



San Luis Obispo County

Challenges & Opportunities for the SLO County
Workforce Investment Board

[bw] RESEARCH
PARTNERSHIP

2725 JEFFERSON STREET, SUITE 13, CARLSBAD CA 92008
50 MILL POND DRIVE, WRENTHAM, MA 02093
T (760) 730-9325 F (888) 457-9598

bwresearch.com
twitter.com/BW_Research
facebook.com/bwresearch





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EXECUTIVE SUMMARY

INTRODUCTION

In July of 2014, the San Luis Obispo (SLO) County Workforce Investment Board partnered with BW Research Partnership, Inc. (BW Research) to develop an economic and workforce development analysis of San Luis Obispo County. The research is built on a foundation of recent data from California Employment Development Department (EDD), the US Bureau of Labor Statistics, the US Census, the American Community Survey, and Economic Modeling Specialists, Inc. (EMSI). The research also utilizes data from executive interviews that were completed with SLO county workforce and economic development stakeholders as well as recent research completed by BW Research and the Economic Advancement Research Institute (EARI).

The primary research questions driving the current study included:

- Where is San Luis Obispo County's economy today, what are the workforce needs of employers, and the employment opportunities for SLO's job-seekers?
- How does San Luis Obispo County's labor market compare and contrast with the Central Coast region¹, California and the United States and what workforce development lessons can be learned from other regions?
- Describe the SLO workforce, its educational attainment, its ability to find employment and the opportunities for training and education within the County.
- What occupations and occupational skill sets are needed by employers and where should workforce development programs be focused?

This report is organized into three general categories that provide the reader with both general and specific information about SLO County's economy and the opportunities for workforce development.

- **San Luis Obispo County's Employment:** An overview of the County's employment opportunities and the industries, occupations and skills that are in demand in San Luis Obispo County. This section also includes comparisons to other regions as well as delineating the sub-regional differences within the County.
- **San Luis Obispo County's Workforce:** An overview of SLO's resident workforce, including current and historical employment, educational attainment and training and educational opportunities within the County.
- **A Gap Analysis and Assessment of Workforce Development opportunities.** This final section of the report identifies any relevant gaps between SLO County's employer needs and the resident workforce. This section also provides some additional relevant analyses for regional workforce development.

¹ For this study the Central Coast is defined as Ventura, Santa Barbara, San Luis Obispo and Monterey counties.



Most of the analyses in this study focus on the changes in SLO County that have occurred from 2005 through the latest data in 2014 (including some datasets that forecast annualized data for 2014). This time frame allows us to look at the economy before the great recession and ask how this significant downturn in the economy impacted the region's workforce needs.

For the regional analyses, SLO County, was compared to the Central Coast and Sonoma County. Sonoma County is used as a reference, as it is comparable in size to SLO (somewhat larger but similar population to employment ratio) and also has above average employment in agriculture and tourism. SLO was also compared to California and the United States as a whole.

For the sub-regional analyses, SLO County was split into four sub-regions, including;

- **South County:** This sub-region includes the area just South of the City of San Luis Obispo all the way to the Southern border of the County at Nipomo.
- **San Luis Obispo City:** This sub-region encapsulates all of the City of San Luis Obispo.
- **Coastal:** This sub-region includes the communities of Los Osos, Morro Bay, Cayucos and Cambria.
- **North County:** This sub-region includes the area from Santa Margarita to San Miguel, including Paso Robles, Atascadero and Templeton.

Figure 1: Map of San Luis Obispo County Sub-Regions





KEY FINDINGS

The following key findings come from the analyses of San Luis Obispo County's workforce;

- San Luis Obispo County has recovered stronger, in terms of total employment growth, from the great recession and financial crisis of 2008/2009 than the Central Coast, California or the United States.
- Within the County, the City of San Luis Obispo saw little impact from the great recession, while South County saw a considerable decline in total area employment from 2008 to 2009.
- Following statewide trends, industries like Healthcare, Professional, Scientific and Technical services have seen considerable growth in the County over the last ten years. While industries, like Manufacturing in SLO County have gone against regional and statewide trends and have grown over the same time period.
- Each of the County's industry clusters, Building, Design & Construction, Green Energy, Health Services, Knowledge & Innovation, Specialized Manufacturing and Uniquely SLO County, have increased in employment from 2010 to 2014 faster than the average SLO business. Green Energy and Building, Design and Construction have grown by over 20 percent over that same time period.²
- For most occupational categories, San Luis Obispo County's average wage is below, in some cases well below the California average. Management, legal and computer and mathematics occupations saw the largest difference between the County average wage and California average wage.
- Occupational tiers provide a valuable tool in understanding the quality of jobs that are growing and available within a given region or industry. The County, like the entire Central Coast region has a relatively high proportion (40%) of tier 3, low wage and low skill, occupations.
- Residents of San Luis Obispo County continue to have a lower unemployment rate than the California average, but also tend to have lower labor participation rates than the state average. The lower labor participation rates can be largely explained by the relatively large population of students and individuals over the age of 65 that live in the County.
- Population growth in the County has been largely consistent with state and national averages over the last 10 years. Within the County, all of the sub-regions have been growing at a relatively consistent rate as well, except for the

² The original industry clusters were developed by Collaborative Economics and the San Luis Obispo County Economic Vitality Corporation (EVC) to identify those industries that represent over 90% of regional job growth since 1995. These definitions were refined by the research team for the current report.



City of San Luis Obispo which saw little to no growth from 2005 to 2010, but has since followed a similar rate of growth as the other sub-regions.

- The overall poverty rate in San Luis Obispo County (15%) is just below the state average, but just above the regional average. San Luis Obispo's poverty is more likely to be found among the County's 18 to 64 year olds, different than national and statewide trends, which have the highest percentage of poverty among individuals under 18 years of age.
- San Luis Obispo County is a net exporter of jobs, meaning more people live in the County and work outside of the County, than live outside of the County and come and work in SLO. Most of these exported positions are found in Management, Science, Business and Art occupations.³
- In general, the cost of living in San Luis Obispo County is just a little bit above the national average. However, housing and rent expenses are approximately 50 percent higher than that national average.

RESEARCH CONCLUSIONS & RECOMMENDATIONS

The following research conclusions and recommendations are based upon the research findings;

1. Identify training and educational opportunities and resources that move workers into tier 1 and tier 2 occupations.

In San Luis Obispo County for most job-seekers, finding employment is not as much of a challenge as finding employment that pays enough for housing in the region and provides opportunity for career growth. The analyses of the County's economy reveals that the total number of jobs have recovered relatively quickly from the economic downturn that began in 2008 and 2009, and yet the quality of the jobs has not.

The County's industry clusters provide strong opportunities for employment growth and, except for Uniquely SLO (Wine & Agriculture and Recreation & Accommodation), a majority of their occupations are found in tier 1 and tier 2. These industry clusters provide some initial direction of where employee training and career pathway resources should be focused.

2. Develop mechanisms for regularly gathering input from regional employers, particularly those in key industry clusters as well as understanding your local job-seekers.

Workforce development programs tend to be most effective when they are built upon meeting the needs of local and regional businesses while understanding the needs of local job-seekers (Demand-drive & supply aware). Indicators that provide insight into the changing needs of employers as well as the profile of job-seekers support more

³ The total number of jobs held by residents of San Luis Obispo County is higher than the total amount of jobs within the County, resulting in a net export of San Luis Obispo County workers – see Figure 20, page 40.



informed decision making for regional workforce development. This feedback can be in the form of representative employer and job-seeker surveys, secondary data, advisory panels, stakeholder interviews and even a combination of these different methods, but some process should be identified for gathering input from the business and job-seeker communities.

3. Consider new approaches to assessing and developing skills among your job-seeking customers.

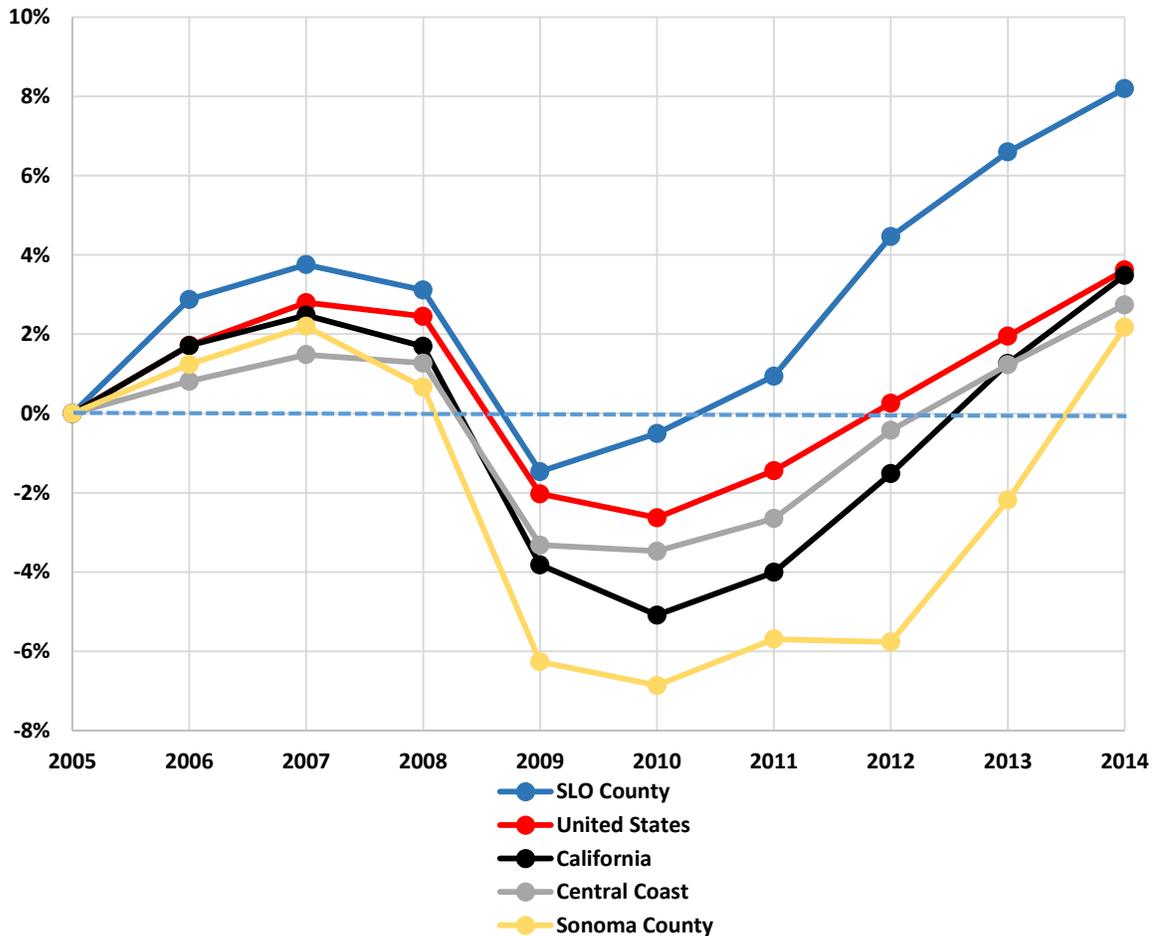
Degrees and/or certificates are often a necessary but not sufficient component of preparing job-seekers for tier 1 and tier 2 employment. New approaches that evaluate a job-seeker's academic foundation, their technical and workplace skills as well as their ability to navigate within different career pathways are all crucial to find and retain long-term employment sustainability. Regional workforce development programs need to recognize these diverse skill requirements, and look to provide support that builds upon a job-seekers strength while shoring up their skill weaknesses.



PART 1: SAN LUIS OBISPO COUNTY EMPLOYMENT PROFILE

The overall employment picture in the United States over the last ten years has been rocky. From 2008 to 2009, the nation saw a drop in total employment of approximately five percent, a loss in one of every 20 US jobs. While, San Luis Obispo County was not immune from this macro-economic shock, it did fare considerably better in terms of the proportional employment impact over this 10 year period. Comparable regions, such as California, the Central Coast or even a comparable County, such as Sonoma were hit harder by the recession and recovered slower. As the figure below reveals, from 2005 to 2014, San Luis Obispo County has experienced total employment growth of about eight percent, more than double the proportional employment growth in the United States, California, the Central Coast or Sonoma County.

