	Plumbers, Pipefitters and Steamfitters	HS Diploma / equivalent	Apprenticeship	31%
47-2211	Sheet Metal Workers	HS Diploma / equivalent	Apprenticeship	34%
47-2231	Solar Photovoltaic Installers	HS Diploma / equivalent	Moderate-term on-the-job training	28%
47-4011	Construction and Building Inspectors	HS Diploma / equivalent	Moderate-term on-the-job training	45%

Education Supply and Capacity

For the occupations in the construction and extraction group, the following are community college and other postsecondary programs that were identified as training students to meet workforce needs. (See Appendix A for selection methodology.)

In the Inland Empire, seven community colleges and seven private educational institutions offer training programs that support the construction and extraction occupational group. Exhibit 30 displays the annual average number of awards (certificates and associate degrees) conferred by local community colleges and private educational institutions. In addition, this exhibit displays the annual average student community college headcount by program area.

Skills Builders Taking Construction & Extraction Courses

Skills builders are students who take at least 1.5 units, don't obtain a community college award or transfer.

31 students with wage gains

132% (**\$18,996**) annual wage gains achieved

Exhibit 30: Average Annual Awards and Headcount for Construction & Extraction Occupations

TOP06	TOP06 Title	2012-2015 Average						Skills Builders Median Wage Gain %
		CC Headcount	CC Associate Degrees	Certificates or Other Credit Awards	Non-credit Awards	Total CC Awards	Total Non-CC Awards	
094610	Energy Systems Technology	122	-	-	-	-	242	-
095200	Construction Crafts Technology	492	4	7	0	11	-	180.9%
095210	Carpentry	69	-	-	-	-	-	-
095220	Electrical	92	-	-	-	-	83	-
095230	Plumbing, Pipefitting and Steamfitting	40	-	-	-	-	-	-
095260	Masonry, Tile, Cement, Lath and Plaster	34	-	-	-	-	-	-
095700	Civil and Construction Management Technology	104	2	1	0	3	41	-
095720	Construction Inspection	241	6	25	0	30	-	86.8%
210210	Public Works	0	0	1	0	1	-	-
	Total	1,193	11	34	0	45	366	132.1%

Education, Training & Library Occupations

Labor Market Demand

Exhibit 31 displays the labor market demand for occupations in the education, training and library occupational group, including employment estimates, five-year projected growth, as well as demand for replacement workers. Replacement estimates include retirements and general separations, but not turnover within the occupation. As such, replacements and new job growth combined is a good measure of demand for workers.¹⁷

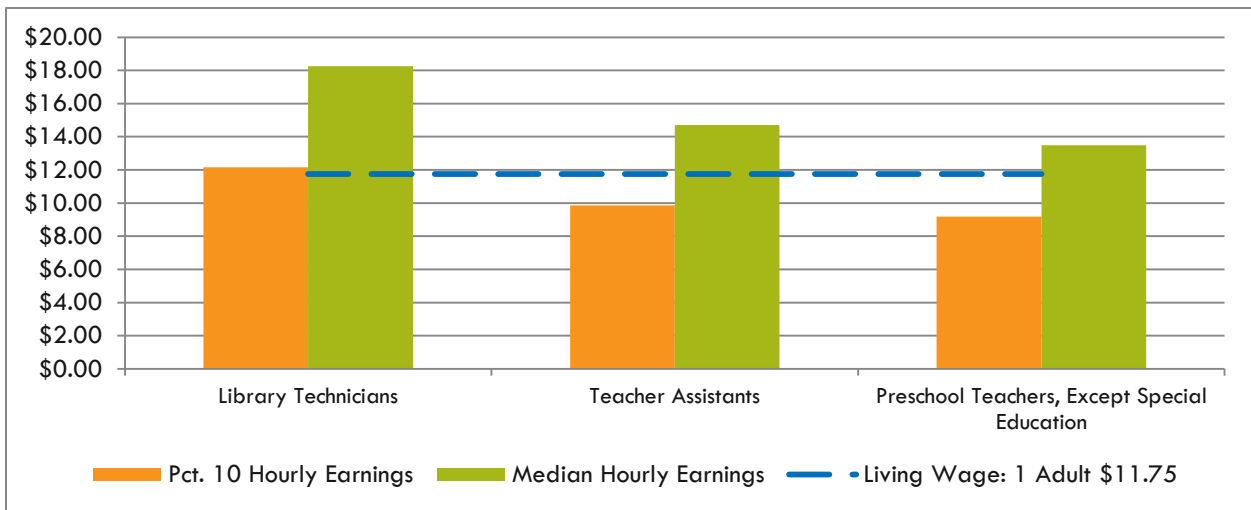
Exhibit 31: Five-Year Projected Occupation Data for Education, Training & Library Occupations

SOC	Education, Training and Library Occupations	2015 Jobs	5-Yr Change	5-Yr % Change	Annual Replacements	Annual Openings
25-9041	Teacher Assistants	14,468	1,110	8%	367	589
25-2011	Preschool Teachers, Except Special Education	3,737	221	6%	116	160
25-4031	Library Technicians	1,187	91	8%	60	78

Wages

In the Inland Empire, the living wage for one adult is \$11.75 per hour.¹⁸ Exhibit 32 compares the entry-level and median wages of education, training and library occupations to the region’s living wages. As shown, the median wage for all three of the occupations meets or exceeds the living wage for one adult.

Exhibit 32: Comparison of Entry & Experience Wages with Living Wages for Education, Training & Library Occupations



Typical Education

Education, training and library occupations that met the requirement for inclusion in this report are presented in Exhibit 33, along with their typical entry-level educational requirement,

¹⁷ Demand data provided by Economic Modeling Specialists, Intl. (EMSI), 2016.2 – QCEW Employees, Non-QCEW Employees, and Self-Employed.

¹⁸ MIT Living Wage Calculator: livingwage.mit.edu.

typical on-the-job training requirement and percentage of workers in the field who hold a community college award or have completed some postsecondary courses, but no award. All three occupations typically require a community college education. At least 26% of current workers have a community college award or postsecondary coursework.

Exhibit 33: Education and Training Requirements for Education, Training & Library Occupations

SOC	Education, Training and Library Occupations	Typical Entry Level Education	Typical On-The-Job Training	% of Community College Award Holders or Some Postsecondary Coursework
25-2011	Preschool Teachers, Except Special Education	Associate degree	None	38%
25-4031	Library Technicians	Postsecondary Certificate	None	26%
25-9041	Teacher Assistants	Some college, no degree	None	44%

Education Supply and Capacity

The following community college and other postsecondary programs were identified as training students to meet workforce needs. (See Appendix A for selection methodology.) In the Inland Empire, 12 community college and two private educational institutions offer training programs that support the education, training and library occupational group. Exhibit 34 displays the annual average number of awards (certificates and associate degrees) conferred by local community colleges and private educational institutions. Also displayed is the annual average student community college headcount by program area.

Skills Builders Taking Architecture & Engineering Courses

Skills builders are students who take at least 1.5 units, don't obtain a community college award or transfer.

474 students with wage gains

21% (**\$2,827**) annual wage gains achieved

Exhibit 34: Average Annual Awards and Headcount for Education, Training & Library Occupations

TOP06	TOP06 Title	2012-2015 Average						Skills Builders Median Wage Gain %
		CC Headcount	CC Associate Degrees	Certificates or Other Credit Awards	Non-credit Awards	Total CC Awards	Total Non-CC Awards	
080200	Educational Aide (Teacher Assistant)	258	12	9	0	22	16	-
080900	Special Education	555	-	-	-	-	16	31.2%
130500	Child Development/ Early Care and Education	7,725	170	366	0	536	-	17.8%
130540	Preschool Age Children	138	-	-	-	-	-	-
160200	Library Technician (Aide)	93	5	9	0	14	-	137.8%
	Total	8,770	187	384	0	572	32	21.2%

Food Preparation & Serving Occupations

Labor Market Demand

Exhibit 35 displays the labor market demand for occupations in the food preparation and serving group, including employment estimates, five-year projected growth, as well as demand for replacement workers. Replacement estimates include retirements and general separations, but not turnover within the occupation. As such, replacements and new job growth combined is a good measure of demand for workers.¹⁹

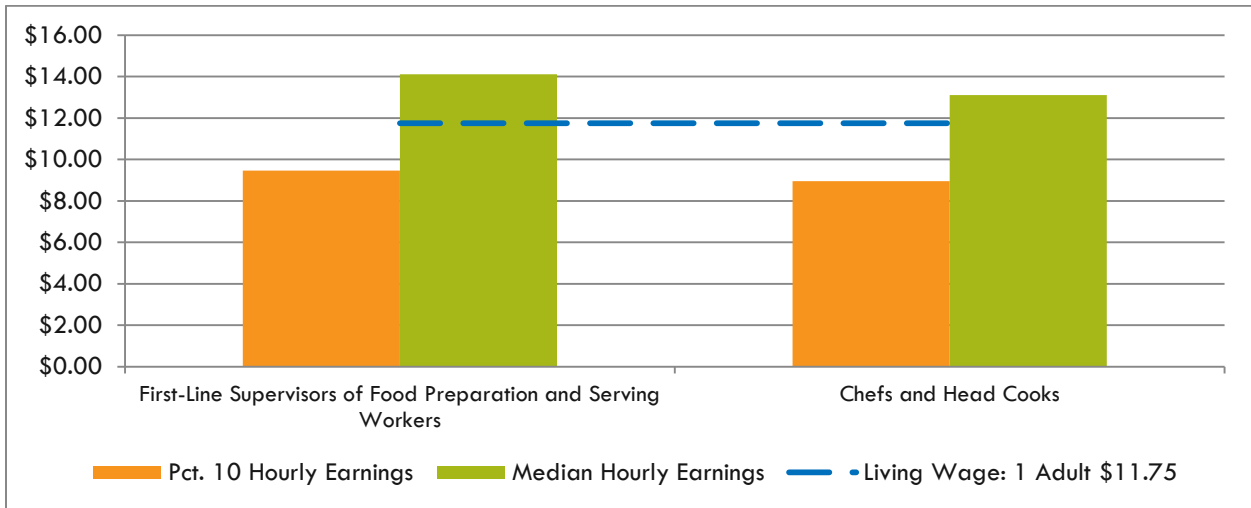
Exhibit 35: Five-Year Projected Occupation Data for Food Preparation & Serving Occupations

SOC	Food Preparation and Serving Related Occupations	2015 Jobs	5-Yr Change	5-Yr % Change	Annual Replacements	Annual Openings
35-1012	First-Line Supervisors of Food Preparation and Serving Workers	9,648	1,569	16%	319	633
35-1011	Chefs and Head Cooks	1,894	223	12%	31	75

Wages

In the Inland Empire, the living wage for one adult is \$11.75 per hour.²⁰ Exhibit 36 compares the entry-level and median wages of food preparation and serving occupations to the region’s living wages. As shown, the median hourly wage for both of the occupations meets or exceeds the living wage for one adult.

Exhibit 36: Comparison of Entry & Experience Wages with Living Wages for Food Preparation & Serving Occupations



¹⁹ Demand data provided by Economic Modeling Specialists, Intl. (EMSI), 2016.2 – QCEW Employees, Non-QCEW Employees, and Self-Employed.

²⁰ MIT Living Wage Calculator: livingwage.mit.edu.

Typical Education

Food preparation and serving occupations are shown in Exhibit 37 along with their typical entry-level educational requirement, on-the-job training requirement and percentage of workers in the field who hold a community college award or have completed some postsecondary courses, but no award. The two occupations in this group typically require a high school diploma, but at least 38% of current workers have a community college award or postsecondary coursework.

Exhibit 37: Education and Training Requirements for Food Preparation & Serving

SOC	Food Preparation and Serving Related Occupations	Typical Entry-Level Education	Typical On-The-Job Training	% of Community College Award Holders or Some Postsecondary Coursework
35-1011	Chefs and Head Cooks	HS Diploma / equivalent	None	39%
35-1012	First-Line Supervisors of Food Preparation and Serving Workers	HS Diploma / equivalent	None	38%

Education Supply and Capacity

The following community college and other postsecondary programs were identified as training students to meet workforce needs in this occupational group. (Appendix A shows selection methodology.) In the Inland Empire, eight community colleges and one private educational institution offer training programs supporting the food preparation and serving occupational group. Exhibit 38 displays the annual average number of awards (certificates and associate degrees) conferred by local community colleges and private educational institutions, as well as the annual average student community college headcount by program area.

Skills Builders Taking Food Preparation & Serving Courses

Skills builders are students who take at least 1.5 units, don't obtain a community college award or transfer.

71 students with wage gains

66% (\$5,565) annual wage gains achieved

Exhibit 38: Average Annual Awards and Headcount for Food Preparation & Serving

TOP06	TOP06 Title	2012-2015 Average						Skills Builders median Wage Gain %
		CC Headcount	CC Associate Degrees	Certificates or Other Credit Awards	Non-credit Awards	Total CC Awards	Total Non-CC Awards	
130600	Nutrition, Foods, and Culinary Arts	1,816	7	3	0	10	-	41.7%
130620	Dietetic Services and Management	27	0	8	0	8	-	-
130630	Culinary Arts	606	12	49	0	61	255	127.2%
130700	Hospitality	355	5	0	0	5	-	-
130710	Restaurant and Food Services and Management	482	13	20	0	34	-	-
	Total	3,284	37	81	0	118	255	65.5%

Health Care Practitioner & Technical Occupations

Labor Market Demand

Exhibit 39 displays the labor market demand for occupations in the health care practitioner and technical group, including employment estimates, five-year projected growth, as well as demand for replacement workers. Replacement estimates include retirements and general separations, but not turnover within the occupation. As such, replacements and new job growth combined is a good measure of demand for workers.²¹

The largest occupation is registered nurses by far, with the most projected job openings, followed by licensed practical and licensed vocational nurses. Pharmacy technicians have the third highest number of annual openings.

Exhibit 39: Five-Year Projected Occupation Data for Health Care Practitioner & Technical Occupations

SOC	Health Care Practitioners and Technical Occupations	2015 Jobs	5-Yr Change	5-Yr % Change	Annual Replacements	Annual Openings
29-1141	Registered Nurses	25,534	3,953	15%	672	1,462
29-2061	Licensed Practical and Licensed Vocational Nurses	6,816	942	14%	214	402
29-2052	Pharmacy Technicians	3,331	460	14%	36	128
29-2041	Emergency Medical Technicians and Paramedics	2,081	291	14%	39	97
29-2071	Medical Records and Health Information Technicians	1,601	253	16%	40	90
29-2034	Radiologic Technologists	1,352	228	17%	28	74
29-1126	Respiratory Therapists	1,263	178	14%	33	68
29-2012	Medical and Clinical Laboratory Technicians	1,024	195	19%	27	66
29-2021	Dental Hygienists	1,525	151	10%	32	62
29-2081	Opticians, Dispensing	840	157	19%	25	57

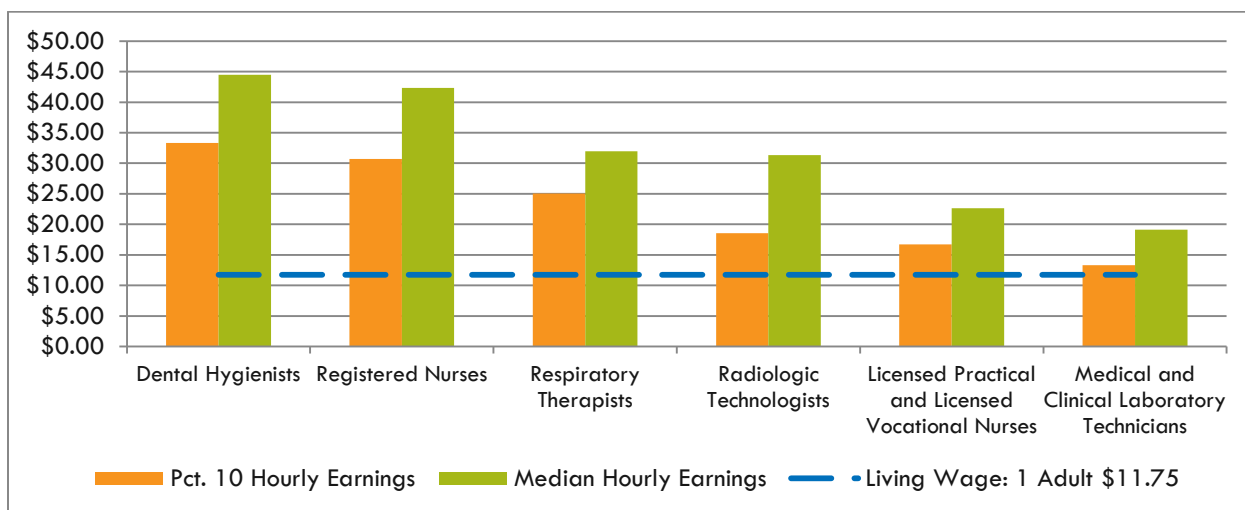
Wages

In the Inland Empire, the living wage for one adult is \$11.75 per hour.²² Exhibit 40 compares the entry-level and Median wages of health care practitioner and technical occupations to the region's living wages. As shown, for all six of the occupations, the entry-level wage meets or exceeds the living wage for one adult.