Figure 2: Overall Change in Employment by Region from 2005 to 2014⁴



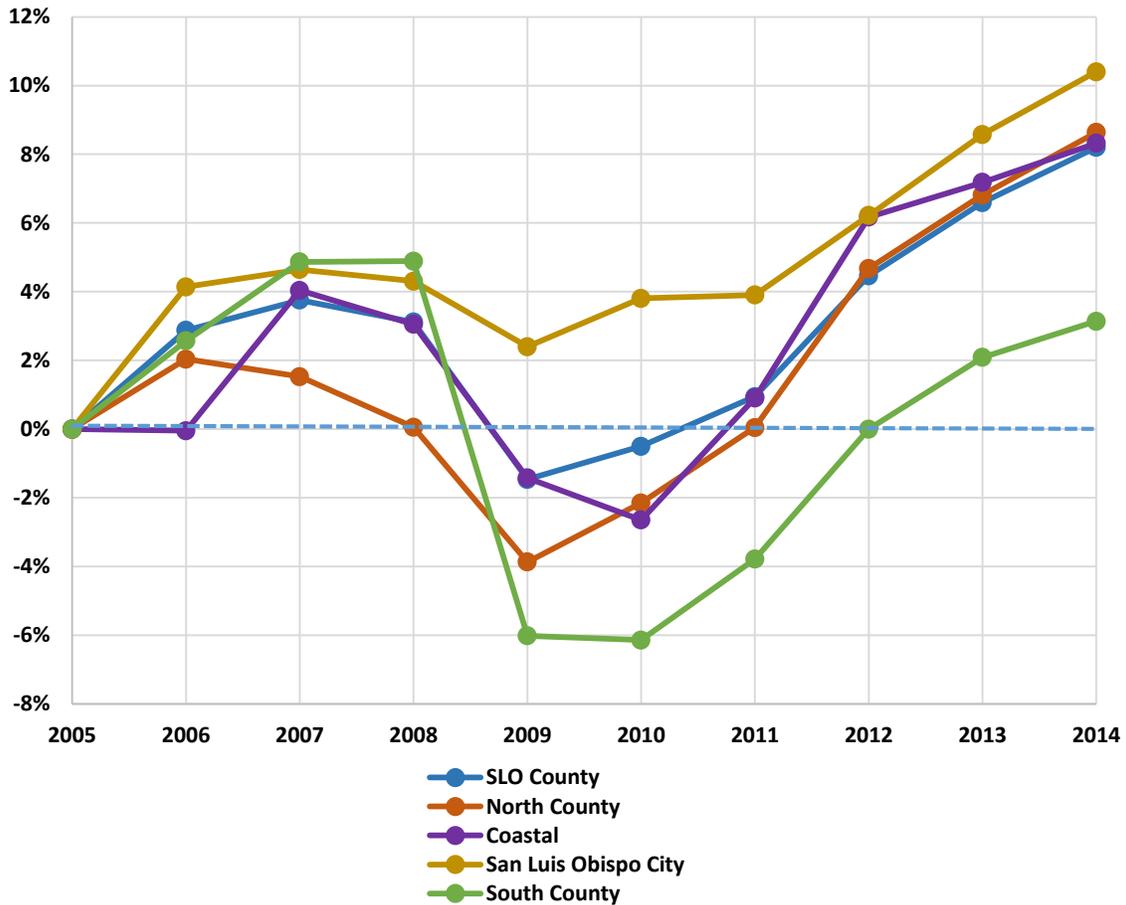
While the great recession impacted San Luis Obispo County, its influence on overall employment growth was considerably less than what was experienced by the surrounding region.

⁴ Source: EMSI QCEW and non-QCEW Employment 2014.3



The figure below shows the proportional change in overall employment by SLO County and its four sub-regions. As revealed in the chart, North County and the Coastal sub-regions tend to track the overall employment changes that are seen within the entire County. South County experienced a larger proportional decline from the great recession than any of the other sub-regions and has experienced less than four percent total employment growth from 2005 to 2014. San Luis Obispo City on the other hand experienced little if any job losses from the great recession and saw total employment increase by approximately ten percent.

Figure 3: Overall Change in Employment by Sub-Region from 2005 to 2014



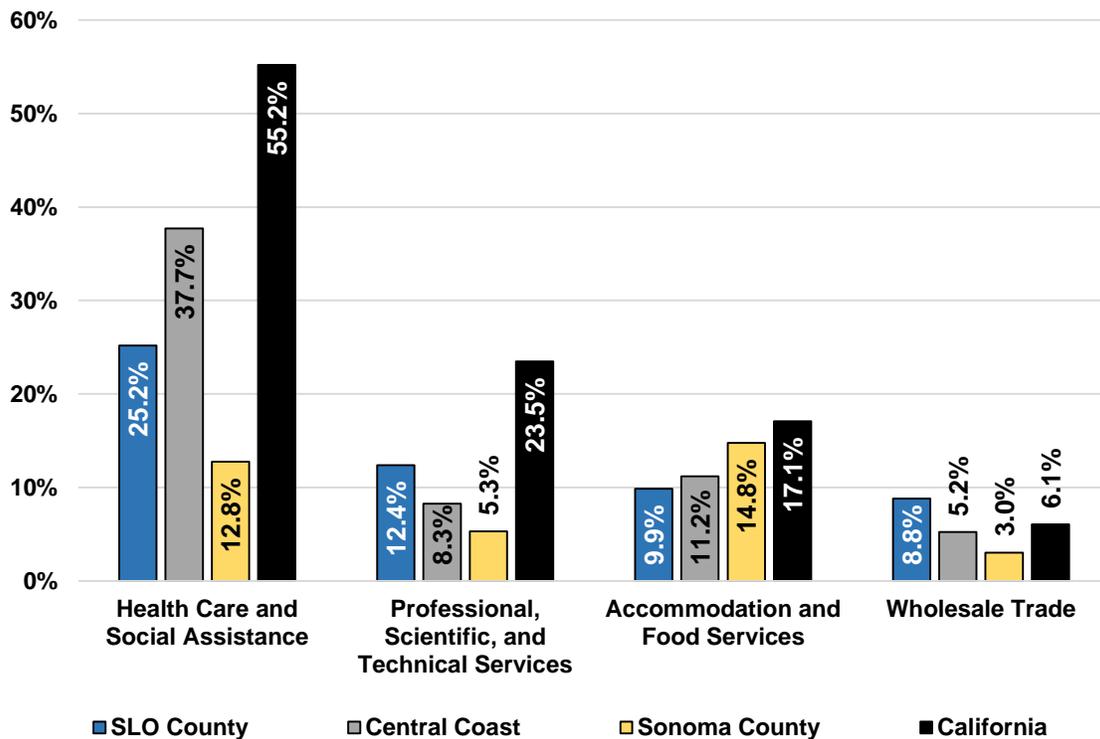


CHANGE IN INDUSTRY EMPLOYMENT

The last ten years have brought both cyclical and structural changes to the national and local economy. Cyclical impacts from the downturn in the economy in 2008 and 2009 tended to have a detrimental impact on the entire economic landscape, the greying of the population has increased demand for healthcare services, and construction was significantly impacted by the financial crisis.

In San Luis Obispo County the increase in employment in traditional industries like health care or professional, scientific and technical services was strong, but not as high as the statewide averages. Wholesale trade was one of the growing industries that experienced almost 10 percent growth in SLO County over the 2005 to 2014 time period, greater proportional growth than what was experienced in the Central Coast or California as a whole.

Figure 4: Regional Comparison of Change in Employment from 2005 to 2014 for SLO County's Growing Industries⁵



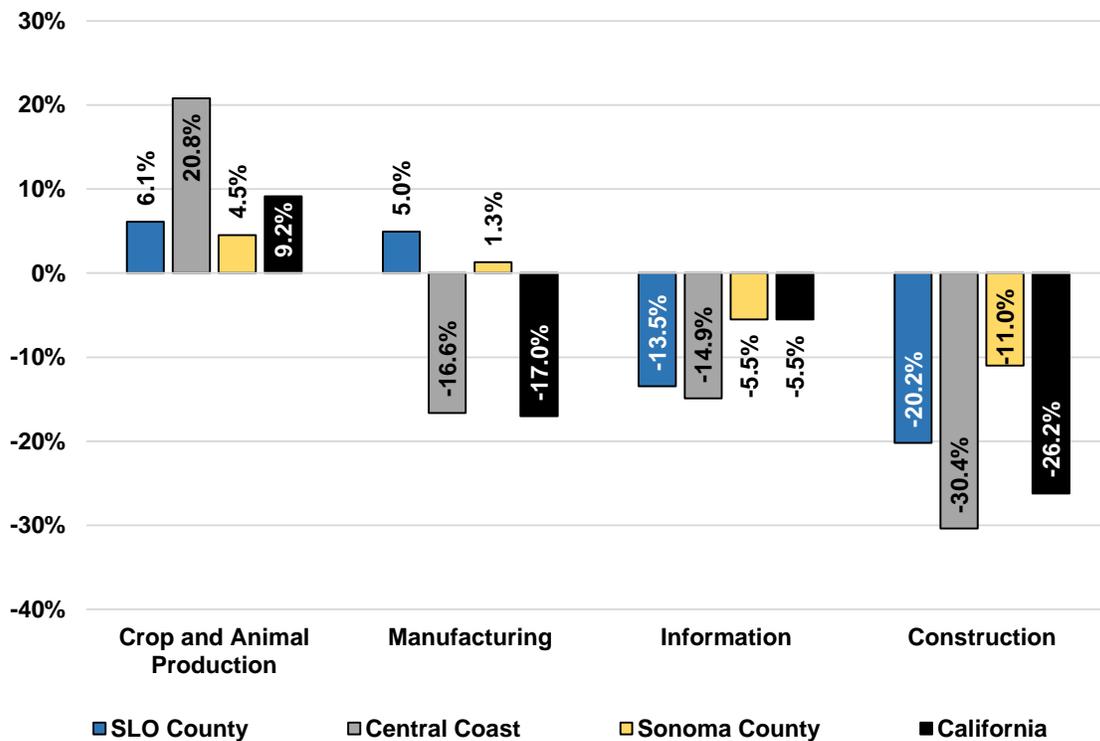
⁵ Source: EMSI QCEW and non-QCEW Employment 2014.3



As the chart below demonstrates, SLO County actually experienced an increase in manufacturing from 2005 to 2015 while California and the Central Coast saw a considerable decline in manufacturing over the same time period. A good portion of the increase in employment for SLO County manufacturing, can be found in wineries (an increase in 732 jobs) and mining, oil and gas machinery manufacturing (an increase in 172 jobs).

The County also experienced less of a decline in construction than what was experienced in the Central Coast and California. The Central Coast experienced a considerable increase in agricultural employment from 2005 to 2014, while SLO County saw a much more modest increase in employment over the same time period.

Figure 5: Regional Comparison of Change in Employment from 2005 to 2014 for SLO County's Low Growth and Declining Industries⁶



⁶ Source: EMSI QCEW and non-QCEW Employment 2014.3



SAN LUIS OBISPO COUNTY INDUSTRY CLUSTERS

Industry clusters allow for a deeper analysis of the regional economy that allows us to move beyond the general industry assessment to identify regional economic drivers, shared resources that are in demand (including human capital), and a better understanding of the markets in which firms compete and cooperate. San Luis Obispo County's industry clusters of importance are a mix of export-oriented (or traded) and population-serving clusters. The clusters selected represent just under half (46 percent) of all employment in San Luis Obispo County. The industry clusters analyzed in this report closely followed those identified in previous countywide reports, however, in some cases, relevant industries were added to established clusters (i.e., real estate was added to the Building, Design & Construction cluster) and cluster definitions were refined to utilize North American Industry Classification System (NAICS) demarcation at the 6-digit level (compared to previous studies that only used 4-digit classification)⁷. The industry clusters analyzed were;

- **Building, Design & Construction**: This industry cluster represents nearly 8,700 jobs in the County and includes the following sub-groups;
 - **Building & Construction** – this cluster sub-group includes residential building construction, highway, street, and bridge construction, land subdivision, etc., and represents approximately 6,400 jobs in the County.
 - **Design** – this sub-categorization represents offices of real estate agents and brokers and other real estate activity along with architectural, engineering, and related services. This sub-cluster employs nearly 2,300 workers in San Luis Obispo County.
- **Green Energy**: This cluster employs over 1,400 workers in San Luis Obispo County and includes nuclear, solar, wind, geothermal, biomass, and other electric power generation as well as environmental consulting services.
- **Health Services**: This industry cluster employs approximately 12,100 workers and includes San Luis Obispo County locations that can be categorized into the following sub-groups;
 - **Allied health** – this sub-cluster represents over three-fifths of employment (7,550) in the larger cluster and includes all ambulatory health care services and hospitals in the County.
 - **Residential care and rehabilitation services** – includes nursing and residential care facilities, individual and family services, and vocational rehabilitation services (4,500 employees).
- **Knowledge & Innovation**: This cluster consists of over 5,300 workers in San Luis Obispo County and can be separated in the following three categories;
 - **Internet, Knowledge & Consulting** – this is the largest sub-group within the cluster with over 4,100 employees and includes data processing and

⁷ See Appendix A for full industry cluster definitions.

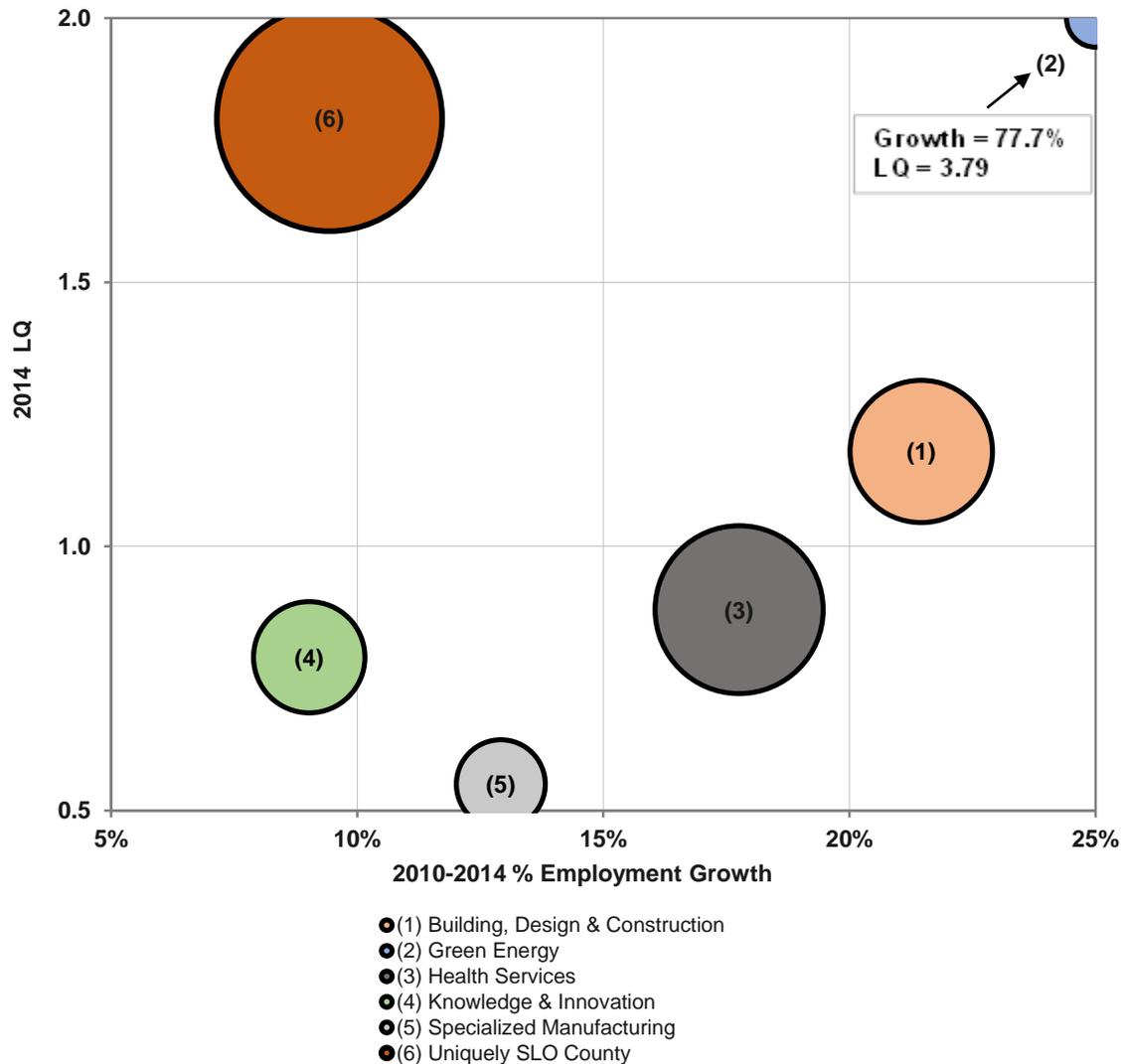


- hosting, internet publishing and broadcasting and web search portals, management consulting services, etc.
- **Computer software, hardware & training** – this sub-cluster employs just over 900 workers and includes electronic computer and computer storage device manufacturing, software publishers, computer training, etc.
 - **Telecommunications** – this sub-group represents just under 300 workers in the County and includes all wired telecommunications carriers, satellite telecommunications, and communication equipment repair and maintenance.
 - **Specialized Manufacturing**: This cluster employs nearly 3,400 workers in San Luis Obispo County and consists of the following sub-clusters;
 - **Commodity manufacturing** – this cluster sub-group includes plastics, rubber, cement, and clay product manufacturing, footwear manufacturing, soap, cleaning compound, and toiler preparation manufacturing, etc. The sub-group employs approximately 430 workers in the County.
 - **Advanced manufacturing** – this sub-cluster represents just under 3,000 employees in San Luis Obispo County and includes glass and glass product manufacturing, engine, turbine, and power transmission equipment manufacturing, aerospace product and parts manufacturing, etc.
 - **Uniquely SLO County**: This cluster is the largest examined with nearly 21,800 employees in the County in 2014. This cluster can be split into the following industry sub-groups;
 - **Recreation and Accommodation** – This sub-group employs the majority of workers in the larger cluster (17,380) and includes breweries, wineries, golf courses and country clubs, hotels, bed-and-breakfast inns, drinking places, full-service restaurants, etc.
 - **Wine and Agriculture** – Nearly 4,400 workers in San Luis Obispo County work within the sub-group that includes crop production, soil preparation, planting and cultivating, farm management services, etc.



The figure below illustrates the relative size of employment in San Luis Obispo County⁸ (by the size of the sphere), the relative industry concentration compared to the United States average (2014 Location Quotient⁹ on the vertical axis), and the overall cluster employment growth since the beginning of the economic recovery (from 2010 to 2014 on the horizontal axis). San Luis Obispo County has a higher concentration of employment within Green Energy (3.79 LQ), the Uniquely SLO County cluster (1.81 LQ), and Building, Design & Construction (1.18 LQ) when compared to similarly defined industry clusters for the United States. Each industry cluster has grown by at least nine percent over the last four years (2010-2014), with Green Energy growing the most over the same time frame (78% or 633 additional employees).

Figure 6: SLO County Industry Clusters by Concentration & Growth from 2010 to 2014¹⁰



⁸ Relative to the other industry clusters in the chart.

⁹ A LQ (Location Quotient) of 1.0 indicates that a region has the average employment for a given industry in comparison to the national economy. An LQ of 2.0 indicates the region has twice the average employment for a given industry in comparison to the national economy.

¹⁰ Source: EMSI QCEW and non-QCEW Employment 2014.3



Regional Employment by Industry Clusters

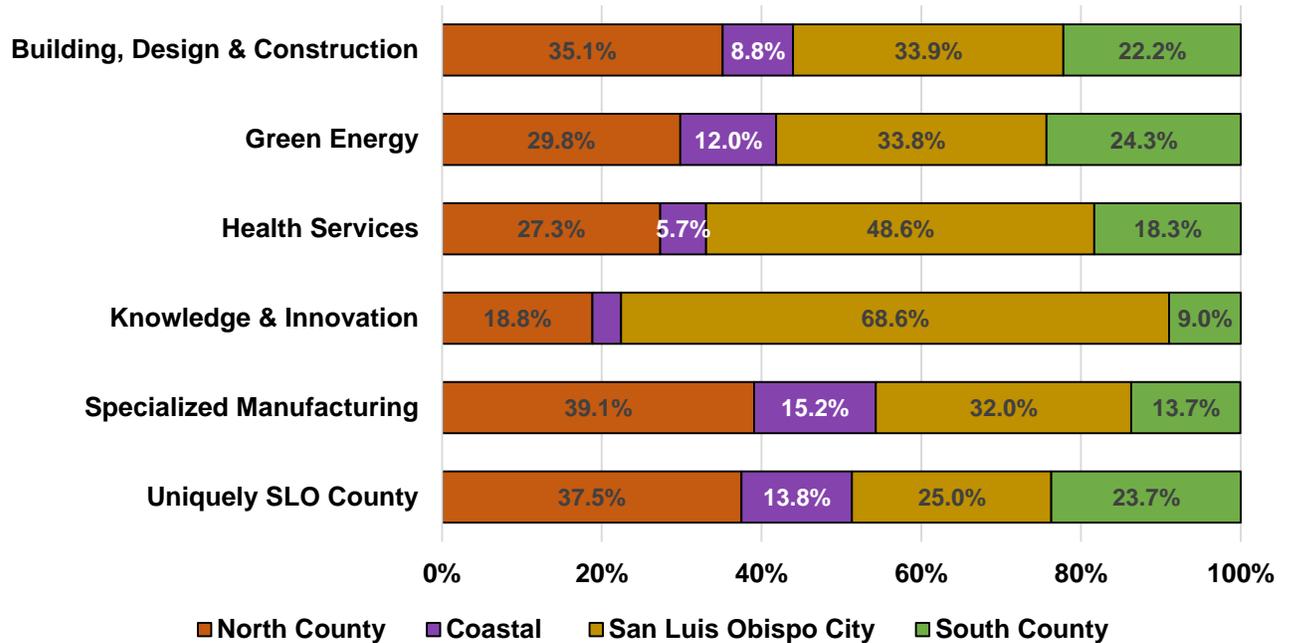
The following table displays employment by industry cluster for the four defined geographic regions within San Luis Obispo County. The City of San Luis Obispo represents the highest combined cluster employment among the four regions (19,463 jobs), followed by North County (17,262 jobs), South County (10,587 jobs), and the Coastal region (5,348).

Table 1: Current Industry Cluster Employment by Region (2014)¹¹

| Region | Building, Design & Construction | Energy | Health Services | Knowledge & Innovation | Specialized Manufacturing | Uniquely SLO County |
|----------------------|---------------------------------|--------------|-----------------|------------------------|---------------------------|---------------------|
| SLO County | 8,689 | 1,448 | 12,090 | 5,304 | 3,383 | 21,747 |
| North County | 3,054 | 432 | 3,302 | 998 | 1,322 | 8,154 |
| Coastal | 764 | 174 | 694 | 192 | 515 | 3,009 |
| San Luis Obispo City | 2,943 | 490 | 5,880 | 3,638 | 1,082 | 5,430 |
| South County | 1,928 | 352 | 2,214 | 476 | 463 | 5,154 |

The Figure below shows the regional share of employment by industry cluster for each of the San Luis Obispo County regions. As the data reveals, employment in Health Services and Knowledge & Innovation is more likely to be found in the City of San Luis Obispo, while Specialized Manufacturing and Uniquely SLO are more often found in North County.

Figure 7: Sub-Regional Share of Industry Cluster Employment (2014)¹²



¹¹ Source: EMSI QCEW and non-QCEW Employment 2014.3

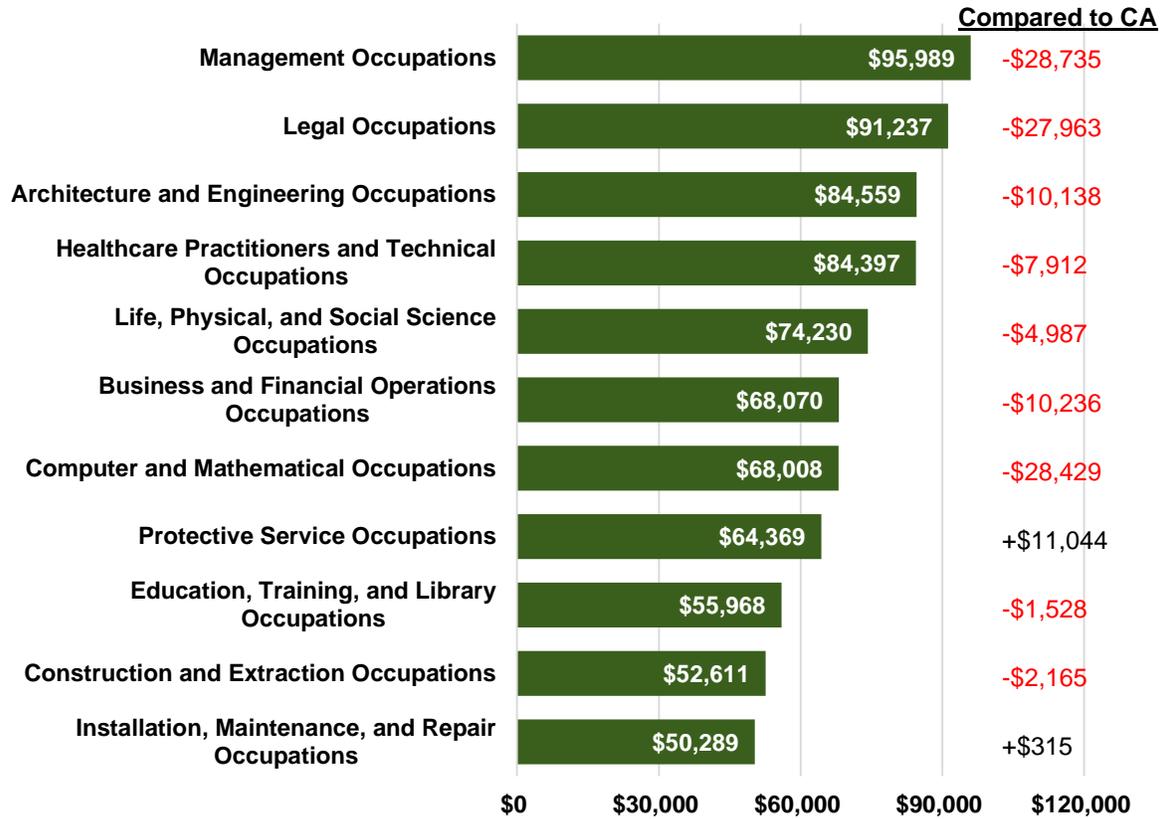
¹² Source: EMSI QCEW and non-QCEW Employment 2014.3



SAN LUIS OBISPO COUNTY OCCUPATIONS

The table below shows the average annual wage in SLO County for the top 11 highest paying occupational groups. It is worth noting that in all but two of the occupational groups, the average annual wage in SLO County is more than \$1,000 and for some more than \$20,000 less than the state average.

Figure 8: Average Wage by Occupational Group – Top 11 Occupational Groups (2014)¹³



¹³ Source: California Economic Development Department (EDD) 2014 Q1



The table below shows the average annual wage in SLO County for the 11 lowest paying occupational groups. While the overall differences between the state average wages are not as great, the trend continues with only two of the 11 occupational groups paying more than the state average.