²¹ Demand data provided by Economic Modeling Specialists, Intl. (EMSI), 2016.2 – QCEW Employees, Non-QCEW Employees, and Self-Employed.

²² MIT Living Wage Calculator: livingwage.mit.edu.

Exhibit 40: Comparison of Entry-Level & Median Wages with Living Wages for Health Care Practitioner & Technical Occupations



Typical Education

Health care practitioner and technical occupations are presented in Exhibit 41, along with their typical entry-level educational requirement, typical on-the-job training requirement and percentage of workers in the field who hold a community college award or have completed some postsecondary courses, but no award. Only one occupation in this group requires a bachelor's degree. Within this occupation at least 42% of current workers have a community college award or postsecondary coursework.

Exhibit 41: Education and Training Requirements, Healthcare Practitioner & Technical Occupations

SOC	Health Care Practitioners and Technical Occupations	Typical Entry-Level Education	Typical On-The-Job Training	% of Community College Award Holders or Some Postsecondary Coursework
29-1126	Respiratory Therapists	Associate degree	None	70%
29-1141	Registered Nurses	Bachelor's degree	None	42%
29-2012	Medical and Clinical Laboratory Technicians	Associate degree	None	36%
29-2021	Dental Hygienists	Associate degree	None	61%
29-2034	Radiologic Technologists	Associate degree	None	66%
29-2041	Emergency Medical Technicians and Paramedics	Postsecondary Certificate	None	68%
29-2052	Pharmacy Technicians	HS Diploma / equivalent	Moderate-term on-the-job training	56%
29-2061	Licensed Practical and Licensed Vocational Nurses	Postsecondary Certificate	None	74%
29-2071	Medical Records and Health Information Technicians	Postsecondary Certificate	None	55%
29-2081	Opticians, Dispensing	HS Diploma / equivalent	Long-term on-the-job training	56%

Education Supply and Capacity

Regarding the health care practitioner and technical group, the following are community college and other postsecondary programs that were identified as training students to meet workforce needs. (See Appendix A for selection methodology.) In the Inland Empire, 11 community colleges and 22 private educational institutions offer training programs that support this occupational group. Exhibit 42 displays the annual average number of awards (certificates and associate degrees) conferred by local community colleges and private educational institutions, as well as the annual average student community college headcount by program area.

Skills Builders Taking Health Care Practitioner & Technical Courses

Skills builders are students who take at least 1.5 units, don't obtain a community college award or transfer.

571 students with wage gains

46% (**\$10,244**) annual wage gains achieved

Exhibit 42: Average Annual Awards and Headcount for Health Care Practitioner & Technical Occupations

TOP06	TOP06 Title	2012-2015 Average						Skills Builders Median Wage Gain %
		CC Headcount	CC Associate Degrees	Certificates or Other Credit Awards	Non-credit Awards	Total CC Awards	Total Non-CC Awards	
010210	Veterinary Technician (Licensed)	0	-	-	-	-	111	-
043000	Biotechnology and Biomedical Technology	44	-	-	-	-	-	-
120500	Medical Laboratory Technology	0	-	-	-	-	1	-
121000	Respiratory Care/Therapy	238	47	18	0	65	203	-
121200	Electro-Neurodiagnostic Technology	0	-	-	-	-	3	-
121700	Surgical Technician	0	-	-	-	-	171	-
122100	Pharmacy Technology	169	24	33	0	57	387	-
122300	Health Information Technology	21	-	-	-	-	-	-
122310	Health Information Coding	6	-	-	-	-	330	-
122500	Radiologic Technology	155	26	8	0	34	39	-
122700	Diagnostic Medical Sonography	7	2	0	0	2	59	-
123000	Nursing	633	-	-	-	-	68	12.1%
123010	Registered Nursing	1,514	509	76	0	585	-	153.9%
123020	Licensed Vocational Nursing	696	62	114	0	176	997	15.4%
123900	Psychiatric Technician	62	18	33	0	50	9	-
124000	Dental Occupations	0	-	-	-	-	61	-
124020	Dental Hygienist	24	9	0	0	9	36	-
125000	Emergency Medical Services	1,784	0	267	0	267	22	39.3%
125100	Paramedic	292	20	38	0	58	-	53.0%
130600	Nutrition, Foods and Culinary Arts	1,816	7	3	0	10	-	41.7%
130620	Dietetic Services and Management	27	0	8	0	8	-	-
130660	Dietetic Technology	0	1	0	0	1	-	-
	Total	7,487	725	598	0	1,323	2,497	46.0%

Health Care Support Occupations

Labor Market Demand

Exhibit 43 displays the labor market demand for occupations in the health care support group, including employment estimates, five-year projected growth, as well as demand for replacement workers. Replacement estimates include retirements and general separations, but not turnover within the occupation. As such, replacements and new job growth combined is a good measure of demand for workers.²³

Nursing assistants is the largest occupation, followed by medical assistants. Home health aides will have the most annual job openings and will expand new job openings 48 percent during the five-year projection period.

Exhibit 43: Five-Year Projected Occupation Data for Health Care Support Occupations

SOC	Healthcare Support Occupations	2015 Jobs	5-Yr Change	5-Yr % Change	Annual Replacements	Annual Openings
31-1011	Home Health Aides	5,110	2,442	48%	153	642
31-1014	Nursing Assistants	10,019	1,931	19%	254	640
31-9092	Medical Assistants	7,394	1,239	17%	174	422
31-9091	Dental Assistants	5,095	353	7%	141	212
31-9011	Massage Therapists	2,145	312	15%	18	80
31-9097	Phlebotomists	1,302	188	14%	30	67
31-2021	Physical Therapist Assistants	506	108	21%	17	38
31-9093	Medical Equipment Preparers	718	93	13%	16	35
31-9094	Medical Transcriptionists	410	59	14%	9	21
31-2011	Occupational Therapy Assistants	215	48	22%	7	17

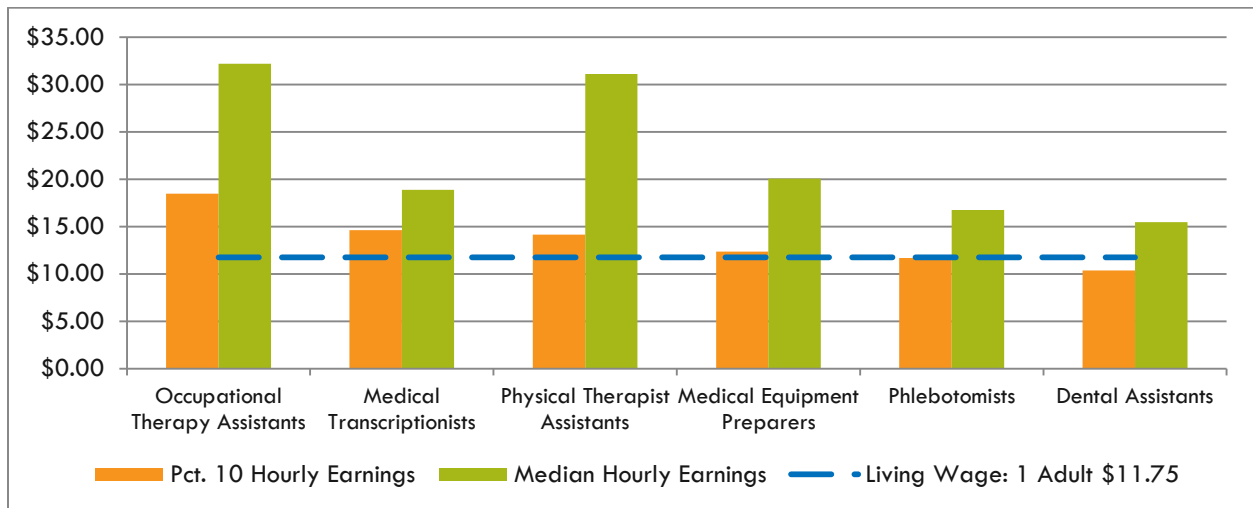
Wages

In the Inland Empire, the living wage for one adult is \$11.75 per hour.²⁴ Exhibit 44 compares the entry-level and Median wages of health care support to the region's living wages. As shown, for all six of the health care support occupations, the median wage meets or exceeds the living wage for one adult.

²³ Demand data provided by Economic Modeling Specialists, Intl. (EMSI), 2016.2 – QCEW Employees, Non-QCEW Employees, and Self-Employed.

²⁴ MIT Living Wage Calculator: livingwage.mit.edu.

Exhibit 44: Comparison of Entry & Experience Wages with Living Wages for Health Care Support Occupations



Typical Education

Health care support occupations that met the requirement for inclusion in this report are presented in Exhibit 45 along with their typical entry-level educational requirement, typical on-the-job training requirement and percentage of workers in the field who hold a community college award or have completed some postsecondary courses, but no award. The typical entry-level education for most of these occupations can be earned at a community college. At least 38% of current workers in these occupations have a community college award or postsecondary coursework.

Exhibit 45: Education and Training Requirements for Health Care Support Occupations

SOC	Healthcare Support Occupations	Typical Entry-Level Education	Typical On-The-Job Training	% of Community College Award Holders or Some Postsecondary Coursework
31-1011	Home Health Aides	No formal educational credential	Short-term on-the-job training	42%
31-1014	Nursing Assistants	Postsecondary Certificate	None	42%
31-2011	Occupational Therapy Assistants	Associate degree	None	86%
31-2021	Physical Therapist Assistants	Associate degree	None	71%
31-9011	Massage Therapists	Postsecondary Certificate	None	54%
31-9091	Dental Assistants	Postsecondary Certificate	None	58%
31-9092	Medical Assistants	Postsecondary Certificate	None	65%
31-9093	Medical Equipment Preparers	HS Diploma / equivalent	Moderate-term on-the-job training	38%
31-9094	Medical Transcriptionists	Postsecondary Certificate	None	61%
31-9097	Phlebotomists	Postsecondary Certificate	None	61%

Education Supply and Capacity

In the Inland Empire, 10 community colleges and 31 private educational institutions offer training programs that support the health care support occupational group. Exhibit 46 displays the annual average number of awards (certificates and associate degrees) conferred by local community colleges and private educational institutions. In addition, this exhibit displays the annual average student community college headcount by program area.

Skills Builders Taking Health Care Support Courses

Skills builders are students who take at least 1.5 units, don't obtain a community college award or transfer.

109 students with wage gains

41% (\$4,720) annual wage gains achieved

Exhibit 46: Average Annual Awards and Headcount for Health Care Support Occupations

TOP06	TOP06 Title	2012-2015 Average						Skills Builders Median Wage Gain %
		CC Headcount	CC Associate Degrees	Certificates or Other Credit Awards	Non-credit Awards	Total CC Awards	Total Non-CC Awards	
051420	Medical Office Technology	102	1	2	0	2	192	-
120100	Health Occupations, General	1,285	-	-	-	-	1	57.1%
120510	Phlebotomy	14	0	1	0	1	41	61.8%
120800	Medical Assisting	120	18	24	0	41	2,027	-
120810	Clinical Medical Assisting	28	0	0	0	0	-	-
120830	Health Facility Unit Coordinator	0	-	-	-	-	5	-
120900	Hospital Central Service Technician	0	-	-	-	-	19	-
122000	Speech/Language Pathology and Audiology	92	-	-	-	-	-	-
122200	Physical Therapist Assistant	54	-	-	-	-	46	-
123000	Nursing	633	-	-	-	-	68	12.1%
123030	Certified Nurse Assistant	325	0	118	0	118	527	(16.8%)
123080	Home Health Aide	32	-	-	-	-	19	-
123900	Psychiatric Technician	62	18	33	0	50	9	-
124000	Dental Occupations	0	-	-	-	-	61	-
124010	Dental Assistant	58	9	36	0	45	542	-
126200	Massage Therapy	0	-	-	-	-	347	-
130900	Gerontology	419	6	8	0	14	-	63.3%
	Total	3,222	51	220	0	272	3,904	40.8%

Installation, Maintenance & Repair Occupations

Labor Market Demand

Exhibit 47 displays the labor market demand for occupations in the installation, maintenance and repair group, including employment estimates, five-year projected growth, as well as demand for replacement workers. Replacement estimates include retirements and general separations, but not turnover within the occupation. As such, replacements and new job growth combined is a good measure of demand for workers.²⁵

Maintenance and repair worker, general is the largest occupation with the most projected annual job openings, followed by automotive service technicians and mechanics. The occupation of bus and truck mechanics and diesel engine specialists ranks third.

Exhibit 47: 5-Year Projected Occupation Data for Installation, Maintenance & Repair Occupations

SOC	Installation, Maintenance and Repair Occupations	2015 Jobs	5-Yr Change	5-Yr % Change	Annual Replacements	Annual Openings
49-9071	Maintenance and Repair Workers, General	13,051	1,248	10%	368	618
49-3023	Automotive Service Technicians and Mechanics	10,907	764	7%	309	462
49-3031	Bus and Truck Mechanics and Diesel Engine Specialists	4,317	491	11%	80	179
49-9021	Heating, Air Conditioning and Refrigeration Mechanics and Installers	3,550	456	13%	63	154
49-1011	First-Line Supervisors of Mechanics, Installers and Repairers	4,041	335	8%	86	153
49-9041	Industrial Machinery Mechanics	2,337	272	12%	67	122
49-9051	Electrical Power-Line Installers and Repairers	1,295	115	9%	54	77
49-9052	Telecommunications Line Installers and Repairers	1,623	145	9%	31	60
49-3011	Aircraft Mechanics and Service Technicians	930	116	12%	25	48
49-9031	Home Appliance Repairers	958	87	9%	30	48

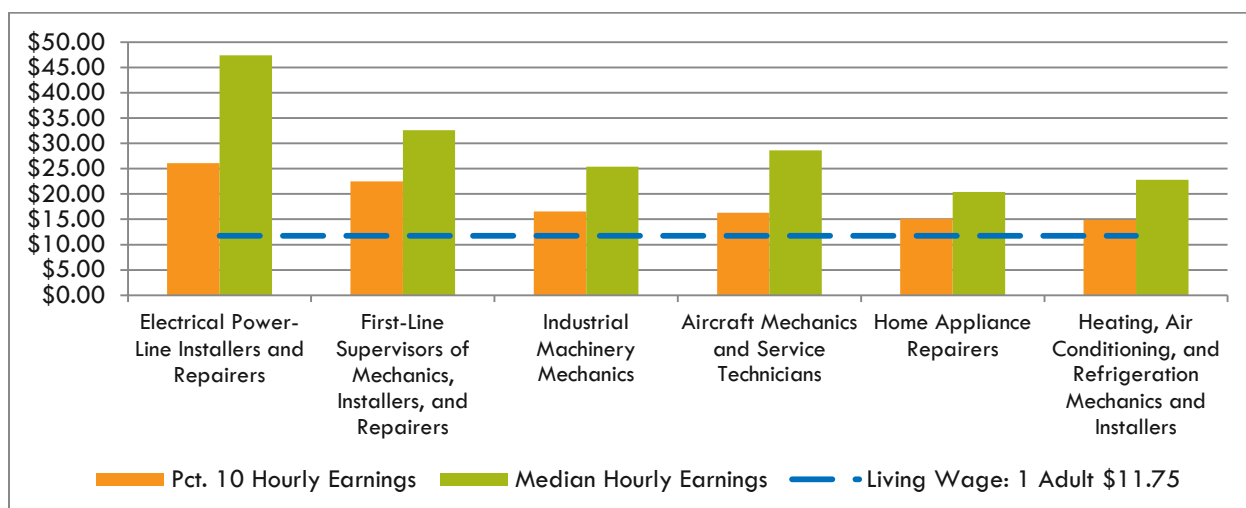
Wages

In the Inland Empire, the living wage for one adult is \$11.75 per hour.²⁶ Exhibit 48 compares the entry-level and Median wages of installation, maintenance and repair occupations to the region's living wages. As shown, the entry-level wage for all six of the installation, maintenance and repair occupations meets or exceeds the living wage for one adult.

²⁵ Demand data provided by Economic Modeling Specialists, Intl. (EMSI), 2016.2 – QCEW Employees, Non-QCEW Employees, and Self-Employed.

²⁶ MIT Living Wage Calculator: livingwage.mit.edu.

Exhibit 48: Comparison of Entry-Level & Median Wages with Living Wages for Installation, Maintenance & Repair Occupations



Typical Education

Exhibit 49 shows installation, maintenance and repair occupations, along with their typical entry level education requirement, typical on-the-job training requirement and percentage of workers in the field who hold a community college award or have completed some postsecondary courses, but no award. Seven occupations in this group that typically require a high school diploma. However, at least 35% of current workers in these seven occupations have a community college award or postsecondary coursework.

Exhibit 49: Education and Training Requirements for Installation, Maintenance & Repair

SOC	Installation, Maintenance and Repair Occupations	Typical Entry-Level Education	Typical On-The-Job Training	% of Community College Award Holders or Some Postsecondary Coursework
49-1011	First-Line Supervisors of Mechanics, Installers, and Repairers	HS Diploma / equivalent	None	43%
49-3011	Aircraft Mechanics and Service Technicians	Postsecondary Certificate	None	60%
49-3023	Automotive Service Technicians and Mechanics	Postsecondary Certificate	Short-term on-the-job training	33%
49-3031	Bus and Truck Mechanics and Diesel Engine Specialists	HS Diploma / equivalent	Long-term on-the-job training	35%
49-9021	Heating, Air Conditioning, and Refrigeration Mechanics and Installers	Postsecondary Certificate	Long-term on-the-job training	44%
49-9031	Home Appliance Repairers	HS Diploma / equivalent	Moderate-term on-the-job training	38%
49-9041	Industrial Machinery Mechanics	HS Diploma / equivalent	Long-term on-the-job training	42%
49-9051	Electrical Power-Line Installers and Repairers	HS Diploma / equivalent	Long-term on-the-job training	50%
49-9052	Telecommunications Line Installers and Repairers	HS Diploma / equivalent	Long-term on-the-job training	47%
49-9071	Maintenance and Repair Workers, General	HS Diploma / equivalent	Long-term on-the-job training	38%

Education Supply and Capacity

For the installation, maintenance and repair occupations, the following community college and postsecondary programs were identified as training students to meet workforce needs. (See Appendix A for selection methodology.) In the Inland Empire, 10 community colleges and 10 private educational institutions offer training programs that support this occupational group. Exhibit 50 displays the annual average number of awards (certificates and associate degrees) conferred by local community colleges and private educational institutions, as well as the annual average student community college headcount by program area.

Skills Builders Taking Installation, Maintenance & Repair Courses

Skills builders are students who take at least 1.5 units, don't obtain a community college award or transfer.

356 students with wage gains

40% (**\$7,179**) annual wage gains achieved

Exhibit 50: Average Annual Awards and Headcount for Installation, Maintenance & Repair

TOP06	TOP06 Title	2012-2015 Average						Skills Builders Median Wage Gain %
		CC Headcount	CC Associate Degrees	Certificates or Other Credit Awards	Non-credit Awards	Total CC Awards	Total Non-CC Awards	
043000	Biotechnology and Biomedical Technology	44	-	-	-	-	-	-
093400	Electronics and Electric Technology	525	9	19	0	29	113	(2.1%)
093410	Computer Electronics	221	11	5	0	16	28	-
093420	Industrial Electronics	167	-	-	-	-	-	-
093430	Telecommunications Technology	56	0	1	0	1	-	-
093440	Electrical Systems and Power Transmission	195	8	53	0	61	43	49.2%
094300	Instrumentation Technology	17	0	0	0	1	-	-
094600	Environmental Control Technology	585	11	59	0	71	-	35.2%
094610	Energy Systems Technology	122	-	-	-	-	242	-
094700	Diesel Technology	133	0	8	0	8	196	311.7%
094720	Heavy Equipment Maintenance	10	-	-	-	-	-	-
094800	Automotive Technology	2,954	44	147	0	190	1,017	30.8%
094830	Motorcycle, Outboard and Small Engine Repair	40	-	-	-	-	-	-
094840	Alternative Fuels and Advanced Transportation Technology	147	0	1	0	1	-	21.7%
094900	Automotive Collision Repair	422	4	34	0	39	-	87.0%
095000	Aeronautical and Aviation Technology	162	2	15	0	17	-	-
095010	Aviation Airframe Mechanics	141	4	38	0	42	-	-
095020	Aviation Powerplant Mechanics	123	5	42	0	47	-	-
095040	Aircraft Electronics (Avionics)	0	0	0	0	0	-	-
095050	Aircraft Fabrication	23	-	-	-	-	-	-
	Total	6,087	99	423	0	523	1,639	40.2%

Legal Occupations

Labor Market Demand

Exhibit 51 displays the labor market demand for occupations in the legal occupational group, including employment estimates, five-year projected growth, as well as demand for replacement workers. Replacement estimates include retirements and general separations, but not turnover within the occupation. As such, replacements and new job growth combined is a good measure of demand for workers.²⁷

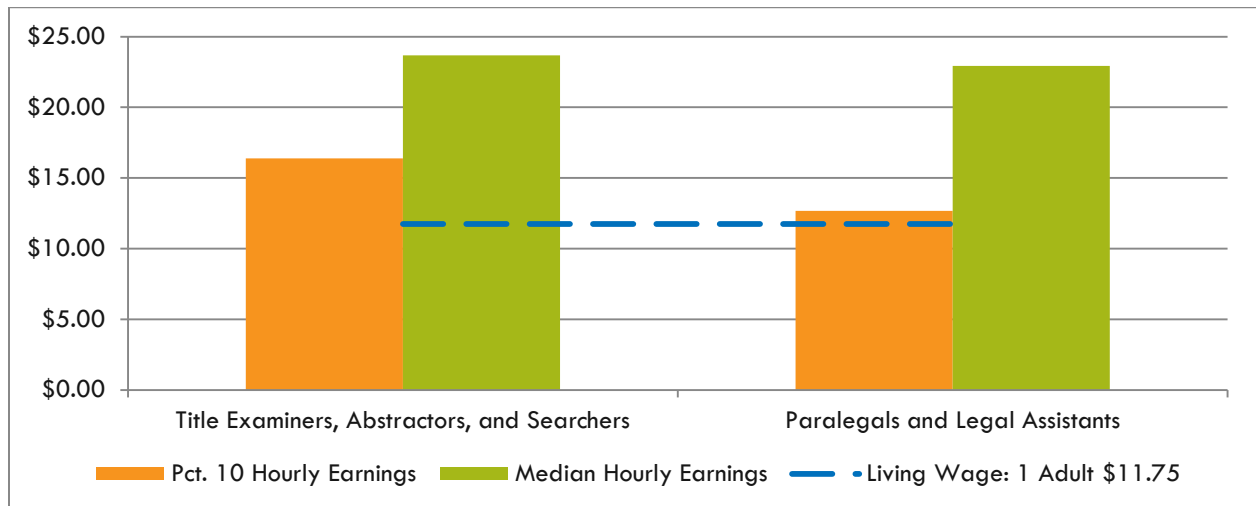
Exhibit 51: Five-Year Projected Occupation Data for Legal Occupations

SOC	Legal Occupations	2015 Jobs	5-Yr Change	5-Yr % Change	Annual Replacements	Annual Openings
23-2011	Paralegals and Legal Assistants	2,250	164	7%	52	84
23-2093	Title Examiners, Abstractors and Searchers	652	25	4%	16	21

Wages

In the Inland Empire, the living wage for one adult is \$11.75 per hour.²⁸ Exhibit 52 compares the entry-level and Median wages of legal occupations to the region's living wages. As shown, the entry-level wage for the two legal occupations meets or exceeds the living wage for one adult.

Exhibit 52: Comparison of Entry-Level & Median Wages with Living Wages for Legal Occupations



²⁷ Demand data provided by Economic Modeling Specialists, Intl. (EMSI), 2016.2 – QCEW Employees, Non-QCEW Employees, and Self-Employed.

²⁸ MIT Living Wage Calculator: livingwage.mit.edu.

Typical Education

Legal occupations that met the requirement for inclusion in this report are presented in Exhibit 53 along with their typical entry-level educational requirement, typical on-the-job training requirement and percentage of workers in the field who hold a community college award or have completed some postsecondary courses, but no award. For the one occupation in this group that typically requires a high school diploma, at least 40% of current workers have a community college award or postsecondary coursework.

Exhibit 53: Education and Training Requirements for Legal Occupations

SOC	Legal Occupations	Typical Entry-Level Education	Typical On-The-Job Training	% of Community College Award Holders or Some Postsecondary Coursework
23-2011	Paralegals and Legal Assistants	Associate degree	None	43%
23-2093	Title Examiners, Abstractors and Searchers	HS Diploma / equivalent	Short-term on-the-job training	40%

Education Supply and Capacity

For the occupations in the legal occupational group, the following are community college and other postsecondary programs that were identified as training students to meet workforce needs. (See Appendix A for selection methodology.)

In the Inland Empire, five community colleges and seven private educational institutions offer training programs that support the legal occupational group. Exhibit 54 displays the annual average number of awards (certificates and associate degrees) conferred by local community colleges and private educational institutions. In addition, this exhibit displays the annual average student community college headcount by program area.

Exhibit 54: Average Annual Awards and Headcount for Legal Occupations

TOP06	TOP06 Title	2012-2015 Average						Skills Builders Median Wage Gain %
		CC Headcount	CC Associate Degrees	Certificates or Other Credit Awards	Non-credit Awards	Total CC Awards	Total Non-CC Awards	
051430	Court Reporting	0	-	-	-	-	23	-
140200	Paralegal	505	21	36	0	57	102	(2.7%)
	Total	505	21	36	0	57	125	(2.7%)

Life, Physical & Social Sciences Occupations

Labor Market Demand

Exhibit 55 displays the labor market demand for occupations in the life, physical & social sciences group, including employment estimates, five-year projected growth, as well as demand for replacement workers. Replacement estimates include retirements and general separations, but not turnover within the occupation. As such, replacements and new job growth combined is a good measure of demand for workers.²⁹ Forest and conservation technicians is the largest occupation with the most projected job openings, followed by forensic science technicians, and agricultural and food science technicians.

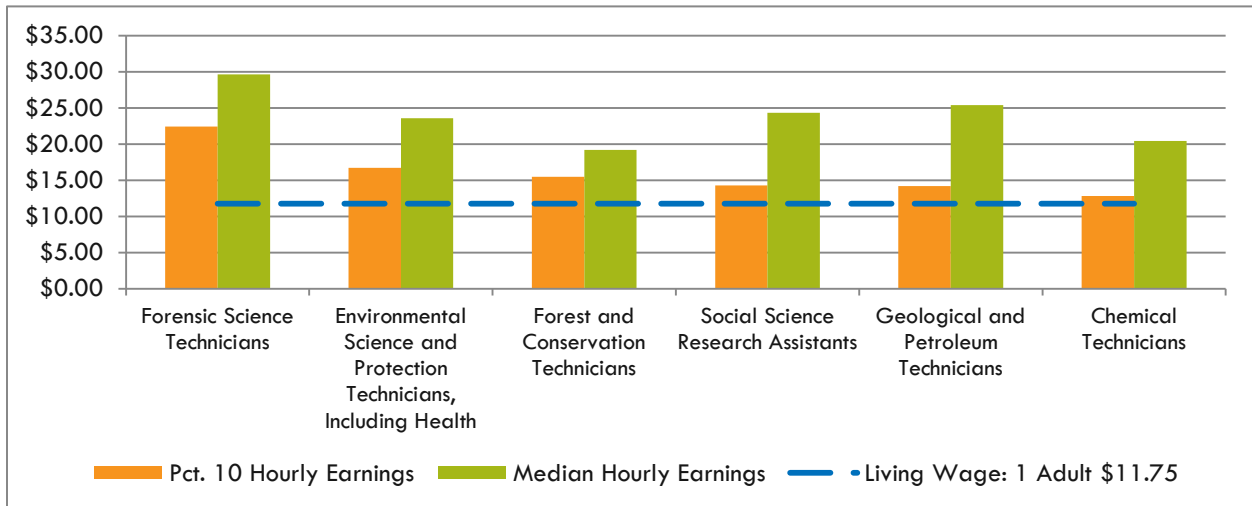
Exhibit 55: Five-Year Projected Occupation Data for Life, Physical & Social Sciences Occupations

SOC	Life, Physical, and Social Science Occupations	2015 Jobs	5-Yr Change	5-Yr % Change	Annual Replacements	Annual Openings
19-4093	Forest and Conservation Technicians	657	11	2%	29	31
19-4092	Forensic Science Technicians	305	43	14%	14	23
19-4091	Environmental Science and Protection Technicians, Including Health	195	21	11%	9	13
19-4011	Agricultural and Food Science Technicians	309	3	1%	11	12
19-4031	Chemical Technicians	210	2	1%	7	7
19-4061	Social Science Research Assistants	55	7	13%	3	4
19-4041	Geological and Petroleum Technicians	38	3	8%	1	2

Wages

In the Inland Empire, the living wage for one adult is \$11.75 per hour.³⁰ Exhibit 56 compares the entry-level and Median wages of related occupations to the region's living wages. As shown, for all six of the life, physical and social sciences occupations, the entry-level wage meets or exceeds the living wage for one adult.

Exhibit 56: Comparison of Entry-Level & Median Wages with Living Wages for



²⁹ Demand data provided by Economic Modeling Specialists, Intl. (EMSI), 2016.2 – QCEW Employees, Non-QCEW Employees, and Self-Employed.

³⁰ MIT Living Wage Calculator: livingwage.mit.edu.

Life, Physical & Social Sciences Occupations

Typical Education

Life, physical and social sciences occupations that met the requirement for inclusion in this report are presented in Exhibit 57 along with their typical entry level education requirement, typical on-the-job training requirement and percentage of workers in the field who hold a community college award or have completed some postsecondary courses, but no award. For the two occupations in this group that typically require a bachelor's degree, at least 34% of current workers have a community college award or postsecondary coursework.

Exhibit 57: Education and Training Requirements for Life, Physical & Social Sciences

SOC	Life, Physical, and Social Science Occupations	Typical Entry Level Education	Typical On-The-Job Training	% of Community College Award Holders or Some Postsecondary Coursework
19-4031	Chemical Technicians	Associate degree	Moderate-term on-the-job training	36%
19-4041	Geological and Petroleum Technicians	Associate degree	Moderate-term on-the-job training	38%
19-4061	Social Science Research Assistants	Bachelor's degree	None	34%
19-4091	Environmental Science and Protection Technicians, Including Health	Associate degree	None	34%
19-4092	Forensic Science Technicians	Bachelor's degree	Moderate-term on-the-job training	34%
19-4093	Forest and Conservation Technicians	Associate degree	None	34%

Education Supply and Capacity

Regarding life, physical and social sciences occupations, the following community college and other postsecondary programs were identified as training students to meet workforce needs. (See Appendix A for selection methodology.)

In the Inland Empire, nine community colleges offer training programs that support this occupational group. Exhibit 58 displays the annual average number of awards (certificates and associate degrees) conferred by local community colleges and private educational institutions. In addition, this exhibit displays the annual average student community college headcount by program area.

Exhibit 58: Average Annual Awards and Headcount for Life, Physical & Social Sciences Occupations

TOP06	TOP06 Title	2012-2015 Average						Skills Builders Median Wage Gain %
		CC Headcount	CC Associate Degrees	Certificates or Other Credit Awards	Non-credit Awards	Total CC Awards	Total Non-CC Awards	
010100	Agriculture Technology and Sciences, General	56	-	-	-	-	-	-
010400	Viticulture, Enology and Wine Business	84	-	-	-	-	-	-
011400	Forestry	21	-	-	-	-	-	-
043000	Biotechnology and Biomedical Technology	44	-	-	-	-	-	-
210540	Forensics, Evidence and Investigation	502	0	32	0	32	-	-
	Total	707	0	32	0	32	-	-

Management Occupations

Labor Market Demand

Exhibit 59 displays the labor market demand for occupations in the management occupational group, including employment estimates, five-year projected growth, as well as demand for replacement workers. Replacement estimates include retirements and general separations, but not turnover within the occupation. As such, replacements and new job growth combined is a good measure of demand for workers.³¹

The occupation of food services managers has the most projected job openings, followed by transportation, storage and distribution managers. The administrative services managers occupation had the third highest number of openings.