Figure 9: Average Wage by Occupational Group – Bottom 11 Occupational Groups (2014)¹⁴



¹⁴ Source: California Economic Development Department (EDD) 2014 Q1



Occupational Tiers

While overall employment, employment growth, and the unemployment rate provide some value when examining San Luis Obispo County's overall economy, it should be understood that **not all jobs are equal**. A part-time job that pays minimum-wage with limited training and on-the-job skill development is considerably less valuable than a high-paying, full-time position with full benefits that continually develops and trains an individual for increasing levels of responsibility.

Recently adopted by the California Employment Development Department (EDD), and implemented over the last several years by BW Research for regional occupational analysis, occupational segmentation allows for the in-depth examination of the quality and quantity of jobs in a given economy. This occupational segmentation technique delineates the majority of occupations into one of three tiers.¹⁵ The occupational tiers are broadly defined as follows:

Tier 1 Occupations include managers (Chief Executives, Financial Managers, and Sales Managers), professional positions (Lawyers, Accountants, and Physicians) and highly-skilled technical occupations, such as Scientists, Computer Programmers, and Engineers. These occupations are typically the highest-paying, highest-skilled occupations in the economy. In 2014, the average earnings for Tier 1 occupations in San Luis Obispo County is \$40.58 an hour or approximately \$84,400 a year (assuming a 40 hour work week for the entire year).

Tier 2 Occupations include sales positions (Sales Representatives), teachers, and librarians, office and administrative positions (Accounting Clerks and Secretaries), and manufacturing, operations, and production positions (Assemblers, Electricians, and Machinists). These occupations have historically provided the majority of employment opportunities and could be referred to as middle-wage, middle-skill positions. In 2014, the average earnings for Tier 2 occupations in San Luis Obispo County is \$22.87 an hour or approximately \$47,600 a year (assuming a 40 hour work week for the entire year).

Tier 3 Occupations include protective services (Security Guards), food service and retail positions (Waiters, Cooks, and Cashiers), building and grounds cleaning positions (Janitors), and personal care positions (Home Health Aides and Child Care Workers). These occupations typically represent lower-skilled service positions with lower wages that require little formal training and/or education. In 2014, the average earnings for Tier 3 occupations in San Luis Obispo County is \$12.42 an hour or approximately \$25,800 a year (assuming a 40 hour work week for the entire year).

The following table displays tier employment by regions and sub-regions for comparison purposes. San Luis Obispo County's Tier 1 employment as a share of the total economy (12%) is lower than the United States (14%), California (16%), Sonoma County (15%),

¹⁵ The classification of occupations by tiers typically captures around 90 percent of all jobs in the economy as certain occupations do not meet tier requirements or are transitional occupations that can be placed into multiple tier categories.



and the Central Coast as a whole (13%). Within the County, the sub-region that includes the City of San Luis Obispo has the highest percentage of total occupations that are Tier 1, or high-skilled high-paying (15%). The remaining sub-regions' (North County, Coastal, South County) Tier 1 occupations account for between 10 and 11 percent of all occupations in the economy.

San Luis Obispo County's proportion of Tier 2 jobs (41%) trends closely with the other regions in the table, except for the Central Coast (37%). The Coastal sub-region has the lowest percentage of total jobs in the Tier 2 category (33%) and the highest proportion of jobs in Tier 3 (52%). The preponderance of low-skill low-wage workers in the Coastal sub-region can be tied to the heavy concentration of tourism and accommodation industries that rely heavily on a service-oriented workforce. San Luis Obispo County has a higher percentage of Tier 3 workers overall when compared to the United States (31%), California (34%) and Sonoma County (36%).

Table 2: Overall Occupational Tiers by Region (2014)¹⁶

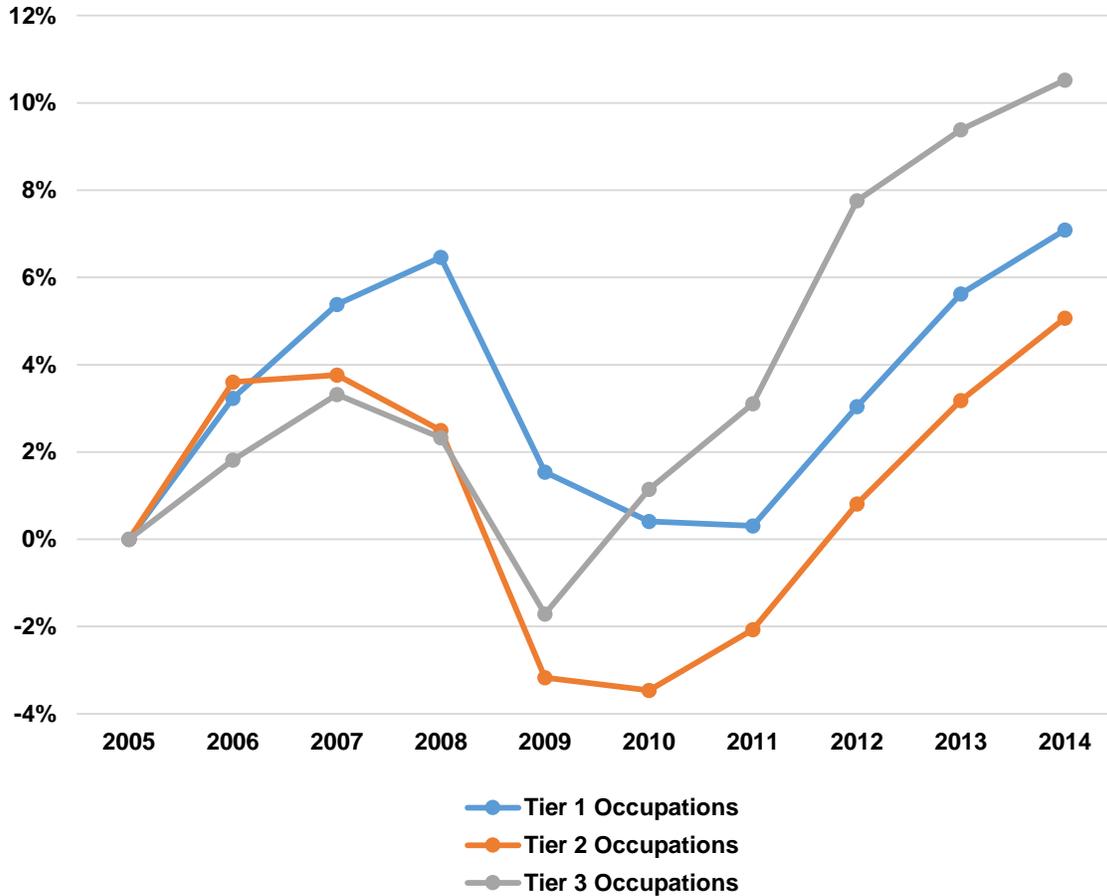
| Region | Occupational Tiers | | |
|-----------------------------|--------------------|--------|--------|
| | Tier 1 | Tier 2 | Tier 3 |
| United States | 13.7% | 40.6% | 30.6% |
| California | 16.1% | 40.5% | 33.6% |
| Sonoma County | 14.6% | 41.4% | 36.2% |
| Central Coast | 13.1% | 36.8% | 40.9% |
| SLO County | 12.3% | 40.6% | 40.0% |
| North County | 10.3% | 40.2% | 43.1% |
| Coastal | 10.2% | 32.5% | 52.1% |
| San Luis Obispo City | 14.8% | 43.2% | 33.6% |
| South County | 10.8% | 38.5% | 44.6% |

¹⁶ Source: EMSI QCEW and non-QCEW Employment 2014.3



Overall employment in San Luis Obispo County decreased through the Great Recession and has since rebounded to higher than pre-recession levels. While this is promising news, it does not highlight the fact that varying occupational segments were effected differently. As the chart below shows, Tier 2 jobs took the brunt of the economic downturn and are still lagging behind in growth when compared to Tier 1 and Tier 3 jobs. Low-skill low-paying jobs (Tier 3) have undergone overall employment growth of over 10 percent since 2005.

Figure 10: Change in SLO County Tier Employment from 2005 to 2014¹⁷



¹⁷ Source: EMSI QCEW and non-QCEW Employment 2014.3



Occupational Tiers by Industry Clusters

The table below illustrates San Luis Obispo County's occupational composition by industry clusters. Indicating the importance of industry clusters to Tier 1 and Tier 2 jobs, four of the six key industry clusters (Building, Design & Construction, Green Energy, Knowledge & Innovation, Specialized Manufacturing) have a higher proportion of employment in high-skill high-paying jobs and middle-skill middle-paying jobs when compared to the overall San Luis Obispo economy. Health Services outpaces the overall County economy in proportion of Tier 1 jobs, but the cluster employs fewer Tier 2 jobs. The Uniquely SLO County industry cluster is dominated by low-skill low-paying jobs, with nearly four out of five jobs categorized as Tier 3.

Table 3: Tier Employment by SLO County Industry Clusters (2014)¹⁸

| Industry Cluster | Occupational Tiers | | |
|--|--------------------|--------|--------|
| | Tier 1 | Tier 2 | Tier 3 |
| Building, Design & Construction | 18.4% | 59.1% | 22.5% |
| Green Energy | 31.9% | 59.6% | 8.5% |
| Health Services | 22.6% | 36.6% | 40.8% |
| Knowledge & Innovation | 26.2% | 50.6% | 23.2% |
| Specialized Manufacturing | 22.0% | 67.4% | 10.6% |
| Uniquely SLO County | 5.8% | 15.5% | 78.7% |

¹⁸ Source: EMSI QCEW and non-QCEW Employment 2014.3



Key Occupations by Occupational Tiers for San Luis Obispo County

The tables on the following three pages identify the San Luis Obispo County occupations in each tier with the most job openings (new jobs + replacement jobs) in 2014. The table includes both the growth percentage, which indicates the proportional increase in demand for that occupational category, as well as the earnings index, which indicates the proportional average earnings for each occupation in comparison to the 2014 average wage in San Luis Obispo of \$44,304 annually. For example, an earnings index of 1.00 indicates that occupational category has an average earnings of \$44,304, while an earnings index of 2.0 indicates an annual average earnings of \$88,608 for that occupational category.

Table 4: Key Tier 1 Occupations for SLO County (2014)¹⁹

| Occupation | 2014 Jobs | Growth 2005-2014 | Job Openings (New + Repl.) | Earnings Index |
|--|-----------|------------------|----------------------------|----------------|
| General and Operations Managers | 1,687 | 6.6% | 60 | 2.09 |
| Registered Nurses | 1,223 | 8.3% | 44 | 1.95 |
| Accountants and Auditors | 752 | 7.3% | 36 | 1.43 |
| Civil Engineers | 438 | 7.4% | 23 | 1.96 |
| Business Operations Specialists, All Other | 553 | 8.6% | 17 | 1.58 |
| Management Analysts | 305 | 17.3% | 13 | 1.63 |
| Sales Managers | 292 | 9.0% | 12 | 2.41 |
| Educational, Guidance, School, and Vocational Counselors | 255 | 13.8% | 11 | 1.15 |
| Graphic Designers | 212 | 3.9% | 11 | 0.96 |
| Food Service Managers | 294 | 7.3% | 11 | 1.08 |
| Financial Managers | 351 | 4.8% | 11 | 2.38 |
| Occupational Therapists | 167 | 49.1% | 10 | 1.52 |
| Education Administrators, Postsecondary | 180 | 28.6% | 10 | 2.59 |
| Dental Hygienists | 193 | 19.1% | 8 | 2.03 |
| Construction Managers | 195 | -25.3% | 8 | 2.08 |

¹⁹ Source: EMSI QCEW and non-QCEW 2014.3 & California Employment Development Department (EDD) Occupational Employment Projections 2010-2020

Table 5: Key Tier 2 Occupations for SLO County (2014)²⁰

| Occupation | 2014 Jobs | Growth 2005-2014 | Job Openings (New + Repl.) | Earnings Index |
|---|-----------|------------------|----------------------------|----------------|
| Secretaries and Administrative Assistants, Except Legal, Medical, and Executive | 2,447 | 14.2% | 86 | 0.80 |
| Postsecondary Teachers | 1,376 | 24.9% | 67 | 1.76 |
| Stock Clerks and Order Fillers | 1,334 | 5.4% | 63 | 0.54 |
| Teacher Assistants | 1,386 | 14.4% | 59 | 0.62 |
| Helpers--Production Workers | 755 | 62.7% | 50 | 0.41 |
| Secondary School Teachers, Except Special and Career/Technical Education | 1,213 | 5.0% | 49 | 1.46 |
| First-Line Supervisors of Retail Sales Workers | 1,261 | 2.4% | 49 | 0.91 |
| Bookkeeping, Accounting, and Auditing Clerks | 1,684 | 7.9% | 46 | 0.93 |
| First-Line Supervisors of Office and Administrative Support Workers | 1,112 | 7.2% | 45 | 1.19 |
| Elementary School Teachers, Except Special Education | 973 | 11.2% | 41 | 1.60 |
| Receptionists and Information Clerks | 888 | 10.6% | 41 | 0.65 |
| Social and Human Service Assistants | 853 | 9.8% | 36 | 0.99 |
| Customer Service Representatives | 800 | -4.8% | 35 | 0.81 |
| Correctional Officers and Jailers | 916 | 0.1% | 34 | 2.12 |
| Electricians | 502 | 21.3% | 29 | 1.50 |

²⁰ Source: EMSI QCEW and non-QCEW 2014.3 & California Employment Development Department (EDD) Occupational Employment Projections 2010-2020.