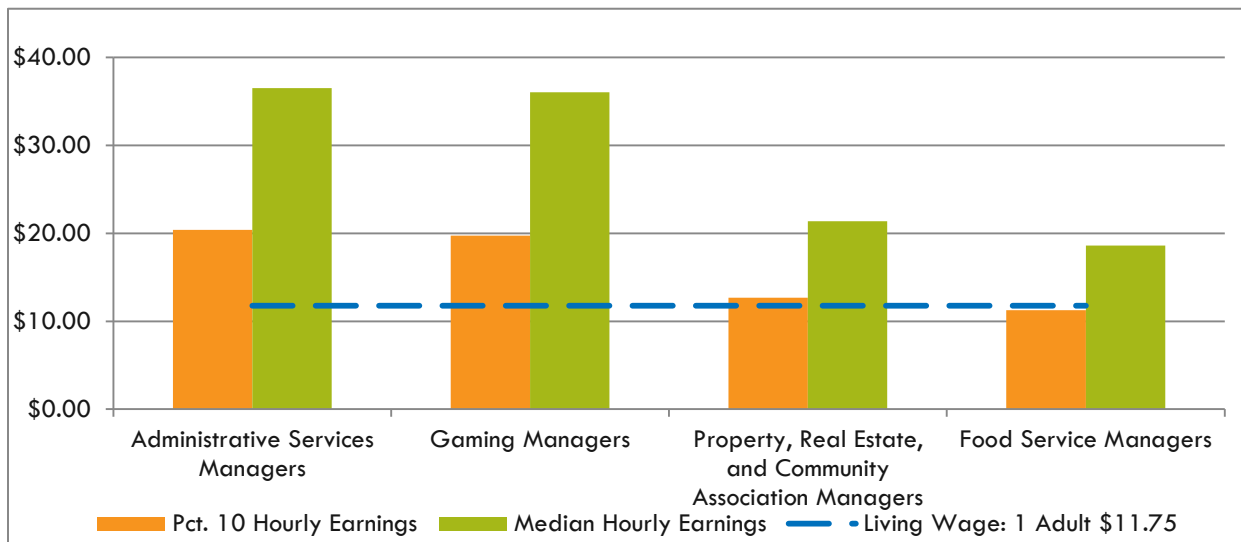
Exhibit 59: Five-Year Projected Occupation Data for Management Occupations

SOC	Management Occupations	2015 Jobs	5-Yr Change	5-Yr % Change	Annual Replacements	Annual Openings
11-9051	Food Service Managers	4,728	451	10%	101	191
11-3071	Transportation, Storage and Distribution Managers	1,662	287	17%	43	100
11-3011	Administrative Services Managers	2,418	250	10%	48	98
11-9141	Property, Real Estate and Community Association Managers	2,912	76	3%	78	93
11-9071	Gaming Managers	106	3	3%	2	3

Wages

In the Inland Empire, the living wage for one adult is \$11.75 per hour.³² Exhibit 60 compares the entry-level and Median wages to the region's living wages. The median wage for all four management occupations meets or exceeds the living wage for one adult.

Exhibit 60: Comparison of Entry-Level & Median Wages with Living Wages for Management Occupations



³¹ Demand data provided by Economic Modeling Specialists, Intl. (EMSI), 2016.2 – QCEW Employees, Non-QCEW Employees, and Self-Employed.

³² MIT Living Wage Calculator: livingwage.mit.edu.

Typical Education

Management occupations that met the requirement for inclusion in this report are presented in Exhibit 61 along with their typical entry-level educational requirement, typical on-the-job training requirement and percentage of workers in the field who hold a community college award or have completed some postsecondary courses, but no award. For the three occupations in this group that typically require a bachelor's degree, at least 42% of current workers have a community college award or postsecondary coursework.

Exhibit 61: Education and Training Requirements for Management Occupations

SOC	Management Occupations	Typical Entry-Level Education	Typical On-The-Job Training	% of Community College Award Holders or Some Postsecondary Coursework
11-3011	Administrative Services Managers	Bachelor's degree	None	42%
11-3071	Transportation, Storage and Distribution Managers	HS Diploma / equivalent	None	35%
11-9051	Food Service Managers	HS Diploma / equivalent	None	38%
11-9071	Gaming Managers	HS Diploma / equivalent	None	40%
11-9141	Property, Real Estate and Community Association Managers	HS Diploma / equivalent	None	37%

Education Supply and Capacity

For the occupations in the management occupational group, the following are community college and other postsecondary programs that were identified as training students to meet workforce needs. (See Appendix A for selection methodology.)

In the Inland Empire, 12 community colleges and 10 private educational institutions offer training programs that support the management occupational group. Exhibit 62 displays the annual average number of awards (certificates and associate degrees) conferred by local community colleges and private educational institutions. In addition, this exhibit displays the annual average student community college headcount by program area.

Skills Builders Taking Management Courses

Skills builders are students who take at least 1.5 units, don't obtain a community college award or transfer.

692 students with wage gains

27% (**\$5,577**) annual wage gains achieved

Appendix B provides detailed data for skills builders by program area.

Exhibit 62: Average Annual Awards and Headcount for Management Occupations

TOP06	TOP06 Title	2012-2015 Average						Skills Builders Median Wage Gain %
		CC Headcount	CC Associate Degrees	Certificates or Other Credit Awards	Non-credit Awards	Total CC Awards	Total Non-CC Awards	
010200	Animal Science	106	-	-	-	-	-	-
010300	Plant Science	477	-	-	-	-	-	-
010400	Viticulture, Enology and Wine Business	84	-	-	-	-	-	-
010900	Horticulture	266	11	27	0	38	-	-
010930	Nursery Technology	0	0	4	0	4	-	-
011200	Agriculture Business, Sales and Service	38	0	0	0	0	-	-
050100	Business and Commerce, General	5,846	143	26	0	168	46	28.3%
050500	Business Administration	3,336	398	14	0	412	48	23.6%
050600	Business Management	4,310	89	92	0	181	-	42.3%
050630	Management Development and Supervision	975	2	4	0	6	-	28.5%
050640	Small Business and Entrepreneurship	617	2	3	0	5	-	25.4%
050920	Purchasing	11	-	-	-	-	-	-
051000	Logistics and Materials Transportation	379	12	16	0	28	29	7.0%
051100	Real Estate	1,259	11	41	0	52	-	11.3%
051110	Escrow	0	4	0	0	4	-	-
095700	Civil and Construction Management Technology	104	2	1	0	3	41	-
130620	Dietetic Services and Management	27	0	8	0	8	-	-
130700	Hospitality	355	5	0	0	5	-	-
130710	Restaurant and Food Services and Management	482	13	20	0	34	-	-
130720	Lodging Management	41	6	7	0	13	-	-
130730	Resort and Club Management	72	0	1	0	1	-	-
	Total	18,785	699	264	0	963	165	26.7%

Office & Administrative Support Occupations

Labor Market Demand

Exhibit 63 displays the labor market demand for occupations in the office and administrative support group, including employment estimates, five-year projected growth, as well as demand for replacement workers. Replacement estimates include retirements and general separations, but not turnover within the occupation. As such, replacements and new job growth combined is a good measure of demand for workers.³³

Secretaries and administrative assistants (except legal, medical and executive) is the largest occupation in this group. Customer service representatives will have more annual job openings during the five-year projection period.

Exhibit 63: Five-Year Projected Occupation Data for Office & Administrative Support Occupations

SOC	Office and Administrative Support Occupations	2015 Jobs	5-Yr Change	5-Yr % Change	Annual Replacements	Annual Openings
43-4051	Customer Service Representatives	16,252	1,919	12%	430	814
43-6014	Secretaries and Administrative Assistants, Except Legal, Medical and Executive	20,909	1,571	8%	237	551
43-1011	First-Line Supervisors of Office and Administrative Support Workers	14,667	1,430	10%	239	525
43-6013	Medical Secretaries	5,959	891	15%	69	247
43-3021	Billing and Posting Clerks	4,623	675	15%	106	241
43-3031	Bookkeeping, Accounting and Auditing Clerks	14,662	406	3%	149	231
43-5061	Production, Planning and Expediting Clerks	3,177	253	8%	92	142
43-5032	Dispatchers, Except Police, Fire and Ambulance	2,960	300	10%	79	139
43-3011	Bill and Account Collectors	3,393	67	2%	85	99
43-5011	Cargo and Freight Agents	621	193	31%	25	63

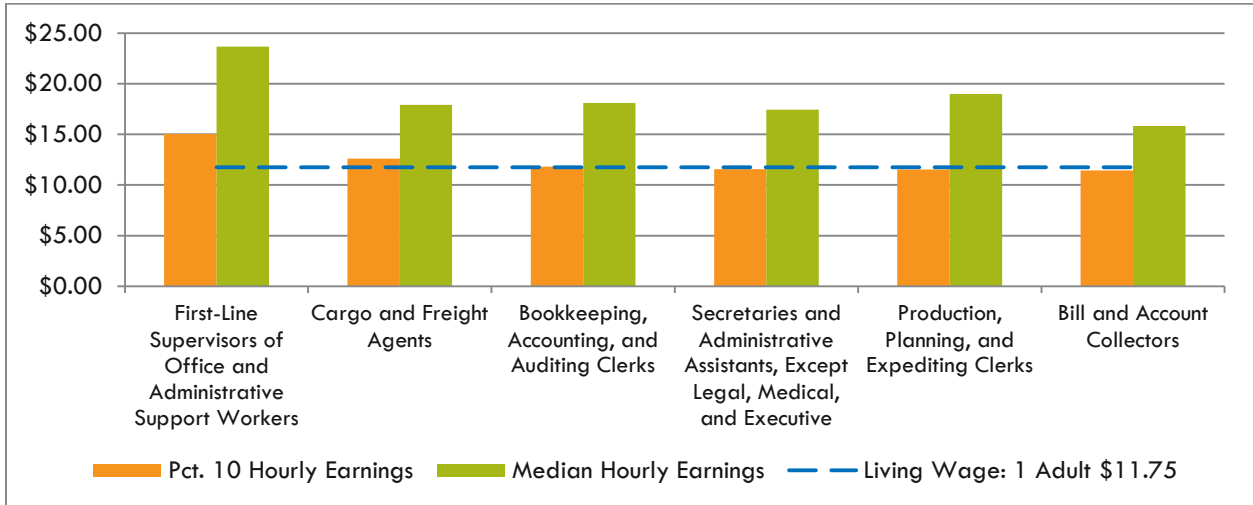
Wages

In the Inland Empire, the living wage for one adult is \$11.75 per hour.³⁴ Exhibit 64 compares the entry-level and Median wages of office and administrative support occupations to the region's living wages. As shown, for all six of the office and administrative support occupations, the median hourly wage meets or exceeds the living wage for one adult.

³³ Demand data provided by Economic Modeling Specialists, Intl. (EMSI), 2016.2 – QCEW Employees, Non-QCEW Employees, and Self-Employed.

³⁴ MIT Living Wage Calculator: livingwage.mit.edu.

Exhibit 64: Comparison of Entry-Level & Median Wages with Living Wages for Office & Administrative Support Occupations



Typical Education

Office and administrative support occupations that met the requirement for inclusion in this report are presented in Exhibit 65 along with their typical entry-level educational requirement, typical on-the-job training requirement and percentage of workers in the field who hold a community college award or have completed some postsecondary courses, but no award. For the three occupations in this group that typically require a high school diploma, at least 40% of current workers have a community college award or postsecondary coursework.

Exhibit 65: Education and Training Requirements for Office & Administrative Support Occupations

SOC	Office and Administrative Support Occupations	Typical Entry-Level Education	Typical On-The-Job Training	% of Community College Award Holders or Some Postsecondary Coursework
43-1011	First-Line Supervisors of Office and Administrative Support Workers	HS Diploma / equivalent	None	41%
43-3011	Bill and Account Collectors	HS Diploma / equivalent	Moderate-term on-the-job training	50%
43-3021	Billing and Posting Clerks	HS Diploma / equivalent	Moderate-term on-the-job training	50%
43-3031	Bookkeeping, Accounting and Auditing Clerks	Some college, no degree	Moderate-term on-the-job training	49%
43-4051	Customer Service Representatives	HS Diploma / equivalent	Short-term on-the-job training	44%
43-5011	Cargo and Freight Agents	HS Diploma / equivalent	Short-term on-the-job training	46%
43-5032	Dispatchers, Except Police, Fire and Ambulance	HS Diploma / equivalent	Moderate-term on-the-job training	48%
43-5061	Production, Planning and Expediting Clerks	HS Diploma / equivalent	Moderate-term on-the-job training	40%
43-6013	Medical Secretaries	HS Diploma / equivalent	Moderate-term on-the-job training	48%
43-6014	Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	HS Diploma / equivalent	Short-term on-the-job training	48%

Education Supply and Capacity

For the occupations in the office and administrative support group, the following are community college and other postsecondary programs that were identified as training students to meet workforce needs. (See Appendix A for selection methodology.)

In the Inland Empire, 11 community colleges and 22 private educational institutions offer training programs that support this occupational group. Exhibit 66 displays the annual average number of awards (certificates and associate degrees) conferred by local community colleges and private educational institutions. In addition, this exhibit displays the annual average student community college headcount by program area.

Skills Builders Taking Office & Administrative Support Courses

Skills builders are students who take at least 1.5 units, don't obtain a community college award or transfer.

646 students with wage gains

29% (**\$5,277**) annual wage gains achieved

Exhibit 66: Average Annual Awards and Headcount for Office & Administrative Support Occupations

TOP06	TOP06 Title	2012-2015 Average						Skills Builders Median Wage Gain %
		CC Headcount	CC Associate Degrees	Certificates or Other Credit Awards	Non-credit Awards	Total CC Awards	Total Non-CC Awards	
050200	Accounting	7,534	106	108	0	213	36	22.2%
050400	Banking and Finance	213	1	0	0	1	15	-
050630	Management Development and Supervision	975	2	4	0	6	-	28.5%
050920	Purchasing	11	-	-	-	-	-	-
051000	Logistics and Materials Transportation	379	12	16	0	28	29	7.0%
051400	Office Technology/Office Computer Applications	5,631	52	49	0	101	194	52.4%
051410	Legal Office Technology	77	0	8	0	8	2	-
051420	Medical Office Technology	102	1	2	0	2	192	-
051440	Office Management	94	8	9	0	17	-	-
051800	Customer Service	122	-	-	-	-	-	-
061450	Desktop Publishing	117	0	1	0	2	-	-
070210	Software Applications	1,123	9	12	0	21	-	(9.2%)
120820	Administrative Medical Assisting	32	2	0	0	2	20	-
140200	Paralegal	505	21	36	0	57	102	(2.7%)
	Total	16,915	213	245	0	458	590	29.3%

Personal Care & Service Occupations

Labor Market Demand

Exhibit 67 displays the labor market demand for occupations in the personal care and service group, including employment estimates, five-year projected growth, as well as demand for replacement workers. Replacement estimates include retirements and general separations, but not turnover within the occupation. As such, replacements and new job growth combined is a good measure of demand for workers.³⁵ Hairdressers, hairstylists and cosmetologists is the largest occupation with the most projected job openings, followed by recreation workers. The occupation of fitness trainers and aerobics instructors rounds out the top three.

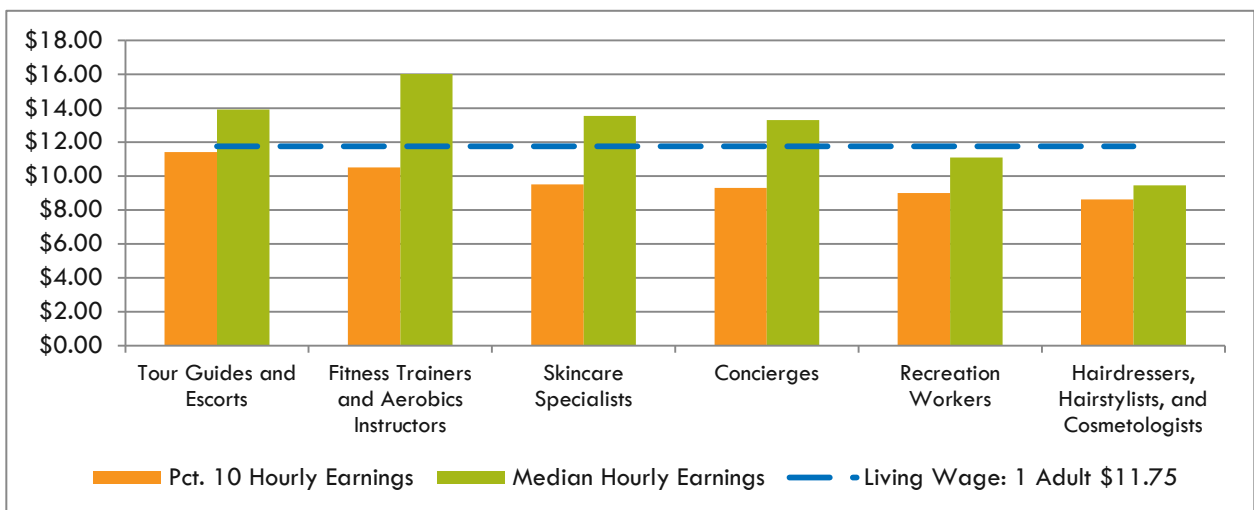
Exhibit 67: Five-Year Projected Occupation Data for Personal Care & Service Occupations

SOC	Personal Care and Service Occupations	2015 Jobs	5-Yr Change	5-Yr % Change	Annual Replacements	Annual Openings
39-5012	Hairdressers, Hairstylists and Cosmetologists	8,882	1,193	13%	248	487
39-9032	Recreation Workers	4,355	539	12%	87	195
39-9031	Fitness Trainers and Aerobics Instructors	2,738	366	13%	55	128
39-5092	Manicurists and Pedicurists	2,375	240	10%	20	68
39-5011	Barbers	835	69	8%	16	30
39-5094	Skincare Specialists	770	106	14%	7	28
39-7011	Tour Guides and Escorts	345	31	9%	14	21
39-6012	Concierges	195	26	13%	4	9

Wages

In the Inland Empire, the living wage for one adult is \$11.75 per hour.³⁶ Exhibit 68 compares the entry-level and median wages of personal care and service occupations to the region's living wages. As shown, for most of the occupations below, the median wage meets or exceeds the living wage for one adult. However, recreation workers and hairdressers, hairstylists, and cosmetologists fall below the living wage for the region.

Exhibit 68: Comparison of Entry-Level & Median Wages with Living Wages for Personal Care & Service Occupations



³⁵ Demand data provided by Economic Modeling Specialists, Intl. (EMSI), 2016.2 – QCEW Employees, Non-QCEW Employees, and Self-Employed.

³⁶ MIT Living Wage Calculator: livingwage.mit.edu.

Typical Education

Personal care and service occupations that met the requirement for inclusion in this report are presented in Exhibit 69 along with their typical entry-level educational requirement, typical on-the-job training requirement and percentage of workers in the field who hold a community college award or have completed some postsecondary courses, but no award. For the three occupations in this group that typically require a high school diploma, at least 34% of current workers have a community college award or postsecondary coursework.

Exhibit 69: Education and Training Requirements for Personal Care & Service Occupations

SOC	Personal Care and Service Occupations	Typical Entry-Level Education	Typical On-The-Job Training	% of Community College Award Holders or Some Postsecondary Coursework
39-5011	Barbers	Postsecondary Certificate	None	34%
39-5012	Hairdressers, Hairstylists and Cosmetologists	Postsecondary Certificate	None	42%
39-5092	Manicurists and Pedicurists	Postsecondary Certificate	None	30%
39-5094	Skincare Specialists	Postsecondary Certificate	None	30%
39-6012	Concierges	HS Diploma / equivalent	Moderate-term on-the-job training	35%
39-7011	Tour Guides and Escorts	HS Diploma / equivalent	Moderate-term on-the-job training	37%
39-9031	Fitness Trainers and Aerobics Instructors	HS Diploma / equivalent	Short-term on-the-job training	34%
39-9032	Recreation Workers	HS Diploma / equivalent	Short-term on-the-job training	34%

Education Supply and Capacity

Regarding occupations in the personal care and service group, the following community college and other postsecondary programs were identified as training students to meet workforce needs. (See Appendix A for selection methodology.)

In the Inland Empire, 12 community colleges and 22 private educational institutions offer training programs that support the personal care and service occupational group. Exhibit 70 displays the annual average number of awards (certificates and associate degrees) conferred by local community colleges and private educational institutions. In addition, this exhibit displays the annual average student community college headcount by program area.

Skills Builders Taking Personal Care & Service Courses

Skills builders are students who take at least 1.5 units, don't obtain a community college award or transfer.

463 students with wage gains

18% (**\$2,400**) annual wage gains achieved

Exhibit 70: Average Annual Awards and Headcount for Personal Care & Service Occupations

TOP06	TOP06 Title	2012-2015 Average						Skills Builders Median Wage Gain %
		CC Headcount	CC Associate Degrees	Certificates or Other Credit Awards	Non-credit Awards	Total CC Awards	Total Non-CC Awards	
010240	Equine Science	51	-	-	-	-	-	-
083520	Fitness Trainer	132	3	9	0	13	6	-
083570	Aquatics and Lifesaving	795	-	-	-	-	-	-
083610	Recreation Assistant	106	-	-	-	-	147	-
122800	Athletic Training and Sports Medicine	121	1	2	0	3	11	-
130500	Child Development/Early Care and Education	7,725	170	366	0	536	-	17.8%
130540	Preschool Age Children	138	-	-	-	-	-	-
130550	The School Age Child	121	0	0	0	0	-	-
130590	Infants and Toddlers	419	0	7	0	7	-	-
300700	Cosmetology and Barbering	430	16	124	0	140	2,019	33.1%
	Total	10,039	191	508	0	699	2,183	18.2%

Production Occupations

Labor Market Demand

Exhibit 71 displays the labor market demand for occupations in the production occupational group, including employment estimates, five-year projected growth, as well as demand for replacement workers. Replacement estimates include retirements and general separations, but not turnover within the occupation. As such, replacements and new job growth combined is a good measure of demand for workers.³⁷

Inspectors, testers, sorters, samplers, and weighers is the largest occupation with the most projected job openings, followed by machinists.

Exhibit 71: Five-Year Projected Occupation Data for Production Occupations

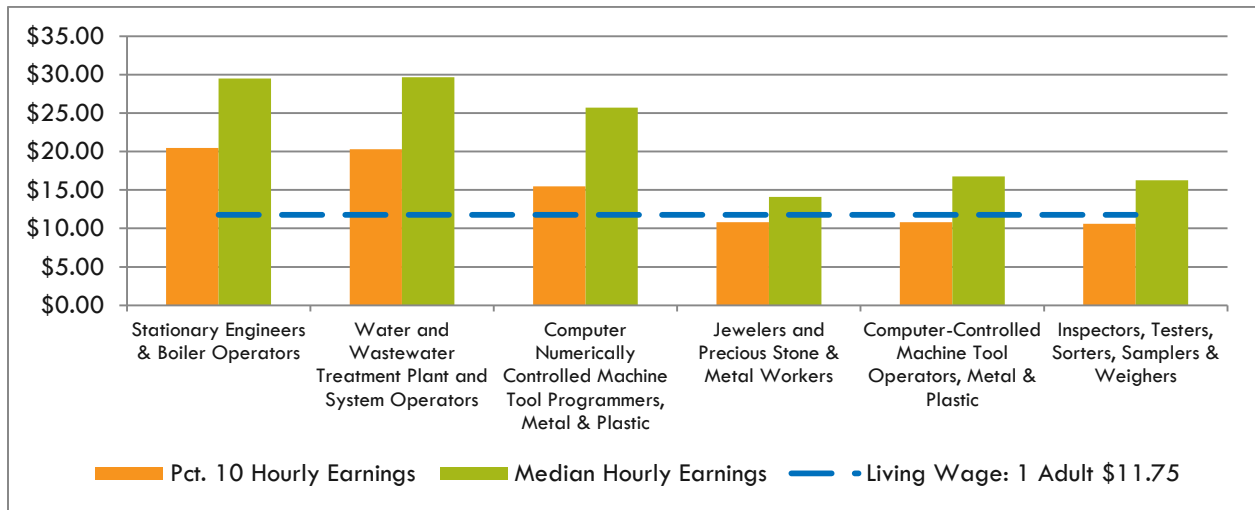
SOC	Production Occupations	2015 Jobs	5-Yr Change	5-Yr % Change	Annual Replacements	Annual Openings
51-4041	Machinists	3,944	246	6%	122	171
51-9061	Inspectors, Testers, Sorters, Samplers and Weighers	4,282	183	4%	111	148
51-4011	Computer-Controlled Machine Tool Operators, Metal and Plastic	917	113	12%	30	53
51-8031	Water and Wastewater Treatment Plant and System Operators	1,021	48	5%	27	36
51-2022	Electrical and Electronic Equipment Assemblers	1,335	28	2%	20	25
51-9012	Separating, Filtering, Clarifying, Precipitating and Still Machine Setters, Operators and Tenders	301	40	13%	10	18
51-9071	Jewelers and Precious Stone and Metal Workers	455	20	4%	11	15
51-4012	Computer Numerically Controlled Machine Tool Programmers, Metal and Plastic	213	23	11%	7	12
51-8021	Stationary Engineers and Boiler Operators	310	11	4%	9	11
51-9083	Ophthalmic Laboratory Technicians	131	25	19%	4	9

³⁷ Demand data provided by Economic Modeling Specialists, Intl. (EMSI), 2016.2 – QCEW Employees, Non-QCEW Employees, and Self-Employed.

Wages

In the Inland Empire, the living wage for one adult is \$11.75 per hour.³⁸ Exhibit 72 compares the entry-level and Median wages of production occupations to the region's living wages. As shown, the median wage for all six production occupations meets or exceeds the living wage for one adult.

Exhibit 72: Comparison of Entry-Level & Median Wages with Living Wages for Production Occupations



Typical Education

Production occupations that met the requirement for inclusion in this report presented in Exhibit 73 along with their typical entry-level educational requirement, typical on-the-job training requirement and percentage of workers in the field who hold a community college award or have completed some postsecondary courses, but no award.

For the three occupations in this group that typically require a high school diploma, at least 30% of current workers have a community college award or postsecondary coursework.

³⁸ MIT Living Wage Calculator: livingwage.mit.edu.

Exhibit 73: Education and Training Requirements for Production Occupations

SOC	Production Occupations	Typical Entry-Level Education	Typical On-The-Job Training	% of Community College Award Holders or Some Postsecondary Coursework
51-2022	Electrical and Electronic Equipment Assemblers	HS Diploma / equivalent	Moderate-term on-the-job training	30%
51-4011	Computer-Controlled Machine Tool Operators, Metal and Plastic	HS Diploma / equivalent	Moderate-term on-the-job training	44%
51-4012	Computer Numerically Controlled Machine Tool Programmers, Metal and Plastic	HS Diploma / equivalent	Long-term on-the-job training	44%
51-4041	Machinists	HS Diploma / equivalent	Long-term on-the-job training	39%
51-8021	Stationary Engineers and Boiler Operators	HS Diploma / equivalent	Long-term on-the-job training	42%
51-8031	Water and Wastewater Treatment Plant and System Operators	HS Diploma / equivalent	Long-term on-the-job training	45%
51-9012	Separating, Filtering, Clarifying, Precipitating and Still Machine Setters, Operators and Tenders	HS Diploma / equivalent	Moderate-term on-the-job training	41%
51-9061	Inspectors, Testers, Sorters, Samplers and Weighers	HS Diploma / equivalent	Moderate-term on-the-job training	38%
51-9071	Jewelers and Precious Stone and Metal Workers	HS Diploma / equivalent	Long-term on-the-job training	36%
51-9083	Ophthalmic Laboratory Technicians	HS Diploma / equivalent	Moderate-term on-the-job training	50%

Education Supply and Capacity

Regarding production occupations, the following community college and other postsecondary programs were identified as training students to meet workforce needs. (See Appendix A for selection methodology.)

In the Inland Empire, nine community colleges and eight private educational institutions offer training programs that support the production occupational group. Exhibit 74 displays the annual average number of awards (certificates and associate degrees) conferred by local community colleges and private educational institutions. In addition, this exhibit displays the annual average student community college headcount by program area.

Skills Builders Taking Production Courses

Skills builders are students who take at least 1.5 units, don't obtain a community college award or transfer.

328 students with wage gains

37% (**\$12,320**) annual wage gains achieved

Appendix B provides detailed data for skills builders by program area.

Exhibit 74: Average Annual Awards and Headcount for Production Occupations

TOP06	TOP06 Title	2012-2015 Average						Skills Builders Median Wage Gain %
		CC Headcount	CC Associate Degrees	Certificates or Other Credit Awards	Non-credit Awards	Total CC Awards	Total Non-CC Awards	
043000	Biotechnology and Biomedical Technology	44	-	-	-	-	-	-
092400	Engineering Technology, General	488	10	5	0	15	-	22.9%
093400	Electronics and Electric Technology	525	9	19	0	29	113	(2.1%)
093420	Industrial Electronics	167	-	-	-	-	-	-
093440	Electrical Systems and Power Transmission	195	8	53	0	61	43	49.2%
093600	Printing and Lithography	72	1	0	0	1	-	-
095000	Aeronautical and Aviation Technology	162	2	15	0	17	-	-
095010	Aviation Airframe Mechanics	141	4	38	0	42	-	-
095020	Aviation Powerplant Mechanics	123	5	42	0	47	-	-
095040	Aircraft Electronics (Avionics)	0	0	0	0	0	-	-
095050	Aircraft Fabrication	23	-	-	-	-	-	-
095250	Mill and Cabinet Work	77	-	-	-	-	-	-
095600	Manufacturing and Industrial Technology	113	2	5	0	6	-	-
095630	Machining and Machine Tools	135	3	11	0	14	23	-
095650	Welding Technology	1,024	8	46	0	54	292	46.6%
095680	Industrial Quality Control	23	-	-	-	-	-	-
095800	Water and Wastewater Technology	711	22	29	0	51	-	34.4%
124000	Dental Occupations	0	-	-	-	-	61	-
124030	Dental Laboratory Technician	4	1	3	0	5	-	-
	Total	4,027	75	268	0	343	532	37.1%

Protective Service Occupations

Labor Market Demand

Exhibit 75 displays the labor market demand for occupations in the protective service group, including employment estimates, five-year projected growth, as well as demand for replacement workers. Replacement estimates include retirements and general separations, but not turnover within the occupation. As such, replacements and new job growth combined is a good measure of demand for workers.³⁹

Police and sheriff's patrol officers is the largest occupation with the most projected job openings, followed by correctional officers and jailers. The third largest occupation is firefighters.

Exhibit 75: Five-Year Projected Occupation Data for Protective Service Occupations

SOC	Protective Service Occupations	2015 Jobs	5-Yr Change	5-Yr % Change	Annual Replacements	Annual Openings
33-3051	Police and Sheriff's Patrol Officers	6,079	423	7%	210	294
33-3012	Correctional Officers and Jailers	4,663	268	6%	133	187
33-2011	Firefighters	3,566	214	6%	107	150
33-3021	Detectives and Criminal Investigators	1,119	45	4%	28	37
33-1011	First-Line Supervisors of Correctional Officers	570	32	6%	17	24
33-1012	First-Line Supervisors of Police and Detectives	327	40	12%	13	21
33-1021	First-Line Supervisors of Fire Fighting and Prevention Workers	272	30	11%	14	20
33-9011	Animal Control Workers	212	11	5%	5	7
33-9093	Transportation Security Screeners	270	5	2%	5	6
33-2021	Fire Inspectors and Investigators	46	5	11%	1	2

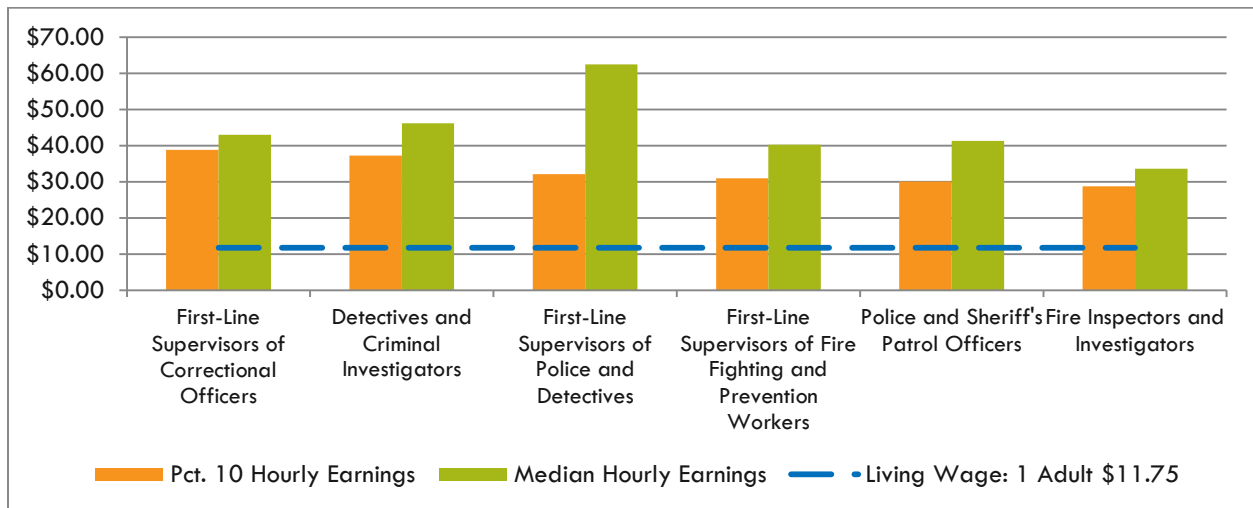
Wages

In the Inland Empire, the living wage for one adult is \$11.75 per hour.⁴⁰ Exhibit 76 compares the entry-level and Median wages of protective service occupations to the region's living wages. As shown, the entry-level wage for all six of the protective service occupations exceeds the living wage for one adult.

³⁹ Demand data provided by Economic Modeling Specialists, Intl. (EMSI), 2016.2 – QCEW Employees, Non-QCEW Employees, and Self-Employed.

⁴⁰ MIT Living Wage Calculator: livingwage.mit.edu.