Table 6: Key Tier 3 Occupations for SLO County (2014)²¹

| Occupation | 2014 Jobs | Growth 2005-2014 | Job Openings (New + Repl.) | Wage Index |
|--|-----------|------------------|----------------------------|------------|
| Retail Salespersons | 4,538 | 2.2% | 240 | 0.61 |
| Farmworkers and Laborers, Crop, Nursery, and Greenhouse | 3,171 | 7.6% | 235 | 0.49 |
| Waiters and Waitresses | 3,014 | 8.5% | 199 | 0.47 |
| Cashiers | 3,107 | -0.5% | 183 | 0.54 |
| Personal Care Aides | 1,915 | 156.7% | 149 | 0.50 |
| Combined Food Preparation and Serving Workers, Including Fast Food | 2,509 | 12.4% | 145 | 0.45 |
| Office Clerks, General | 2,403 | 9.2% | 102 | 0.70 |
| Janitors and Cleaners, Except Maids and Housekeeping Cleaners | 2,138 | 25.0% | 95 | 0.58 |
| Packers and Packagers, Hand | 1,402 | 33.4% | 84 | 0.43 |
| Maids and Housekeeping Cleaners | 1,650 | 7.4% | 81 | 0.46 |
| Laborers and Freight, Stock, and Material Movers, Hand | 1,203 | 22.9% | 73 | 0.62 |
| Hotel, Motel, and Resort Desk Clerks | 832 | 21.5% | 61 | 0.51 |
| Construction Laborers | 1,018 | -6.9% | 60 | 0.93 |
| Cooks, Restaurant | 1,177 | 13.8% | 47 | 0.71 |
| Dishwashers | 703 | 9.2% | 45 | 0.44 |

²¹ Source: EMSI QCEW and non-QCEW 2014.3 & California Employment Development Department (EDD) Occupational Employment Projections 2010-2020.



INDUSTRY CLUSTER OCCUPATIONS

The following section highlights the top 10 occupations within each San Luis Obispo industry cluster by employment. Occupational tier is identified along with occupational growth within each cluster from 2005 to 2014.

Building, Design & Construction

Construction laborers are the most heavily staffed occupational category in the cluster with 861 workers in 2014. The industry cluster employs over 400 each of carpenters and electricians. Among the top three occupational categories in the cluster, only electricians experienced growth since 2005 (22%). The occupational category that underwent the highest growth from 2005 to 2014 was operating engineers and other construction equipment operators (27%).

Table 7: Key Building, Design & Construction Occupations for SLO County²²

| Occupational Tier | Occupation | Employed in the Cluster (2014) | Growth 2005-2014 |
|-------------------|--|--------------------------------|------------------|
| Tier 3 | Construction Laborers | 861 | -12.0% |
| Tier 2 | Carpenters | 429 | -52.6% |
| Tier 2 | Electricians | 415 | 21.7% |
| Tier 2 | Painters, Construction and Maintenance | 333 | 10.3% |
| Tier 2 | First-Line Supervisors of Construction Trades and Extraction Workers | 326 | -25.1% |
| Tier 2 | Secretaries and Administrative Assistants, Except Legal, Medical, and Executive | 310 | -26.0% |
| Tier 2 | Operating Engineers and Other Construction Equipment Operators | 303 | 27.3% |
| Tier 3 | Maintenance and Repair Workers, General | 292 | -12.6% |
| Tier 1 | Civil Engineers | 247 | 6.5% |
| Tier 3 | Office Clerks, General | 246 | -35.4% |

²² Source: EMSI QCEW and non-QCEW 2014.3



Green Energy

The Green Energy industry cluster employs over 100 electrical power-line installers and repairers and power plant operators. No occupational category in Green Energy experienced less than 47 percent growth from 2005 to 2014. This is not surprising given the overall cluster growth for Green Energy of 78 percent dating back more recently to 2010.

Table 8: Key Green Energy Occupations for SLO County²³

| Occupational Tier | Occupation | Employed in the Cluster (2014) | Growth 2005-2014 |
|-------------------|--|--------------------------------|------------------|
| Tier 2 | Electrical Power-Line Installers and Repairers | 128 | 66.2% |
| Tier 2 | Power Plant Operators | 106 | 73.8% |
| Tier 1 | Electrical Engineers | 51 | 82.1% |
| Tier 2 | First-Line Supervisors of Mechanics, Installers, and Repairers | 48 | 71.4% |
| Tier 2 | Customer Service Representatives | 44 | 46.7% |
| Tier 1 | General and Operations Managers | 41 | 78.3% |
| Tier 2 | Electrical and Electronics Engineering Technicians | 40 | 90.5% |
| Tier 2 | Electrical and Electronics Repairers, Powerhouse, Substation, and Relay | 38 | 65.2% |
| Tier 3 | Security Guards | 34 | 88.9% |
| Tier 1 | Management Analysts | 32 | 68.4% |

²³ Source: EMSI QCEW and non-QCEW 2014.3



Health Services

Nine of the top 10 occupational categories employed within the Health Services industry cluster represent at least 300 workers in San Luis Obispo County. Personal care aides have experienced growth of 243 percent since 2005 and number 1,743 workers in the industry cluster in 2014. Each of the remaining occupations in the cluster experienced positive growth from 2005 to 2014.

Table 9: Key Health Services Occupations for SLO County²⁴

| Occupational Tier | Occupation | Employed in the Cluster (2014) | Growth 2005-2014 |
|-------------------|--|--------------------------------|------------------|
| Tier 3 | Personal Care Aides | 1,739 | 243.0% |
| Tier 1 | Registered Nurses | 825 | 12.4% |
| Tier 3 | Medical Assistants | 550 | 9.1% |
| Tier 3 | Nursing Assistants | 530 | 23.8% |
| Tier 2 | Medical Secretaries | 513 | 19.6% |
| Tier 3 | Home Health Aides | 436 | 90.4% |
| Tier 2 | Receptionists and Information Clerks | 360 | 13.2% |
| Tier 2 | Social and Human Service Assistants | 360 | 14.6% |
| Tier 3 | Dental Assistants | 347 | 11.9% |
| Tier 2 | Licensed Practical and Licensed Vocational Nurses | 299 | 37.2% |

²⁴ Source: EMSI QCEW and non-QCEW 2014.3



Knowledge & Innovation

The top 10 occupation categories for the Knowledge & Innovation cluster in San Luis Obispo County each grew in employment between 2005 and 2014. The computer user support specialists occupational category grew by 163 percent within the Knowledge & Innovation industry cluster since 2005. Software developers for applications also experienced growth of over 100 percent for the same time period.

Table 10: Key Knowledge & Innovation Occupations for SLO County²⁵

| Occupational Tier | Occupation | Employed in the Cluster (2014) | Growth 2005-2014 |
|--------------------------|--|---------------------------------------|-------------------------|
| Tier 2 | Secretaries and Administrative Assistants, Except Legal, Medical, and Executive | 347 | 23.5% |
| Tier 3 | Office Clerks, General | 287 | 24.8% |
| Tier 2 | Computer User Support Specialists | 273 | 162.5% |
| Tier 3 | Janitors and Cleaners, Except Maids and Housekeeping Cleaners | 168 | 30.2% |
| Tier 1 | Software Developers, Applications | 160 | 116.2% |
| Tier 2 | Sales Representatives, Services, All Other | 134 | 54.0% |
| Tier 2 | Veterinary Technologists and Technicians | 127 | 12.4% |
| Tier 2 | Bookkeeping, Accounting, and Auditing Clerks | 124 | 40.9% |
| Tier 1 | General and Operations Managers | 117 | 53.9% |
| Tier 2 | Customer Service Representatives | 101 | 13.5% |

²⁵ Source: EMSI QCEW and non-QCEW 2014.3



Specialized Manufacturing

The largest occupational category within Specialized Manufacturing, team assemblers, decreased in total employment in the period from 2005 to 2014. The remaining occupations in the following table each experienced growth since 2005. Electrical and electronic equipment assemblers represented the highest growth for the cluster, increasing total employment by 38 percent from 2005 to 2014.

Table 11: Key Specialized Manufacturing Occupations for SLO County²⁶

| Occupational Tier | Occupation | Employed in the Cluster (2014) | Growth 2005-2014 |
|-------------------|---|--------------------------------|------------------|
| Tier 2 | Team Assemblers | 208 | -3.3% |
| Tier 2 | Machinists | 167 | 8.4% |
| Tier 2 | Helpers--Production Workers | 164 | 23.3% |
| Tier 3 | Packers and Packagers, Hand | 128 | 18.5% |
| Tier 2 | Electrical and Electronic Equipment Assemblers | 126 | 38.5% |
| Tier 2 | First-Line Supervisors of Production and Operating Workers | 103 | 1.0% |
| Tier 1 | General and Operations Managers | 97 | 9.0% |
| Tier 2 | Shipping, Receiving, and Traffic Clerks | 88 | 8.6% |
| Tier 2 | Welders, Cutters, Solderers, and Brazers | 73 | 1.4% |
| Tier 3 | Maintenance and Repair Workers, General | 72 | 16.1% |

²⁶ Source: EMSI QCEW and non-QCEW 2014.3



Uniquely SLO County

As mentioned previously, the Uniquely SLO County cluster is dominated by Tier 3 positions. Each of the top 10 employed occupational categories in the cluster is a low-skill low-wage occupation. All categories in the table below experienced overall employment growth from 2005 to 2014, with hotel, motel, and resort desk clerks growing the most proportionally (23%).

Table 12: Key Uniquely SLO County Occupations for SLO County²⁷

| Occupational Tier | Occupation | Employed in the Cluster (2014) | Growth 2005-2014 |
|-------------------|--|--------------------------------|------------------|
| Tier 3 | Waiters and Waitresses | 2,908 | 8.3% |
| Tier 3 | Farmworkers and Laborers, Crop, Nursery, and Greenhouse | 2,840 | 6.5% |
| Tier 3 | Combined Food Preparation and Serving Workers, Including Fast Food | 2,223 | 13.9% |
| Tier 3 | Maids and Housekeeping Cleaners | 1,149 | 18.7% |
| Tier 3 | Cooks, Restaurant | 1,148 | 14.2% |
| Tier 3 | Hotel, Motel, and Resort Desk Clerks | 808 | 22.6% |
| Tier 3 | Cooks, Fast Food | 756 | 5.1% |
| Tier 3 | First-Line Supervisors of Food Preparation and Serving Workers | 670 | 13.9% |
| Tier 3 | Dishwashers | 642 | 9.2% |
| Tier 3 | Food Preparation Workers | 477 | 7.7% |

²⁷ Source: EMSI QCEW and non-QCEW 2014.3

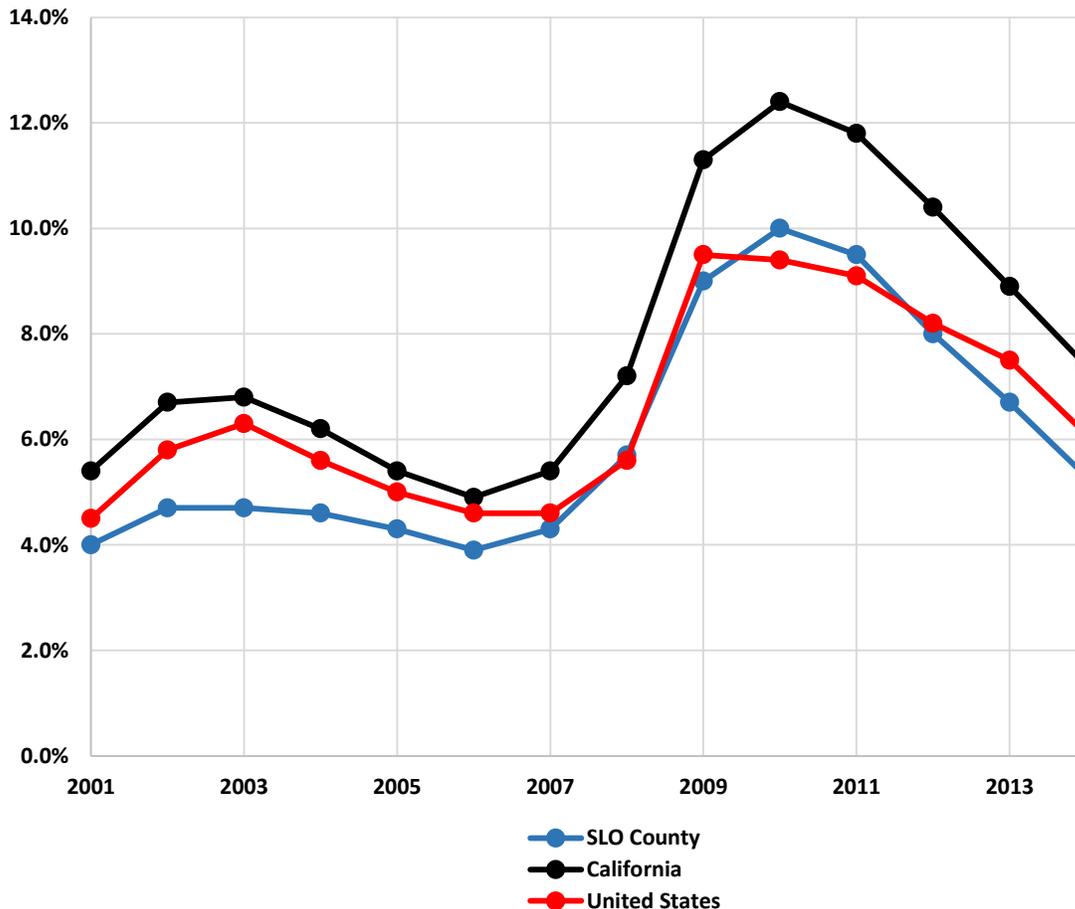


PART 2: SAN LUIS OBISPO COUNTY WORKFORCE OVERVIEW

All of the data in the first component of the report, looked at individuals that work in SLO County and provided a picture of the demand for workers by SLO's businesses. This second section of the report looks at the people that live in SLO County and their search for employment.