Exhibit 76: Comparison of Entry-Level & Median Wages with Living Wages for Protective Service Occupations



Typical Education

Protective service occupations that met the requirement for inclusion in this report are presented in Exhibit 77 along with their typical entry-level educational requirement, typical on-the-job training requirement and percentage of workers in the field who hold a community college award or have completed some postsecondary courses, but no award. For the seven occupations in this group that typically require a high school diploma, at least 41% of current workers have a community college award or postsecondary coursework.

Exhibit 77: Education and Training Requirements for Protective Service Occupations

SOC	Protective Service Occupations	Typical Entry Level Education	Typical On-The-Job Training	% of Community College Award Holders or Some Postsecondary Coursework
33-1011	First-Line Supervisors of Correctional Officers	HS Diploma / equivalent	Moderate-term on-the-job training	46%
33-1012	First-Line Supervisors of Police and Detectives	HS Diploma / equivalent	Moderate-term on-the-job training	43%
33-1021	First-Line Supervisors of Fire Fighting and Prevention Workers	Postsecondary Certificate	Moderate-term on-the-job training	59%
33-2011	Firefighters	Postsecondary Certificate	Long-term on-the-job training	64%
33-2021	Fire Inspectors and Investigators	Postsecondary Certificate	Moderate-term on-the-job training	49%
33-3012	Correctional Officers and Jailers	HS Diploma / equivalent	Moderate-term on-the-job training	52%
33-3021	Detectives and Criminal Investigators	HS Diploma / equivalent	Moderate-term on-the-job training	35%
33-3051	Police and Sheriff's Patrol Officers	HS Diploma / equivalent	Moderate-term on-the-job training	52%
33-9011	Animal Control Workers	HS Diploma / equivalent	Moderate-term on-the-job training	41%
33-9093	Transportation Security Screeners	HS Diploma / equivalent	Short-term on-the-job training	50%

Education Supply and Capacity

For the occupations in protective service, the following are community college and other postsecondary programs that were identified as training students to meet workforce needs. (See Appendix A for selection methodology.)

In the Inland Empire, 13 community colleges and eight private educational institutions offer training programs that support the protective service occupational group. Exhibit 78 displays the annual average number of awards (certificates and associate degrees) conferred by local community colleges and private educational institutions. In addition, this exhibit displays the annual average student community college headcount by program area.

Skills Builders Taking Architecture & Engineering Courses

Skills builders are students who take at least 1.5 units, don't obtain a community college award or transfer.

2,825 students with wage gains

8% (\$5,546) annual wage gains achieved

Appendix B provides detailed data for skills builders by program area.

Exhibit 78: Average Annual Awards and Headcount for Protective Service Occupations

TOP06	TOP06 Title	2012-2015 Average						Skills Builders Median Wage Gain %
		CC Headcount	CC Associate Degrees	Certificates or Other Credit Awards	Non-credit Awards	Total CC Awards	Total Non-CC Awards	
210500	Administration of Justice	5,135	302	102	0	404	122	44.8%
210510	Corrections	1,177	12	36	0	48	47	1.9%
210520	Probation and Parole	247	-	-	-	-	-	38.0%
210530	Industrial and Transportation Security	24	-	-	-	-	27	(6.2%)
210550	Police Academy	1,169	2	53	0	55	-	4.3%
213300	Fire Technology	3,557	84	49	0	133	-	8.7%
213310	Wildland Fire Technology	81	-	-	-	-	-	(6.8%)
213350	Fire Academy	314	10	61	0	70	-	21.2%
	Total	11,705	410	301	0	711	197	7.7%

Sales & Related Occupations

Labor Market Demand

Exhibit 79 displays the labor market demand for occupations in the sales and related occupational group, including employment estimates, five-year projected growth, as well as demand for replacement workers. Replacement estimates include retirements and general separations, but not turnover within the occupation. As such, replacements and new job growth combined is a good measure of demand for workers.⁴¹

First-line supervisors of retail sales workers is the largest occupation with the most projected job openings, followed by sales representatives (wholesale and manufacturing, except technical and scientific products). Insurance sales agents comprise the third largest occupation with 177 annual openings.

Exhibit 79: Five-Year Projected Occupation Data for Sales and Related Occupations

SOC	Sales and Related Occupations	2015 Jobs	5-Yr Change	5-Yr % Change	Annual Replacements	Annual Openings
41-1011	First-Line Supervisors of Retail Sales Workers	17,960	966	5%	486	679
41-4012	Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	12,527	1,635	13%	308	635
41-3021	Insurance Sales Agents	4,313	284	7%	120	177
41-2022	Parts Salespersons	2,782	242	9%	68	116
41-1012	First-Line Supervisors of Non-Retail Sales Workers	3,942	118	3%	70	94

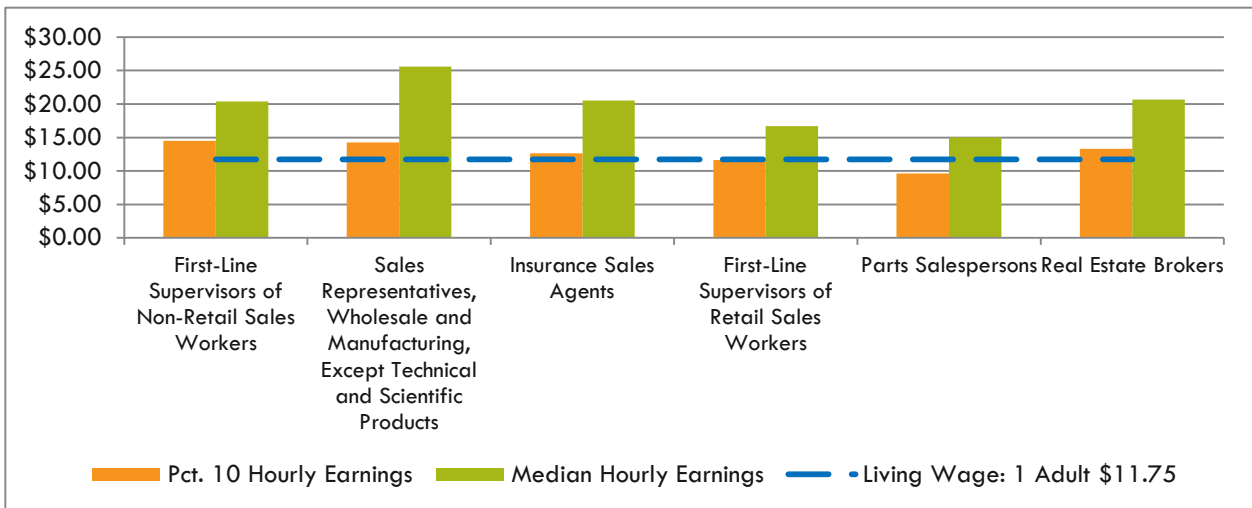
Wages

In the Inland Empire, the living wage for one adult is \$11.75 per hour.⁴² Exhibit 80 compares the entry-level and Median wages of sales and related occupations to the region's living wages. As shown, for all six of the sales and related occupations, the median wage meets or exceeds the living wage for one adult.

⁴¹ Demand data provided by Economic Modeling Specialists, Intl. (EMSI), 2016.2 – QCEW Employees, Non-QCEW Employees, and Self-Employed.

⁴² MIT Living Wage Calculator: livingwage.mit.edu.

Exhibit 80: Comparison of Entry & Experience Wages with Living Wages for Sales and Related Occupations



Typical Education

Sales and related occupations that met the requirement for inclusion in this report are presented in Exhibit 81, along with their typical entry-level educational requirement, typical on-the-job training requirement and percentage of workers in the field who hold a community college award or have completed some postsecondary courses, but no award. At least 32% of current workers in this occupational group have a community college award or postsecondary coursework.

Exhibit 81: Education and Training Requirements for Sales and Related Occupations

SOC	Sales and Related Occupations	Typical Entry-Level Education	Typical On-The-Job Training	% of Community College Award Holders or Some Postsecondary Coursework
41-1011	First-Line Supervisors of Retail Sales Workers	HS Diploma / equivalent	None	38%
41-1012	First-Line Supervisors of Non-Retail Sales Workers	HS Diploma / equivalent	None	32%
41-2022	Parts Salespersons	No formal educational credential	Moderate-term on-the-job training	37%
41-3021	Insurance Sales Agents	HS Diploma / equivalent	Moderate-term on-the-job training	36%
41-4012	Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	HS Diploma / equivalent	Moderate-term on-the-job training	32%

Education Supply and Capacity

Regarding sales and related occupations, the following are community college and other postsecondary programs that were identified as training students to meet workforce needs. (See Appendix A for selection methodology.)

In the Inland Empire, 12 community colleges and two private educational institutions offer training programs that support the sales and related occupational group. Exhibit 82 displays the annual average number of awards (certificates and associate degrees) conferred by local community colleges and private educational institutions. In addition, this exhibit displays the annual average student community college headcount by program area.

Skills Builders Taking Sales & Related Courses

Skills builders are students who take at least 1.5 units, don't obtain a community college award or transfer.

36 students with wage gains

12% (**\$3,638**) annual wage gains achieved

Exhibit 82: Average Annual Awards and Headcount for Sales and Related Occupations

TOP06	TOP06 Title	2012-2015 Average						Skills Builders Median Wage Gain %
		CC Headcount	CC Associate Degrees	Certificates or Other Credit Awards	Non-credit Awards	Total CC Awards	Total Non-CC Awards	
050650	Retail Store Operations and Management	67	1	8	0	9	-	-
050800	International Business and Trade	352	0	9	0	9	-	-
050900	Marketing and Distribution	1,186	8	9	0	17	1	18.3%
050910	Advertising	228	-	-	-	-	-	-
050940	Sales and Salesmanship	137	-	-	-	-	-	-
050960	Display	0	-	-	-	-	0	-
051100	Real Estate	1,259	11	41	0	52	-	11.3%
051110	Escrow	0	4	0	0	4	-	-
	Total	3,230	24	68	0	92	2	12.4%

Transportation & Material Moving Occupations

Labor Market Demand

Exhibit 83 displays the labor market demand for occupations in the transportation and material moving group, including employment estimates, five-year projected growth, as well as demand for replacement workers. Replacement estimates include retirements and general separations, but not turnover within the occupation. As such, replacements and new job growth combined is a good measure of demand for workers.⁴³

Heavy and tractor-trailer truck drivers is the largest occupation with the most projected job openings, followed by bus drivers (school or special client) and first-line supervisors of transportation and material-moving machine and vehicle operators.

Exhibit 83: Five-Year Projected Occupation Data for Transportation & Material Moving Occupations

SOC	Transportation and Material Moving Occupations	2015 Jobs	5-Yr Change	5-Yr % Change	Annual Replacements	Annual Openings
53-3032	Heavy and Tractor-Trailer Truck Drivers	31,085	3,706	12%	589	1,330
53-1031	First-Line Supervisors of Transportation and Material-Moving Machine and Vehicle Operators	2,602	387	15%	94	171
53-3022	Bus Drivers, School or Special Client	5,274	468	9%	76	170
53-3021	Bus Drivers, Transit and Intercity	1,202	72	6%	17	32
53-2012	Commercial Pilots	260	49	19%	7	17
53-6051	Transportation Inspectors	309	19	6%	9	13
53-3011	Ambulance Drivers and Attendants, Except Emergency Medical Technicians	105	19	18%	2	6
53-6061	Transportation Attendants, Except Flight Attendants	82	11	13%	2	4
53-5021	Captains, Mates, and Pilots of Water Vessels	45	3	7%	2	3
53-2021	Air Traffic Controllers	41	3	7%	2	2

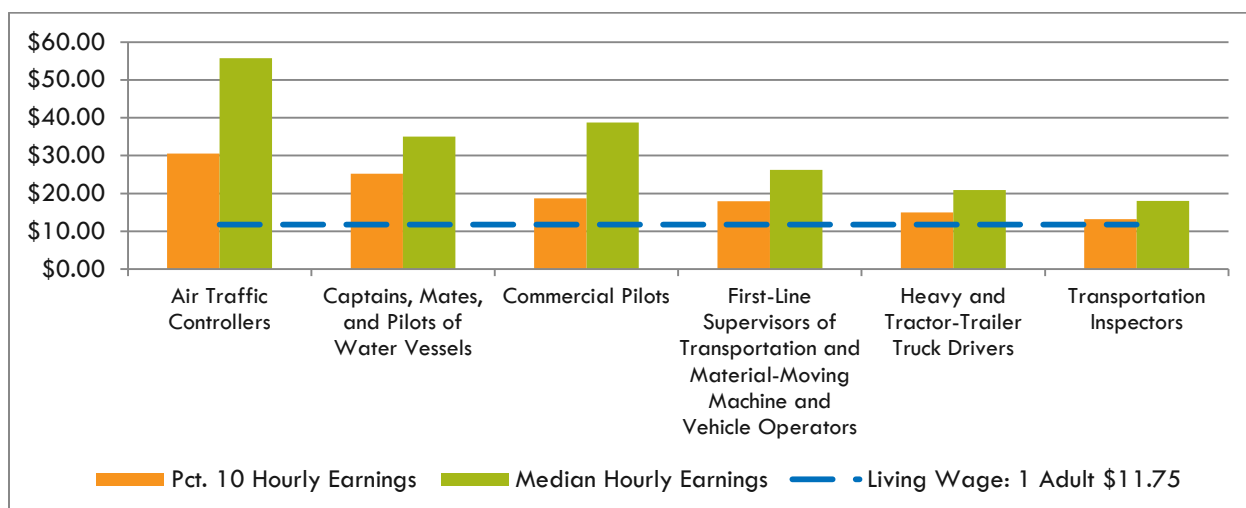
Wages

In the Inland Empire, the living wage for one adult is \$11.75 per hour.⁴⁴ Exhibit 84 compares the entry-level and Median wages of transportation and material moving occupations to the region's living wages. As shown, the entry-level wage for all six of these occupations meets or exceeds the living wage for one adult.

⁴³ Demand data provided by Economic Modeling Specialists, Intl. (EMSI), 2016.2 – QCEW Employees, Non-QCEW Employees, and Self-Employed.

⁴⁴ MIT Living Wage Calculator: livingwage.mit.edu.

Exhibit 84: Comparison of Entry-Level & Median Wages with Living Wages for Transportation & Material Moving Occupations



Typical Education

Transportation and material moving occupations are presented in Exhibit 85 along with their typical entry-level educational requirement, typical on-the-job training requirement and percentage of workers in the field who hold a community college award or have completed some postsecondary courses, but no award. For the three occupations in this group that typically require a high school diploma, at least 21% of current workers have a community college award or postsecondary coursework.

Exhibit 85: Education and Training Requirements for Transportation & Material Moving

SOC	Transportation and Material Moving Occupations	Typical Entry Level Education	Typical On-The-Job Training	% of Community College Award Holders or Some Postsecondary Coursework
53-1031	First-Line Supervisors of Transportation and Material-Moving Machine and Vehicle Operators	HS Diploma / equivalent	None	40%
53-2012	Commercial Pilots	HS Diploma / equivalent	Moderate-term on-the-job training	21%
53-2021	Air Traffic Controllers	Associate degree	Long-term on-the-job training	50%
53-3011	Ambulance Drivers and Attendants, Except Emergency Medical Technicians	HS Diploma / equivalent	Moderate-term on-the-job training	38%
53-3021	Bus Drivers, Transit and Intercity	HS Diploma / equivalent	Moderate-term on-the-job training	36%
53-3022	Bus Drivers, School or Special Client	HS Diploma / equivalent	Short-term on-the-job training	36%
53-3032	Heavy and Tractor-Trailer Truck Drivers	Postsecondary Certificate	Short-term on-the-job training	28%
53-5021	Captains, Mates, and Pilots of Water Vessels	Postsecondary Certificate	None	36%
53-6051	Transportation Inspectors	HS Diploma / equivalent	Moderate-term on-the-job training	47%
53-6061	Transportation Attendants, Except Flight Attendants	HS Diploma / equivalent	Short-term on-the-job training	34%

Education Supply and Capacity

For the occupations in the transportation and material moving occupational group, the following are community college and other postsecondary programs that were identified as training students to meet workforce needs. (See Appendix A for selection methodology.)

In the Inland Empire, five community colleges and two private educational institutions offer training programs that support the transportation and material moving occupational group. Exhibit 86 displays the annual average number of awards (certificates and associate degrees) conferred by local community colleges and private educational institutions. In addition, this exhibit displays the annual average student community college headcount by program area.

Skills Builders Taking Transportation & Material Moving Courses

Skills builders are students who take at least 1.5 units, don't obtain a community college award or transfer.

24 students with wage gains

7% (\$2,231) annual wage gains achieved

Exhibit 86: Average Annual Awards and Headcount for Transportation & Material Moving Occupations

TOP06	TOP06 Title	2012-2015 Average						Skills Builders Median Wage Gain %
		CC Headcount	CC Associate Degrees	Certificates or Other Credit Awards	Non-credit Awards	Total CC Awards	Total Non-CC Awards	
051000	Logistics and Materials Transportation	379	12	16	0	28	29	7.0%
094830	Motorcycle, Outboard and Small Engine Repair	40	-	-	-	-	-	-
302020	Piloting	9	-	-	-	-	-	-
	Total	428	12	16	0	28	29	7.0%

Appendix A: Methodology, Data Sources, Key Terms and Concepts, and Implications for Analysis

Methodology

This report identifies occupations that are relevant to the community college system, specifically terminal Career and Technical Education (CTE) programs and not transfer pathway programs. Terminal CTE programs are those that prepare students for direct entry into employment without additional education or training. Transfer pathway programs require that students advance to a four-year university to gain the typical education needed for entry into the field. Based on this definition, occupations that met the following minimum education requirements were included in the study:

- Some college coursework, a postsecondary nondegree award, and/or an associate degree; or
- High school diploma or equivalent with on-the-job training greater than 12 months; or
- Apprenticeship; or
- Bachelor's degree if at least 33 percent of workers in the occupation, age 25 or higher, have completed, as their highest level of education, some college coursework or an associate degree.

A few occupations were included in this report that did not meet any of the previously detailed education, training or educational attainment requirements, but are established career technical education targets of existing community college programs in California, such as Welders and Solar Photovoltaic Installers.

Occupations are grouped by the major occupation code, using the federal Standard Occupational Classification (SOC) system. The TOP-SOC crosswalk was utilized to identify relevant education programs that support each group. Due to data and timing limitations, training gap forecasts are not included in this research. In addition, there is not a one-to-one relationship among TOP codes and occupations; that is some TOP codes train to multiple occupations. Consequently, awards for some of the TOP codes are presented in multiple occupational groups.

Occupations in the major group, 45-Farming, fishing, and forestry occupations are not in this report because they did not meet the criteria for inclusion. In addition, some occupations had fewer than 10 total job openings and were truncated in the report. Contact your local Center of Excellence Director to request labor market information for these occupations. Contact information may be found at www.coecc.net/contact.

In addition to employment data, this report provides wage gain data for Skills-Builders. When the Skills Builders data is rolled up by TOP06 level, weighted averages were calculated to determine before and after median wages. For example, if there are 3 colleges in a region with Skills Builders data on 010900 Horticulture with different samples sizes, then the median wages before and after calculations were "weighted" by each college's sample size. The median wages before and after at each college were multiplied by its sample size to reflect the differences at the colleges and then divided by the total sample size across colleges for that TOP06.

Data Sources

Labor market and educational supply data compiled in this report covers the Inland Empire region. Data were drawn from external sources, including the Economic Modeling Specialists, Inc., the California Community Colleges Chancellor's Office Management Information Systems Data Mart, and the National Center for Educational Statistics (NCES) Integrated Postsecondary Education Data System (IPEDS). Below is summary of the data sources found in this study.

Data Type	Source
Community College Average Headcount	Chancellor's Office MIS systems (COMIS) provided by Educational Results Partnership (ERP) by TOP06 and TOP04. Note: it would NOT be accurate to sum up TOP06 headcount to get TOP04 because of duplication issues.
Community College Awards	California Community College Chancellor's Office Data Mart. The program awards module provides all credit degrees and certificates (from 6 to 60 semester units) that have been reported to the Chancellor's office. datamart.cccco.edu
Education Attainment Levels	US Census Bureau, Current Population Survey (CPS). The CPS is a monthly survey of about 50,000 households conducted by the Census Bureau for the Bureau of Labor Statistics. The survey has been conducted for more than 50 years. Educational attainment data are collected annually as part of the Annual Social and Economic Supplement. census.gov/hhes/socdemo/education/data/cps
Labor Market Information	Economic Modeling Specialists, Intl. (EMSI). EMSI occupational employment data are based on final EMSI industry data and final EMSI staffing patterns. Wage estimates are based on Occupational Employment Statistics (QCEW and Non-QCEW Employees classes of worker) and the American Community Survey (Self-Employed and Extended Proprietors). Occupational wage estimates also affected by county-level EMSI earnings by industry. economicmodeling.com
Living Wage	A living wage calculator that estimates the cost of living in a specific community or region. http://livingwage.mit.edu/
Private Education Awards	National Center for Educational Statistics (NCES) Integrated Postsecondary Education Data System (IPEDS). It includes all credit degrees and certificates (from less than one year to four years) that have been reported to IPEDS. Higher education institutions are required to report completion data to NCES if they participate in any federal financial assistance program authorized by Title IV of the Higher Education Act. nces.ed.gov/ipeds
Skills-Builders Wage Gains	California Community College Chancellor's Office Data Mart. The Student Success Scorecard Skills Builder Metric module displays the median percentage in wages for students who completed higher level CTE coursework in a given cohort year and left the system without receiving any type of traditional outcome such as transfers to a four year college or completion of a degree or certificate. datamart.cccco.edu
Typical Education Level and On-the-job Training	Bureau of Labor Statistics (BLS) uses a system to assign categories for entry-level education and typical on-the-job training to each occupation for which BLS publishes projections data. http://www.bls.gov/emp/ep_education_tech.htm

Key Terms and Concepts

Annual Job Openings: Annual openings are calculated by dividing the number of years in the projection period by total job openings.

Community College Annual Average Awards: Annual average awards for a Community college program are based on a three-year average for years 2012-15.

Community College Annual Average Headcount: Three-year average **unduplicated** student count for years 2012-15.

Education Attainment Level: The highest education attainment level of workers age 25 years or older.

Employment Estimate: The total number of workers currently employed.

Employment Projections: Projections of employment are calculated by a proprietary Economic Modeling Specialists, Intl. (EMSI) formula that includes historical employment and economic indicators along with national, state, and local trends.

Entry and Median Wage: Hourly wages are reported in percentiles and averages. The 10th percentile is a useful proxy of entry-level wages - 90 percent of people working in the occupation earn a higher wage - while the 50th percentile (median) wage may reflect a more experienced worker.

Industry: Occupations are grouped into industries using the North American Industry Classification System (NAICS).

Living Wage: The cost of living in a specific community or region for one adult and no children. The cost increases with the additional of children.

Occupation: An occupation is a grouping of jobs titles that have a similar set of activities or tasks that employees perform.

Percent Change: Rate of growth or decline in the occupation for the projected period; this does not factor in replacement openings.

Private Education Annual Average Awards: Annual average awards for private educational institutes based on a three-year average for years 2012-15.

Replacements: Estimate of job openings resulting from workers retiring or otherwise permanently leaving an occupation. Workers entering an occupation often need training. These replacement needs, added to job openings due to growth, may be used to assess the minimum number of workers who will need to be trained for an occupation.

Skills Builders: Students who completed higher level CTE coursework and leave the system without receiving any type of traditional outcome such as transfer to a four-year college or completion of a degree or certificate.

Standard Occupational Classification (SOC) System: The 2010 Standard Occupational Classification (SOC) system is used by Federal statistical agencies to classify workers into occupational categories for the purpose of collecting, calculating, or disseminating data. All workers are classified into one of 840 detailed occupations according to their occupational definition. Only occupations that met the community college relevant criteria were included in this study. For quick reference to the SOC definitions, please review the Occupation Definitions Reference Guide.

Total Job Openings (New + Replacements): Sum of projected growth (new jobs) and replacement needs. When an occupation is expected to lose jobs or retain the current employment level, number of openings will equal replacements.

Typical Education Requirement: represents the typical education level most workers need to enter an occupation.

Typical On-The-Job Training: indicates the typical on-the-job training needed to attain competency in the skills needed in the occupation.

Implications for Analysis

1. Projections are estimates of future employment and can be used to assess the need for job training programs and gain insight into future employment trends. The estimates are based on information available at the time of the forecast and assume that historical trends will continue into the future. Unforeseen events may occur during the projection period such as major business closures or openings and natural disasters can have a major impact on employment levels. More recent sources of local economic data can also be used to corroborate the projections data. This information may be found in other documents such as those published by the Centers of Excellence, in local and regional news sources, local chambers of commerce, or local economic development agencies.
2. Emerging trends in occupations may not be accurately reflected in the SOC titling and in the estimates of employment, current and future. One way to associate an 'emerging job' with a traditional job title is to conduct a keyword search on O*NET to locate the SOC with the highest relevance. It is likely that the BLS will be assigning employment for the 'emerging job' under that title. Real-time LMI, or job posting data, is another good source of information about emerging trends and occupations, but cannot provide reliable projected demand.
3. Determining a 'labor market gap' only using the Demand data in conjunction with the Supply data is not recommended. In addition to graduates of training programs, there are other considerations factored into 'supply' that remain unknown, such as the number of existing unemployed workers with the needed skills or work experience in the labor pool, influx of graduates from outside the region, migration of graduates to other regions, and more. For assistance with determining a more well-rounded analysis, please contact your regional COE director.

Appendix B: Skills Builder Wage Gains

Within the California Community College system, Skills-Builders are a special cohort of students that come to the colleges as already experienced workers who take a limited number of courses to maintain and add to skill-sets for ongoing employment and career advancement. To qualify as a Skills-Builder, the student must have successfully completed at least one 1.5 or greater unit value non-introductory CTE course, passed all CTE courses they took, did not re-enroll in any community college after one year, did not earn a community college degree or certificate, and did not transfer to a four-year institution. The following tables provide data on the wage gains of Skills-Builders for each occupation group profiled in this study.

Occupation Groups	TOP06	TOP06 Title	Median Wages Before	Median Wages After	Median Wage Gain	Median Wage Gain %	Skills Builders Sample Size (n)	Number of Colleges
11 – Management Occupations	010200	Animal Science	-	-	-	-	-	1
	010300	Plant Science	-	-	-	-	-	2
	010400	Viticulture, Enology, and Wine Business	-	-	-	-	-	1
	010900	Horticulture	-	-	-	-	-	3
	010930	Nursery Technology	-	-	-	-	-	1
	011200	Agriculture Business, Sales and Service	-	-	-	-	-	1
	050100	Business and Commerce, General	\$15,392	\$19,752	\$4,360	28.3%	212	11
	050500	Business Administration	\$23,203	\$28,676	\$5,473	23.6%	117	12
	050600	Business Management	\$19,306	\$27,465	\$8,159	42.3%	179	11
	050630	Management Development and Supervision	\$28,041	\$36,039	\$7,998	28.5%	45	6
	050640	Small Business and Entrepreneurship	\$15,138	\$18,989	\$3,851	25.4%	38	7
	050920	Purchasing	-	-	-	-	-	1
	051000	Logistics and Materials Transportation	\$32,100	\$34,331	\$2,231	7.0%	24	3
	051100	Real Estate	\$31,432	\$34,990	\$3,558	11.3%	77	9

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Occupation Groups	TOP06	TOP06 Title	Median Wages Before	Median Wages After	Median Wage Gain	Median Wage Gain %	Skills Builders Sample Size (n)	Number of Colleges
	051110	Escrow	-	-	-	-	-	2
	095700	Civil and Construction Management Technology	-	-	-	-	-	4
	130620	Dietetic Services and Management	-	-	-	-	-	2
	130700	Hospitality	-	-	-	-	-	3
	130710	Restaurant and Food Services and Management	-	-	-	-	-	3
	130720	Lodging Management	-	-	-	-	-	2
	130730	Resort and Club Management	-	-	-	-	-	2
11 – Management Occupations Total			\$20,898	\$26,474	\$5,577	26.7%	692	87
13 - Business & Financial Operations Occupations	050100	Business and Commerce, General	\$15,392	\$19,752	\$4,360	28.3%	212	11
	050200	Accounting	\$19,342	\$23,630	\$4,287	22.2%	276	12
	050210	Tax Studies	\$30,371	\$39,117	\$8,746	28.8%	10	9
	050400	Banking and Finance	-	-	-	-	-	5
	050500	Business Administration	\$23,203	\$28,676	\$5,473	23.6%	117	12
	050800	International Business and Trade	-	-	-	-	-	2
	050900	Marketing and Distribution	\$21,444	\$25,373	\$3,929	18.3%	21	11
	050920	Purchasing	-	-	-	-	-	1
	051000	Logistics and Materials Transportation	\$32,100	\$34,331	\$2,231	7.0%	24	3
	051100	Real Estate	\$31,432	\$34,990	\$3,558	11.3%	77	9
	051110	Escrow	-	-	-	-	-	2
	095200	Construction Crafts Technology	\$11,919	\$33,484	\$21,565	180.9%	18	4

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Occupation Groups	TOP06	TOP06 Title	Median Wages Before	Median Wages After	Median Wage Gain	Median Wage Gain %	Skills Builders Sample Size (n)	Number of Colleges
	092400	Engineering Technology, General	\$27,334	\$33,594	\$6,260	22.9%	19	4
	093400	Electronics and Electric Technology	\$21,993	\$21,533	(\$461)	(2.1%)	12	5
	093410	Computer Electronics	-	-	-	-	-	3
	093420	Industrial Electronics	-	-	-	-	-	2
	093430	Telecommunications Technology	-	-	-	-	-	2
	093440	Electrical Systems and Power Transmission	\$34,518	\$51,513	\$16,995	49.2%	53	2
	093480	Laser and Optical Technology	-	-	-	-	-	1
	093500	Electro-Mechanical Technology	-	-	-	-	-	1
	094300	Instrumentation Technology	-	-	-	-	-	2
	094500	Industrial Systems Technology and Maintenance	-	-	-	-	-	2
	095220	Electrical	-	-	-	-	-	2
	095300	Drafting Technology	\$13,835	\$20,125	\$6,290	45.5%	47	6
	095310	Architectural Drafting	-	-	-	-	-	2
	095330	Electrical, Electronic, and Electro-Mechanical Drafting	-	-	-	-	-	1
	095340	Mechanical Drafting	-	-	-	-	-	3
	095600	Manufacturing and Industrial Technology	-	-	-	-	-	2
	095730	Surveying	-	-	-	-	-	1
	099900	Other Engineering and Related Industrial Technologies	-	-	-	-	-	1
	220610	Geographic Information Systems	-	-	-	-	-	2

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Occupation Groups	TOP06	TOP06 Title	Median Wages Before	Median Wages After	Median Wage Gain	Median Wage Gain %	Skills Builders Sample Size (n)	Number of Colleges
13 - Business & Financial Operations Occupations Total			\$20,497	\$25,310	\$4,813	23.5%	755	81
15 - Computer & Mathematical Occupations	061420	Electronic Game Design	\$6,910	\$10,466	\$3,556	51.5%	10	2
	061430	Website Design and Development	-	-	-	-	-	4
	070100	Information Technology, General	\$13,380	\$21,451	\$8,071	60.3%	68	11
	070200	Computer Information Systems	\$15,432	\$18,302	\$2,869	18.6%	235	12
	070600	Computer Science (Transfer)	-	-	-	-	-	7
	070700	Computer Software Development	-	-	-	-	-	1
	070710	Computer Programming	\$25,877	\$32,645	\$6,768	26.2%	63	11
	070730	Computer Systems Analysis	-	-	-	-	-	6
	070800	Computer Infrastructure and Support	\$27,578	\$32,759	\$5,181	18.8%	25	2
	070810	Computer Networking	\$33,981	\$41,138	\$7,157	21.1%	40	4
	070820	Computer Support	-	-	-	-	-	3
	070900	World Wide Web Administration	\$21,262	\$28,427	\$7,165	33.7%	14	7
	070910	E-Commerce (technology emphasis)	-	-	-	-	-	1
	079900	Other Information Technology	\$18,448	\$23,828	\$5,380	29.2%	14	6
	220610	Geographic Information Systems	-	-	-	-	-	2
15 - Computer & Mathematical Occupations Total			\$18,850	\$23,703	\$4,854	25.8%	469	79
17 - Architecture & Engineering Occupations	020100	Architecture and Architectural Technology	\$7,103	\$31,085	\$23,982	337.6%	12	4
	030300	Environmental Technology	\$112,301	\$122,229	\$9,928	8.8%	157	1