The unemployment rate, for example, measures the percentage of residents within the County that are looking for work and are not able to find it. San Luis Obispo County residents have consistently had an unemployment rate below the state wide average and until 2007 below the national average. In 2013, San Luis Obispo County's unemployment rate was below the national average and continuing towards little slack in the labor market, like what was experience in 2001 through 2007.

Figure 11: Unemployment Rate by Region from 2001 to 2014²⁸



²⁸ Source: Bureau of Labor Statistics (BLS) and California Economic Development Department (EDD)



The table below displays the civilian labor force participation rate in San Luis Obispo County and comparable regions and sub-regions within the County. Labor force participation rate is measured using the civilian population, 16 years and older that is currently working or looking for work. As the table below indicates, San Luis Obispo County has a relatively low percentage (59%) of residents (16 years and older) who are working or looking for work compared to United States (63%), California (63%), Sonoma County (65%), and the Central Coast (63%). Within the County, the North County sub-region represents the highest civilian labor force participation (63%) while San Luis Obispo City represents the lowest (52%).

Table 13: Civilian Labor Force Participation Rate²⁹

| Region | Civilian Labor Force Participation Rate |
|----------------------|---|
| United States | 63.2% |
| California | 63.0% |
| Sonoma County | 64.5% |
| Central Coast | 63.0% |
| SLO County | 58.8% |
| North County | 63.5% |
| Coastal | 59.0% |
| San Luis Obispo City | 52.5% |
| South County | 61.4% |

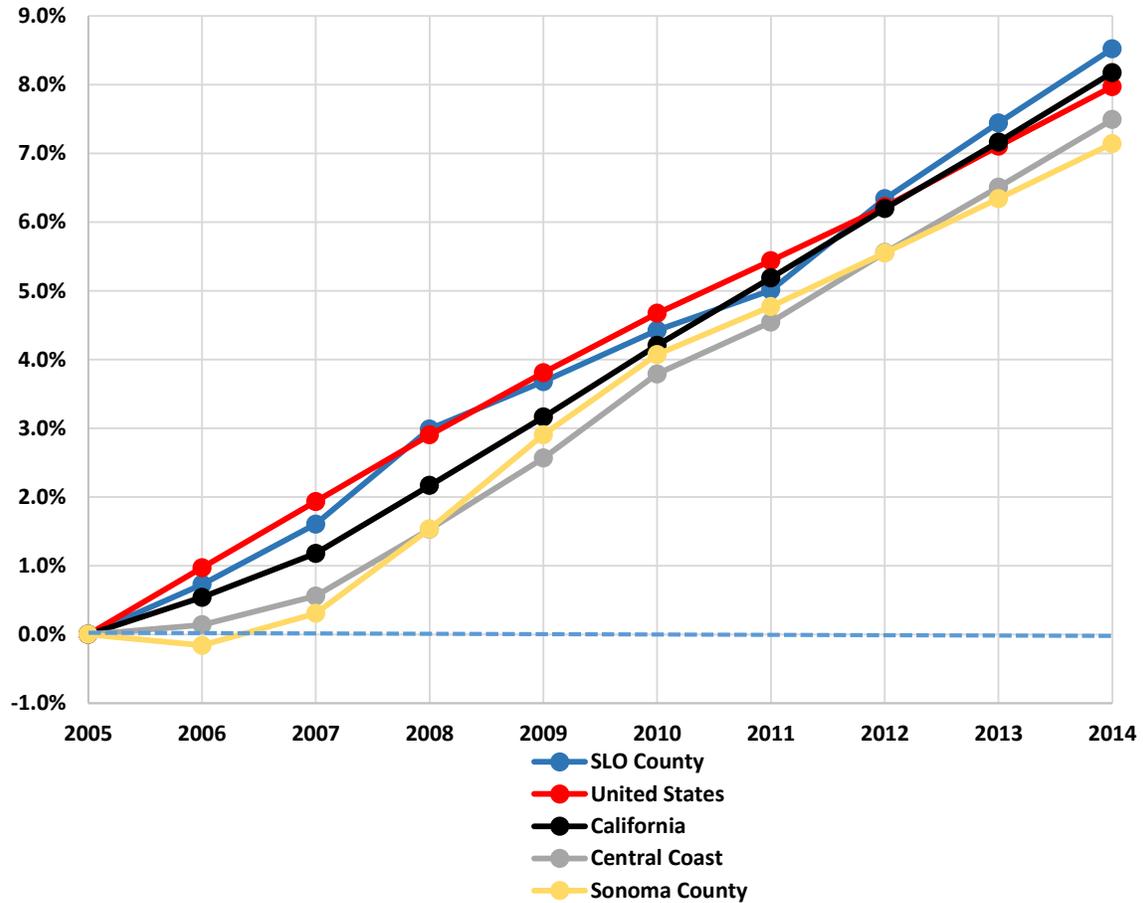
²⁹ Source: American Community Survey (ACS) 2012 5-year estimates and 2013 1-year estimates



SAN LUIS OBISPO COUNTY RESIDENT PROFILE

Since 2005, San Luis Obispo County’s overall population has grown at a rate slightly higher than California as a whole. The County’s population has grown by nearly nine percent compared to just over eight percent in California, just under eight percent for the United States as a whole, and just over seven percent for Sonoma County and the Central Coast.

Figure 12: Change in Population by Region from 2005 to 2014³⁰

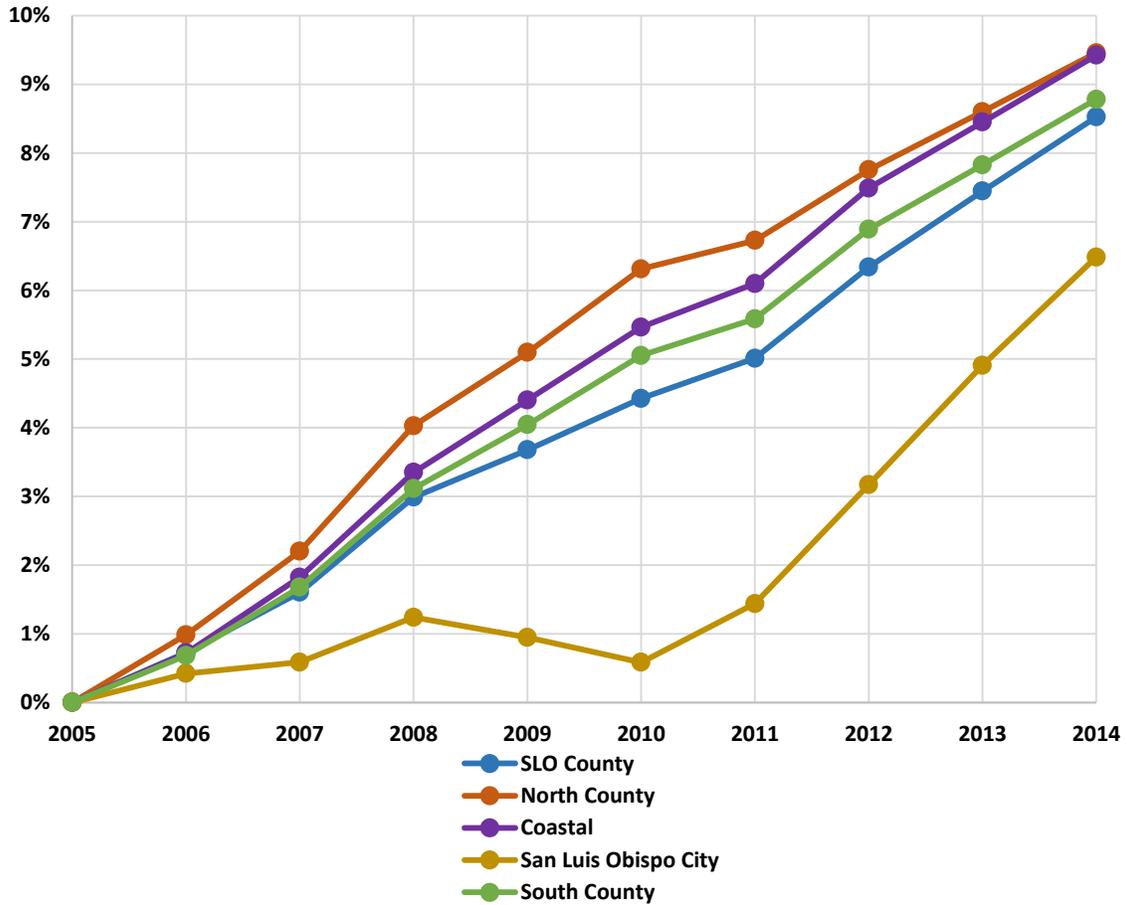


³⁰ Source: EMSI QCEW and non-QCEW Employment 2014.3



Splitting San Luis Obispo County into its component sub-regions, it is observed that the northern portion of the County (North County & Coastal) outpaced the southern section of the County in overall population growth. The San Luis Obispo City sub-region grew very little in population from 2005 to 2010, but since the economic recovery period began, the sub-region has experienced relatively high growth from year to year.

Figure 13: Change in Population by Sub-Region from 2005 to 2014³¹

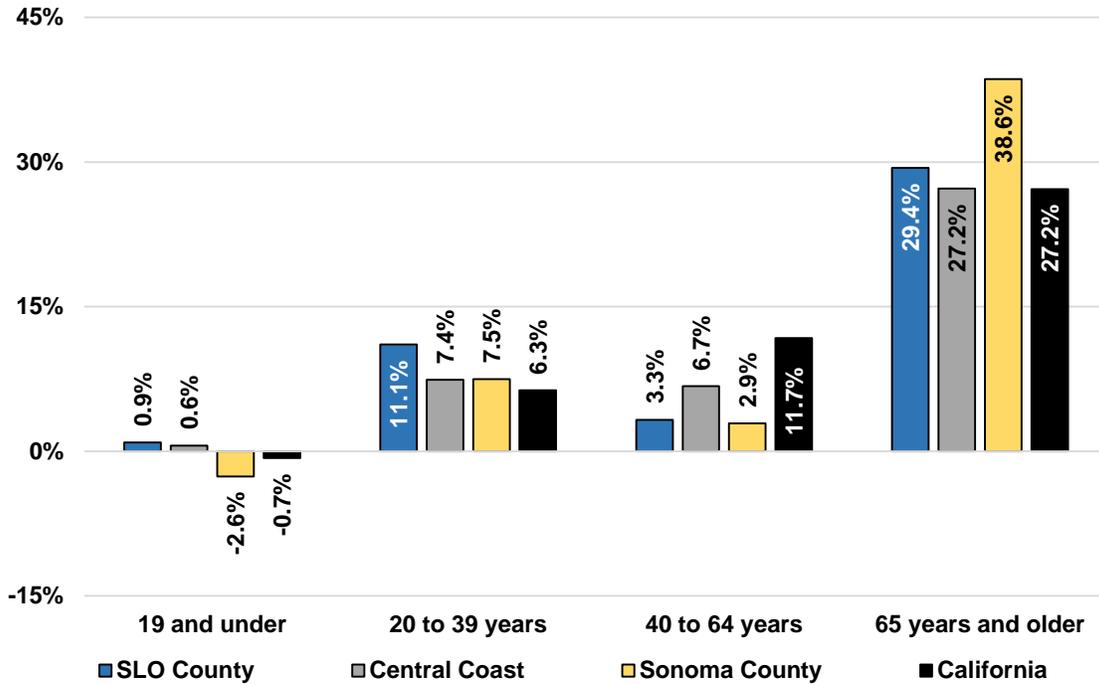


³¹ Source: EMSI QCEW and non-QCEW Employment 2014.3



Each age cohort within San Luis Obispo County grew in population over the time period from 2005 to 2014. Over the same time period, the population aged 20 to 39 grew by over 11 percent while the 65 and older population increased by over 29 percent. By comparison, the oldest cohort (65 years and older) increased by nearly 39 percent in Sonoma County. The population in San Luis Obispo County (and all other regions included in the analysis) is gradually becoming older and according to numerous projections, this trend is likely to continue for several decades.

Figure 14: Regional Change within Age Cohorts from 2005 to 2014³²

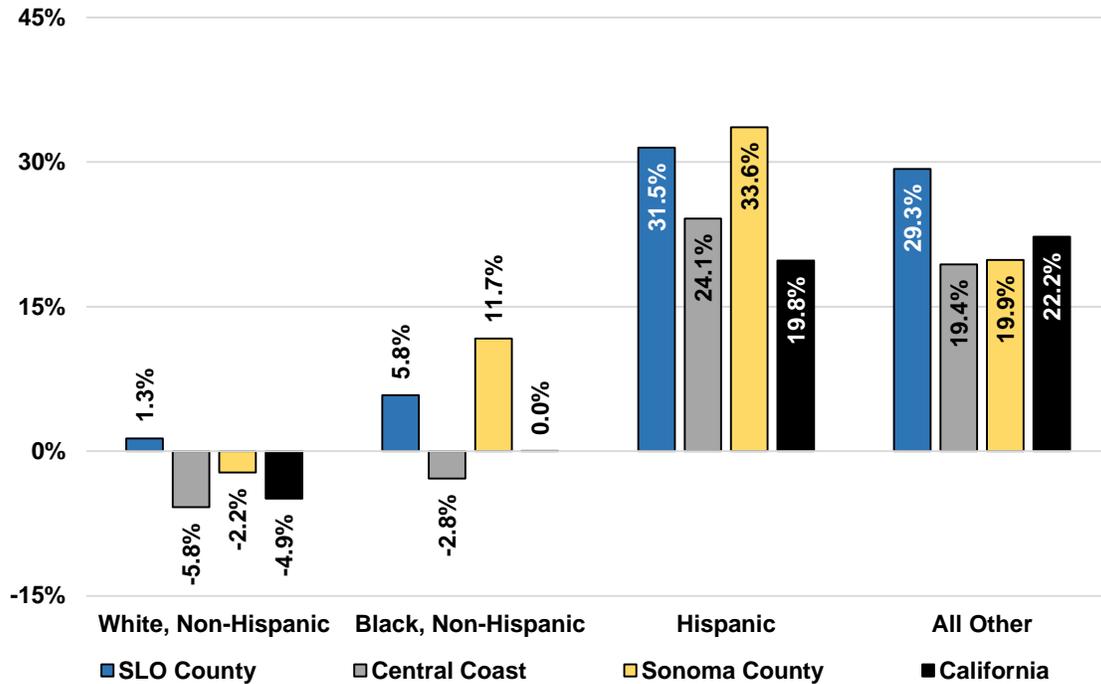


³² Source: EMSI QCEW and non-QCEW Employment 2014.3



San Luis Obispo County was the only region in the analysis that experienced population growth amongst all ethnicity groups. The Hispanic population in the County grew at a greater rate (31%) than in the Central Coast (24%) and California as a whole (20%).

Figure 15: Regional Change within Ethnicity Cohorts from 2005 to 2014³³

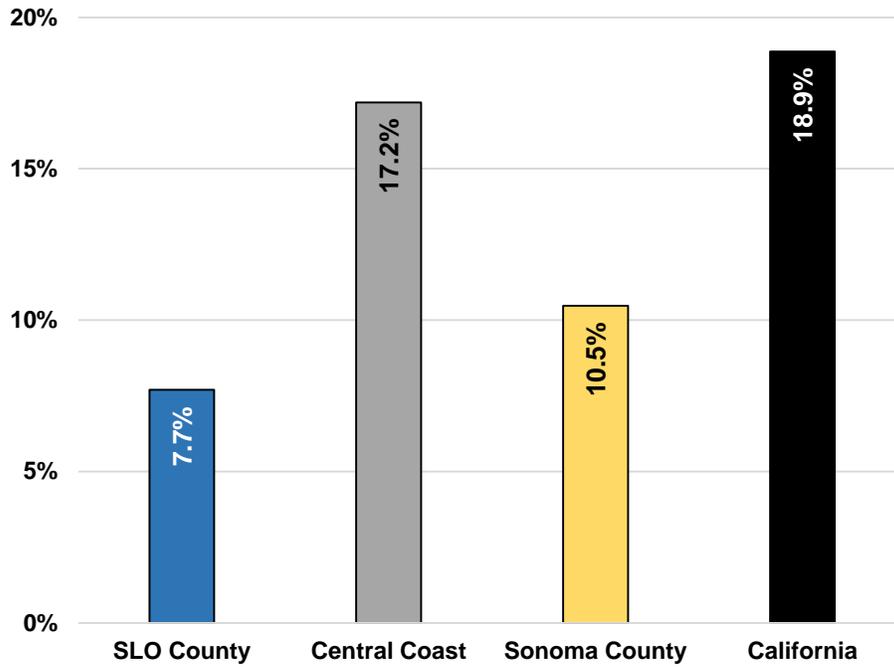


³³ Source: EMSI QCEW and non-QCEW Employment 2014.3



The San Luis Obispo County population has the lowest proportion of residents five years of age and older that speak English less than “very well,” as measured by the United States Census Bureau when compared to the other regions in the figure below.

Figure 16: Population that Speaks English less than "Very Well" by Region (2013)³⁴

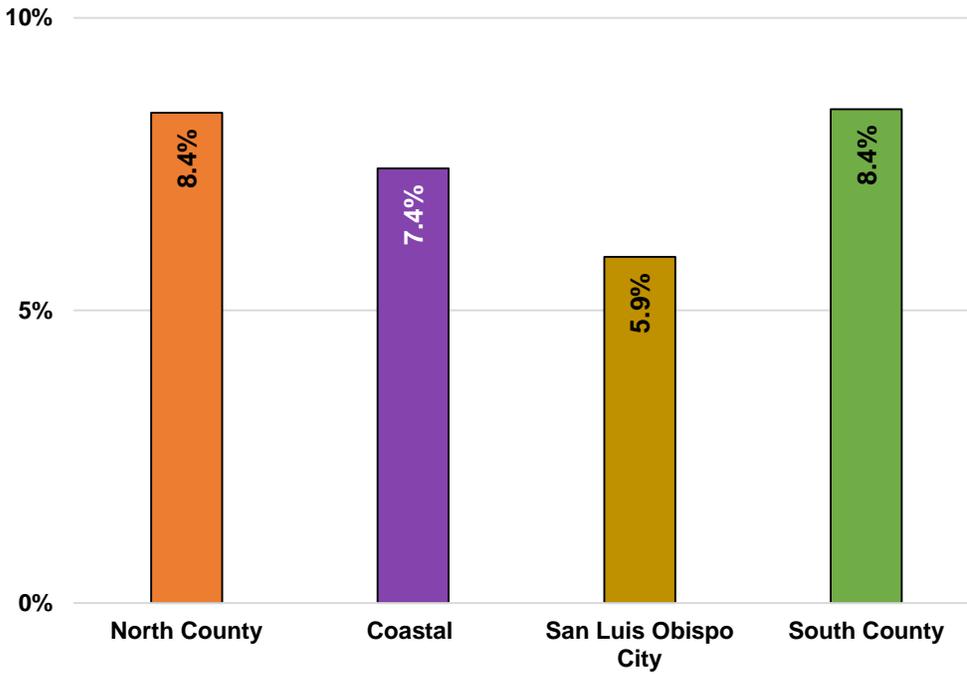


³⁴ Source: American Community Survey (ACS) 2013 1-year estimates



Examining language by San Luis Obispo sub-region, North County and South County have the highest proportion of residents that speak English less than “very well” (8%), while the San Luis Obispo City sub-region has the lowest proportion of residents in the same category (6%).

Figure 17: Population that Speaks English less than "Very Well" by Sub-Region (2013)³⁵



³⁵ Source: American Community Survey (ACS) 2013 5-year estimates and 1-year estimates. Data was recalculated using proportional percentages and in order to combine the two estimate types for comparison purposes.



Examining per capita income by region, San Luis Obispo County is slightly higher than the California and United States averages but lower when compared to Sonoma County. Within San Luis Obispo County, per capita income is highest for the South County sub-region and lowest in the San Luis Obispo City sub-region. It is important to note that this is an average measure and does not account for the distribution of income or the percentage of the population that is above or below this amount.

Table 14: Per Capita Income by Region³⁶

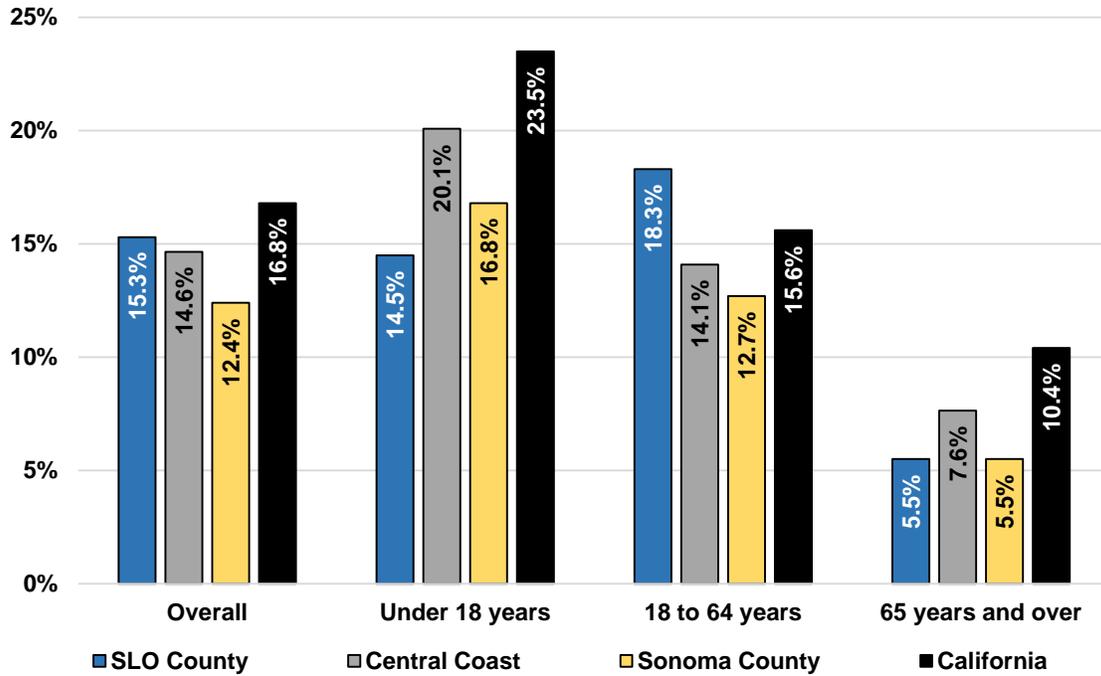
| Region | Per Capita Income |
|-----------------------------|-------------------|
| United States | \$28,184 |
| California | \$29,513 |
| Sonoma County | \$33,357 |
| Central Coast | \$28,756 |
| SLO County | \$29,819 |
| North County | \$30,961 |
| Coastal | \$30,907 |
| San Luis Obispo City | \$25,242 |
| South County | \$35,402 |

³⁶ Source: American Community Survey (ACS) 2012 5-year estimates and 2013 1-year estimates



When compared to the Central Coast and Sonoma County, San Luis Obispo had a higher proportion of its overall population living beneath the poverty level in 2013. Fifteen percent of the population under the age of 18 in the San Luis Obispo County area lived below the poverty level according to American Community Survey (ACS) 1-year estimates in 2013, nine percentage points lower than California. The proportion of residents aged 18 to 64 years that lived below the poverty level in 2013 was higher in San Luis Obispo County (18%) than in the comparable regions.

Figure 18: Regional Poverty by Age Cohort (2013)³⁷

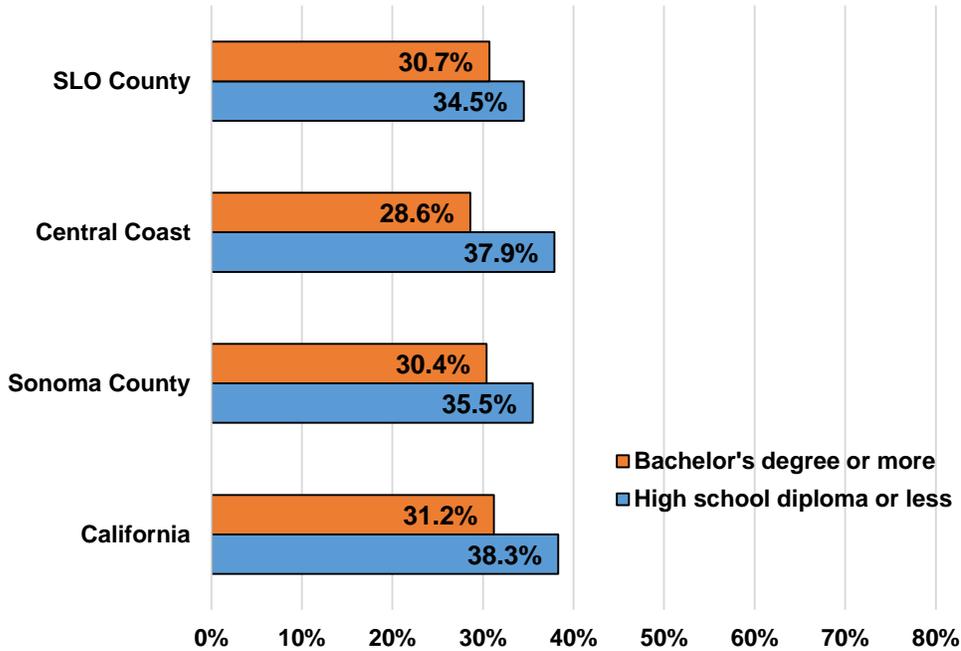


³⁷ Source: American Community Survey (ACS) 2013 1-year estimates



San Luis Obispo County has a higher percentage of residents 25 and over with at least a Bachelor’s degree than both Sonoma County and the Central Coast, and is slightly below the California average. The County also has the lowest proportion of residents 25 and over that possess a high school diploma or less.