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Occupation Groups	TOP06	TOP06 Title	Median Wages Before	Median Wages After	Median Wage Gain	Median Wage Gain %	Skills Builders Sample Size (n)	Number of Colleges
17 - Architecture & Engineering Occupations Total			\$69,931	\$80,452	\$10,521	15.0%	300	49
19 - Life, Physical, & Social Science Occupations	010100	Agriculture Technology and Sciences, General	-	-	-	-	-	1
	010400	Viticulture, Enology, and Wine Business	-	-	-	-	-	1
	011400	Forestry	-	-	-	-	-	1
	043000	Biotechnology and Biomedical Technology	-	-	-	-	-	2
	210540	Forensics, Evidence, and Investigation	-	-	-	-	-	7
19 - Life, Physical, & Social Science Occupations Total			-	-	-	-	-	12
21 - Community & Social Service Occupations	130100	Family and Consumer Sciences, General	-	-	-	-	-	1
	130560	Parenting and Family Education	-	-	-	-	-	6
	130900	Gerontology	\$12,323	\$20,121	\$7,798	63.3%	23	1
	210400	Human Services	\$10,252	\$17,496	\$7,244	70.7%	10	3
	210440	Alcohol and Controlled Substances	\$13,458	\$24,887	\$11,428	84.9%	47	4
	210450	Disability Services	-	-	-	-	-	-
21 - Community & Social Service Occupations Total			\$12,731	\$22,593	\$9,862	77.5%	80	16
23 – Legal Occupations	140200	Paralegal	\$25,190	\$24,513	(\$677)	(2.7%)	11	5
23 – Legal Occupations Total			\$25,190	\$24,513	(\$677)	(2.7%)	11	5

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Occupation Groups	TOP06	TOP06 Title	Median Wages Before	Median Wages After	Median Wage Gain	Median Wage Gain %	Skills Builders Sample Size (n)	Number of Colleges
25 - Education, Training & Library Occupations	080200	Educational Aide (Teacher Assistant)	-	-	-	-	-	5
	080900	Special Education	\$11,397	\$14,959	\$3,561	31.2%	24	1
	130500	Child Development/Early Care and Education	\$13,461	\$15,856	\$2,395	17.8%	439	12
	130540	Preschool Age Children	-	-	-	-	-	3
	160200	Library Technician (Aide)	\$13,409	\$31,884	\$18,475	137.8%	11	1
25 - Education, Training & Library Occupations Total			\$13,355	\$16,182	\$2,827	21.2%	474	22
27 - Arts, Design, Entertainment, Sports & Media Occupations	010920	Floriculture/Floristry	-	-	-	-	-	1
	060400	Radio and Television	\$16,255	\$17,528	\$1,272	7.8%	26	3
	060410	Radio	-	-	-	-	-	3
	060420	Television (including combined TV/Film/Video)	\$6,470	\$15,150	\$8,680	134.2%	21	3
	061220	Film Production	-	-	-	-	-	3
	061400	Digital Media	-	-	-	-	-	3
	061410	Multimedia	\$12,467	\$11,550	(\$917)	(7.4%)	26	5
	061420	Electronic Game Design	\$6,910	\$10,466	\$3,556	51.5%	10	2
	061440	Animation	-	-	-	-	-	6
	061460	Computer Graphics and Digital Imagery	\$7,588	\$13,882	\$6,294	83.0%	26	6
	085010	Sign Language Interpreting	-	-	-	-	-	2
	100500	Commercial Music	\$9,329	\$13,606	\$4,276	45.8%	24	4
	100600	Technical Theater	-	-	-	-	-	6
	101100	Photography	-	-	-	-	-	8
101200	Applied Photography	\$16,315	\$16,250	(\$65)	(0.4%)	41	5	

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Occupation Groups	TOP06	TOP06 Title	Median Wages Before	Median Wages After	Median Wage Gain	Median Wage Gain %	Skills Builders Sample Size (n)	Number of Colleges
	101300	Commercial Art	-	-	-	-	-	5
	103000	Graphic Art and Design	\$8,838	\$8,824	(\$14)	(0.2%)	29	6
	130300	Fashion	-	-	-	-	-	1
	130310	Fashion Design	-	-	-	-	-	1
	214000	Legal and Community Interpretation	-	-	-	-	-	2
27 - Arts, Design, Entertainment, Sports & Media Occupations Total			\$11,321	\$13,736	\$2,415	21.3%	203	75
29 - Healthcare Practitioners & Technical Occupations	043000	Biotechnology and Biomedical Technology	-	-	-	-	-	2
	121000	Respiratory Care/Therapy	-	-	-	-	-	2
	122100	Pharmacy Technology	-	-	-	-	-	3
	122300	Health Information Technology	-	-	-	-	-	1
	122310	Health Information Coding	-	-	-	-	-	1
	122500	Radiologic Technology	-	-	-	-	-	2
	122700	Diagnostic Medical Sonography	-	-	-	-	-	1
	123000	Nursing	\$12,205	\$13,681	\$1,476	12.1%	10	4
	123010	Registered Nursing	\$22,169	\$56,291	\$34,122	153.9%	37	7
	123020	Licensed Vocational Nursing	\$23,348	\$26,938	\$3,590	15.4%	35	5
	123900	Psychiatric Technician	-	-	-	-	-	1
	124020	Dental Hygienist	-	-	-	-	-	1
	125000	Emergency Medical Services	\$24,260	\$33,805	\$9,545	39.3%	397	9
	125100	Paramedic	\$20,884	\$31,953	\$11,069	53.0%	43	4
	130600	Nutrition, Foods, and Culinary Arts	\$8,883	\$12,584	\$3,702	41.7%	49	6
130620	Dietetic Services and Management	-	-	-	-	-	2	

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Occupation Groups	TOP06	TOP06 Title	Median Wages Before	Median Wages After	Median Wage Gain	Median Wage Gain %	Skills Builders Sample Size (n)	Number of Colleges
	130660	Dietetic Technology	-	-	-	-	-	1
29 - Healthcare Practitioners & Technical Occupations Total			\$22,284	\$32,528	\$10,244	46.0%	571	52
31 - Healthcare Support Occupations	051420	Medical Office Technology	-	-	-	-	-	3
	120100	Health , General	\$14,039	\$22,052	\$8,012	57.1%	30	6
	120510	Phlebotomy	\$7,781	\$12,591	\$4,810	61.8%	25	2
	120800	Medical Assisting	-	-	-	-	-	4
	120810	Clinical Medical Assisting	-	-	-	-	-	1
	122000	Speech/Language Pathology and Audiology	-	-	-	-	-	1
	122200	Physical Therapist Assistant	-	-	-	-	-	1
	123000	Nursing	\$12,205	\$13,681	\$1,476	12.1%	10	4
	123030	Certified Nurse Assistant	\$11,418	\$9,501	(\$1,917)	(16.8%)	21	8
	123080	Home Health Aide	-	-	-	-	-	2
	123900	Psychiatric Technician	-	-	-	-	-	1
	124010	Dental Assistant	-	-	-	-	-	2
	130900	Gerontology	\$12,323	\$20,121	\$7,798	63.3%	23	1
31 - Healthcare Support Occupations Total			\$11,568	\$16,288	\$4,720	40.8%	109	36
33 - Protective Service Occupations	210500	Administration of Justice	\$14,317	\$20,738	\$6,420	44.8%	274	12
	210510	Corrections	\$64,516	\$65,715	\$1,199	1.9%	373	6
	210520	Probation and Parole	\$31,781	\$43,869	\$12,088	38.0%	200	2
	210530	Industrial and Transportation Security	\$37,478	\$35,158	(\$2,320)	(6.2%)	10	2
	210550	Police Academy	\$85,372	\$89,017	\$3,645	4.3%	1,079	5

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Occupation Groups	TOP06	TOP06 Title	Median Wages Before	Median Wages After	Median Wage Gain	Median Wage Gain %	Skills Builders Sample Size (n)	Number of Colleges
	213300	Fire Technology	\$88,640	\$96,321	\$7,680	8.7%	809	10
	213310	Wildland Fire Technology	\$18,525	\$17,264	(\$1,261)	(6.8%)	11	2
	213350	Fire Academy	\$63,884	\$77,414	\$13,530	21.2%	69	7
33 - Protective Service Occupations Total			\$71,914	\$77,460	\$5,546	7.7%	2,825	46
35 - Food Preparation & Serving Related Occupations	130600	Nutrition, Foods, and Culinary Arts	\$8,883	\$12,584	\$3,702	41.7%	49	6
	130620	Dietetic Services and Management	-	-	-	-	-	2
	130630	Culinary Arts	\$7,638	\$17,353	\$9,714	127.2%	22	6
	130700	Hospitality	-	-	-	-	-	3
	130710	Restaurant and Food Services and Management	-	-	-	-	-	3
35 - Food Preparation & Serving Related Occupations Total			\$8,497	\$14,062	\$5,565	65.5%	71	20
37 - Building & Grounds Cleaning & Maintenance Occupations	010900	Horticulture	-	-	-	-	-	3
	010910	Landscape Design and Maintenance	-	-	-	-	-	2
	010930	Nursery Technology	-	-	-	-	-	1
	010940	Turfgrass Technology	-	-	-	-	-	2
37 - Building & Grounds Cleaning & Maintenance Occupations Total			-	-	-	-	-	8
39 - Personal Care & Service Occupations	010240	Equine Science	-	-	-	-	-	1
	083520	Fitness Trainer	-	-	-	-	-	3
	083570	Aquatics and Lifesaving	-	-	-	-	-	4
	083610	Recreation Assistant	-	-	-	-	-	1

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Occupation Groups	TOP06	TOP06 Title	Median Wages Before	Median Wages After	Median Wage Gain	Median Wage Gain %	Skills Builders Sample Size (n)	Number of Colleges
	122800	Athletic Training and Sports Medicine	-	-	-	-	-	3
	130500	Child Development/Early Care and Education	\$13,461	\$15,856	\$2,395	17.8%	439	12
	130540	Preschool Age Children	-	-	-	-	-	3
	130550	The School Age Child	-	-	-	-	-	3
	130590	Infants and Toddlers	-	-	-	-	-	9
	300700	Cosmetology and Barbering	\$7,501	\$9,984	\$2,482	33.1%	24	2
39 - Personal Care & Service Occupations Total			\$13,152	\$15,551	\$2,400	18.2%	463	41
41 - Sales & Related Occupations	050650	Retail Store Operations and Management	-	-	-	-	-	5
	050800	International Business and Trade	-	-	-	-	-	2
	050900	Marketing and Distribution	\$21,444	\$25,373	\$3,929	18.3%	21	11
	050910	Advertising	-	-	-	-	-	3
	050940	Sales and Salesmanship	-	-	-	-	-	4
	051100	Real Estate	\$31,432	\$34,990	\$3,558	11.3%	77	9
	051110	Escrow	-	-	-	-	-	2
41 - Sales & Related Occupations Total			\$29,292	\$32,929	\$3,638	12.4%	98	36
43 - Office & Administrative Support Occupations	050200	Accounting	\$19,342	\$23,630	\$4,287	22.2%	276	12
	050400	Banking and Finance	-	-	-	-	-	5
	050630	Management Development and Supervision	\$28,041	\$36,039	\$7,998	28.5%	45	6
	050920	Purchasing	-	-	-	-	-	1

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Occupation Groups	TOP06	TOP06 Title	Median Wages Before	Median Wages After	Median Wage Gain	Median Wage Gain %	Skills Builders Sample Size (n)	Number of Colleges
	051000	Logistics and Materials Transportation	\$32,100	\$34,331	\$2,231	7.0%	24	3
	051400	Office Technology/Office Computer Applications	\$13,088	\$19,950	\$6,862	52.4%	271	10
	051410	Legal Office Technology	-	-	-	-	-	1
	051420	Medical Office Technology	-	-	-	-	-	3
	051440	Office Management	-	-	-	-	-	2
	051800	Customer Service	-	-	-	-	-	1
	061450	Desktop Publishing	-	-	-	-	-	3
	070210	Software Applications	\$22,818	\$20,727	(\$2,091)	(9.2%)	19	9
	120820	Administrative Medical Assisting	-	-	-	-	-	2
	140200	Paralegal	\$25,190	\$24,513	(\$677)	(2.7%)	11	5
43 - Office & Administrative Occupations Support Total			\$18,000	\$23,278	\$5,277	29.3%	646	63
47 - Construction & Extraction Occupations	094610	Energy Systems Technology	-	-	-	-	-	4
	095200	Construction Crafts Technology	\$11,919	\$33,484	\$21,565	180.9%	18	4
	095210	Carpentry	-	-	-	-	-	2
	095220	Electrical	-	-	-	-	-	2
	095230	Plumbing, Pipefitting and Steamfitting	-	-	-	-	-	2
	095260	Masonry, Tile, Cement, Lath and Plaster	-	-	-	-	-	2
	095700	Civil and Construction Management Technology	-	-	-	-	-	4
	095720	Construction Inspection	\$17,779	\$33,218	\$15,439	86.8%	13	4

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Occupation Groups	TOP06	TOP06 Title	Median Wages Before	Median Wages After	Median Wage Gain	Median Wage Gain %	Skills Builders Sample Size (n)	Number of Colleges
	210210	Public Works	-	-	-	-	-	1
47 - Construction & Extraction Occupations Total			\$14,376	\$33,372	\$18,996	132.1%	31	25
49 - Installation, Maintenance & Repair Occupations	043000	Biotechnology and Biomedical Technology	-	-	-	-	-	2
	093400	Electronics and Electric Technology	\$21,993	\$21,533	(\$461)	(2.1%)	12	5
	093410	Computer Electronics	-	-	-	-	-	3
	093420	Industrial Electronics	-	-	-	-	-	2
	093430	Telecommunications Technology	-	-	-	-	-	2
	093440	Electrical Systems and Power Transmission	\$34,518	\$51,513	\$16,995	49.2%	53	2
	094300	Instrumentation Technology	-	-	-	-	-	2
	094600	Environmental Control Technology	\$24,518	\$33,155	\$8,637	35.2%	63	5
	094610	Energy Systems Technology	-	-	-	-	-	4
	094700	Diesel Technology	\$6,546	\$26,952	\$20,406	311.7%	11	3
	094720	Heavy Equipment Maintenance	-	-	-	-	-	1
	094800	Automotive Technology	\$12,721	\$16,634	\$3,912	30.8%	172	9
	094830	Motorcycle, Outboard and Small Engine Repair	-	-	-	-	-	1
	094840	Alternative Fuels and Advanced Transportation Technology	\$25,195	\$30,657	\$5,462	21.7%	11	4
	094900	Automotive Collision Repair	\$5,371	\$10,046	\$4,675	87.0%	34	3
	095000	Aeronautical and Aviation Technology	-	-	-	-	-	3
095010	Aviation Airframe Mechanics	-	-	-	-	-	3	

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Occupation Groups	TOP06	TOP06 Title	Median Wages Before	Median Wages After	Median Wage Gain	Median Wage Gain %	Skills Builders Sample Size (n)	Number of Colleges
	095020	Aviation Powerplant Mechanics	-	-	-	-	-	3
	095040	Aircraft Electronics (Avionics)	-	-	-	-	-	1
	095050	Aircraft Fabrication	-	-	-	-	-	2
49 - Installation, Maintenance & Repair Occupations Total			\$17,859	\$25,038	\$7,179	40.2%	356	60
51 – Production Occupations	043000	Biotechnology and Biomedical Technology	-	-	-	-	-	2
	092400	Engineering Technology, General	\$27,334	\$33,594	\$6,260	22.9%	19	4
	093400	Electronics and Electric Technology	\$21,993	\$21,533	(\$461)	(2.1%)	12	5
	093420	Industrial Electronics	-	-	-	-	-	2
	093440	Electrical Systems and Power Transmission	\$34,518	\$51,513	\$16,995	49.2%	53	2
	093600	Printing and Lithography	-	-	-	-	-	1
	095000	Aeronautical and Aviation Technology	-	-	-	-	-	3
	095010	Aviation Airframe Mechanics	-	-	-	-	-	3
	095020	Aviation Powerplant Mechanics	-	-	-	-	-	3
	095040	Aircraft Electronics (Avionics)	-	-	-	-	-	1
	095050	Aircraft Fabrication	-	-	-	-	-	2
	095250	Mill and Cabinet Work	-	-	-	-	-	2
	095600	Manufacturing and Industrial Technology	-	-	-	-	-	2
	095630	Machining and Machine Tools	-	-	-	-	-	2
	095650	Welding Technology	\$19,429	\$28,491	\$9,062	46.6%	75	5
095680	Industrial Quality Control	-	-	-	-	-	2	

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Occupation Groups	TOP06	TOP06 Title	Median Wages Before	Median Wages After	Median Wage Gain	Median Wage Gain %	Skills Builders Sample Size (n)	Number of Colleges
	095800	Water and Wastewater Technology	\$40,407	\$54,296	\$13,888	34.4%	169	3
	124030	Dental Laboratory Technician	-	-	-	-	-	1
51 - Production Occupations Total			\$33,228	\$45,548	\$12,320	37.1%	328	45
53 - Transportation & Material Moving Occupations	051000	Logistics and Materials Transportation	\$32,100	\$34,331	\$2,231	7.0%	24	3
	094830	Motorcycle, Outboard and Small Engine Repair	-	-	-	-	-	1
	302020	Piloting	-	-	-	-	-	1
53 - Transportation & Material Moving Occupations Total			\$32,100	\$34,331	\$2,231	7.0%	24	5
Grand Total			\$38,383	\$44,271	\$5,888	15.3%	8,506	863