Figure 19: Educational Attainment by Region (2013)³⁸



³⁸ Source: American Community Survey (ACS) 2013 1-year estimates

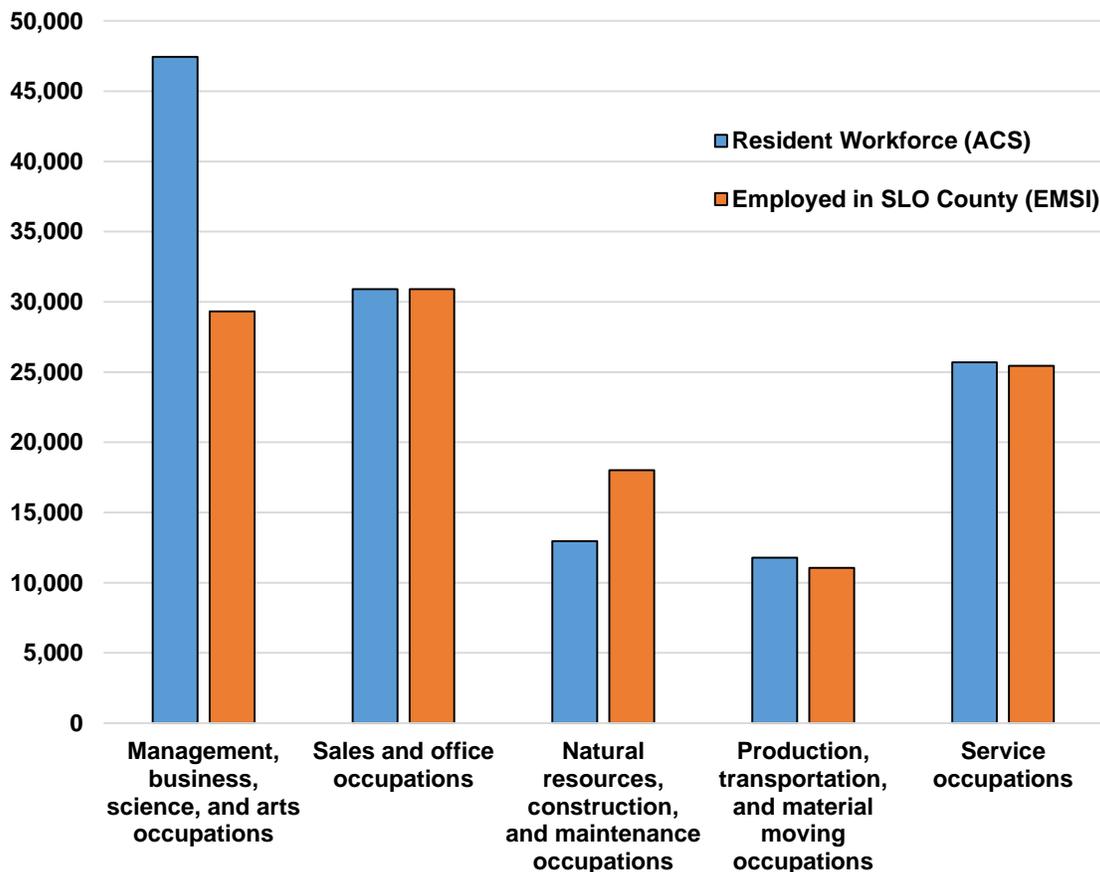


PART 3: SAN LUIS OBISPO COUNTY GAP ANALYSIS & BEST PRACTICES FOR WORKFORCE DEVELOPMENT

The final section of the report, examines gaps and best practices for the County’s workforce development system. This section includes an analysis of the resident workforce vs. those employed in SLO County, an analysis of costs and wages within the County, as well as a description of the region’s training and educational resources.

The figure below compares employed residents of SLO County against those that work within the County. Overall, the County exports a little over 10,000 workers, particularly in higher paying positions in management, business, science and arts occupations. The only occupational category, where the County needs to import workers, is in those positions that are often classified as blue collar positions in natural resources, construction and maintenance occupations.

Figure 20: Resident Workforce versus Workers Employed in San Luis Obispo County³⁹



³⁹ Source: American Community Survey (ACS) 2013 1-year estimates and EMSI QCEW and non-QCEW Employment 2014.3

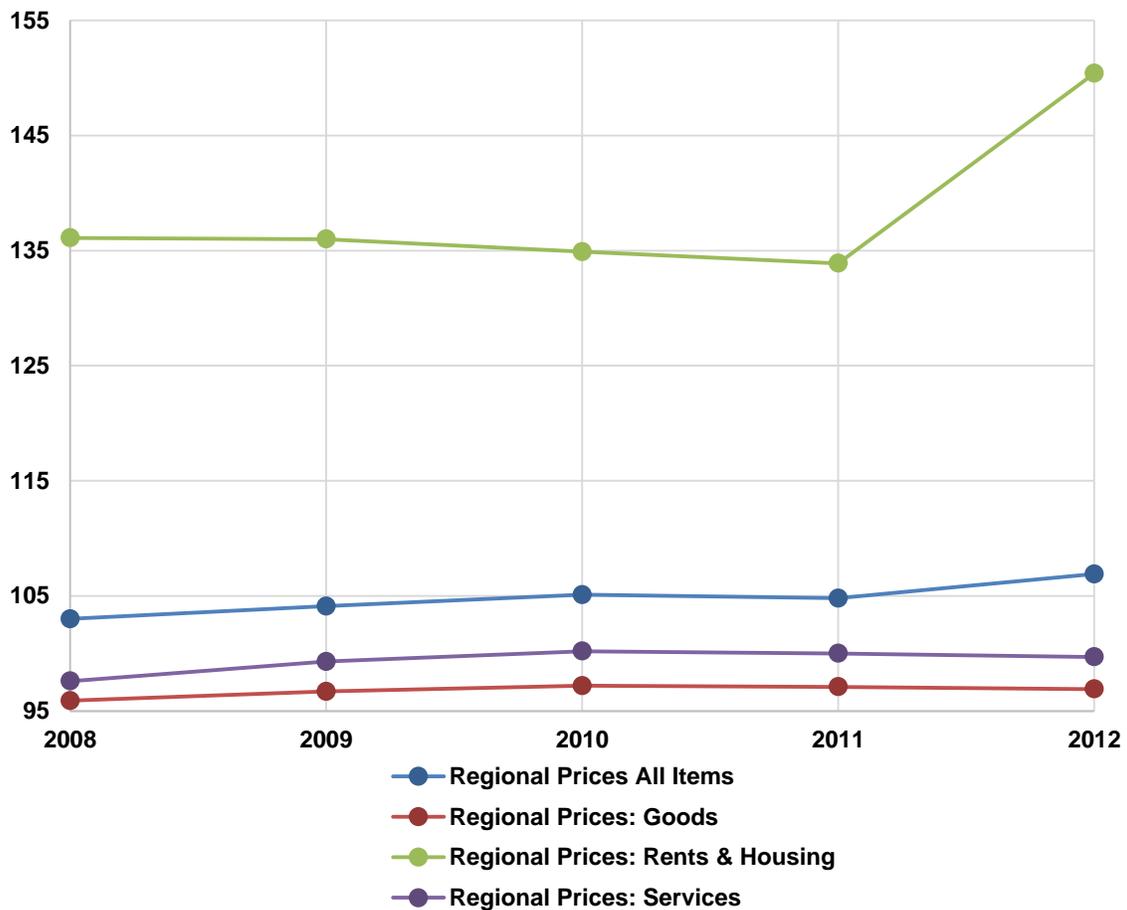


COSTS VS. WAGES IN SAN LUIS OBISPO COUNTY

As the wage analysis showed, San Luis Obispo County, typically pays less than the statewide average for most occupational categories. This is a challenge for the County, as prices, particularly those related to rents and housing are well above average.

The figure below reveals the average prices in San Luis Obispo County as an index of the national average. A regional price of 100 is consistent with the national average, while a regional price of 150 would be 50% higher than the national average. San Luis Obispo County, is close to the national average for all of the regional prices except for rents and housing, which in 2012 was 50 percent above the national average. This has several regional workforce implications for the County, including a relatively small resident workforce between the ages of 25 and 49 years old.

Figure 21: Regional Price Index for San Luis Obispo County⁴⁰



⁴⁰ Source: Bureau of Economic Analysis, Regional Price Parities



TRAINING & EDUCATION PROVIDERS IN SAN LUIS OBISPO COUNTY

Below is general assessment of the capacity at key educational providers within San Luis Obispo County. This does not include additional training and educational providers within the nearby region, including;

- Allen Hancock College, a California public community college located in Santa Maria.
- Truck Driver Institute, located in Santa Maria.
- Santa Barbara Business College, in Santa Maria offers an Associate and Bachelor’s degree in business administration.

Table 15: Education Providers by Completions in San Luis Obispo County⁴¹

| Institution | Degrees | Certificates | Total Completions (2013) |
|---|---------|--------------|--------------------------|
| California Polytechnic State University-San Luis Obispo | 3,869 | - | 3,869 |
| Cuesta College | 713 | 437 | 1,150 |
| Laurus College | - | 183 | 183 |
| Central California School | - | 124 | 124 |
| Design's School of Cosmetology | - | 85 | 85 |

⁴¹ Source: EMSI QCEW and non-QCEW Employment 2014.3



REGIONAL TRAINING MODELS

The following three training and education programs provide examples of successful workforce development resources in their given region. Their educational and training offerings are built to meet the needs of regional businesses while remaining focused on serving the local job-seekers.

These three examples of regional training models have three common themes that are valuable for San Luis Obispo County WIB as they consider their own regional training options. First all three examples focus on a specific industry or industry cluster, second each of the programs is built around a specific type of job-seeker or student, and lastly all three emphasize the development of skills in an applied and contextual setting.

1. **Life Sciences Summer Institute:** Is located in San Diego, California, and was developed out of the region's strong Life Sciences industry cluster. The Life Sciences Summer Institute connects high school students and science teachers to San Diego's life sciences industry. Students apply to participate in summer-long paid research internships including a week-long training prior to the start of their internship. Students are mentored by a scientist, exposed to real-life science practices, and increase their scientific knowledge & experience. Teachers from San Diego County and surrounding areas participate in a 12-day professional development program that exposes them to new biotechnology lab curriculum. For more information about the Life Science Summer Institute, go to, <http://workforce.org/grants/2010/04/01/life-sciences-summer-institute>
2. **Stride Center:** Headquartered in Oakland, California, with additional locations in Concord, San Pablo and Sacramento. The Stride Center trains and educates students facing barriers to employment in Information Technology (IT) or Information & Communications Technologies (ICT) career pathways. In addition to the training programs that provide technical skills, industry credentials and work experience, the Stride Center extends their commitment to economic self-sufficiency by operating their own social enterprise. ReliaTech is a full-service technology consulting, installation and maintenance business, providing low-cost tech support to the community, and paid and volunteer technical internship positions to students, and jobs for graduates. ReliaTech also contributes 100% of its net income towards The Stride Center's operating expenses. For more information on the Stride Center, go to, <http://www.stridecenter.org/>
3. **Massachusetts Clean Energy Center - Internship Program:** The Massachusetts Clean Energy Internship Program helps prepare the next generation of clean energy workers by connecting students and recent graduates with Massachusetts companies in need of interns. The program helps provide Massachusetts clean energy businesses with a talented pool of young professionals, with MassCEC providing stipends for interns during fall, spring and summer sessions, who in turn are given valuable experience they can use as they begin their careers in this quickly-growing sector. Since its inception in 2011, the Massachusetts Clean Energy Internship Program has placed hundreds of students and recent graduates at clean energy companies across the Commonwealth, with dozens of those interns going on to receive full-time job



opportunities at their host companies. For more information on this program, go to, <http://www.masscec.com/programs/massachusetts-clean-energy-internship-program>

MODEL CAREER PATHWAYS

The following career pathways information was developed for the Information & Communications Technologies industry cluster as part of the 2014 occupational sector research sponsored by the San Diego Workforce Partnership⁴². These generalized occupational pathways in ICT, provide different employment opportunities based on the job-seeker's interests and their willingness to pursue different levels of training and education.

ICT Career Pathways

I. **Software Development, including web and mobile applications**

Foundational Skills: Individuals going into this career pathway should have strong quantitative and critical thinking skills with the ability to problem solve using logic and mathematical principles. Several occupational categories in this pathway can also benefit from the design skills that are found with the technical artists.

Training & Education: These positions often require a 4 year degree in computer science, software engineering or a related science. These positions can also require certifications, particularly in certain specialties. These certifications include; Microsoft Certified Applications Developer, Oracle Certified Master Java SE6 Developer and Certified Scrum Professional.

Positions (entry-level): Associate Software Engineer, Computer Programmer, and Quality Assurance (QA) Engineer

Positions (mid-level): Software Developer/Engineer (Systems Software) and Software Developer/Engineer (Applications)

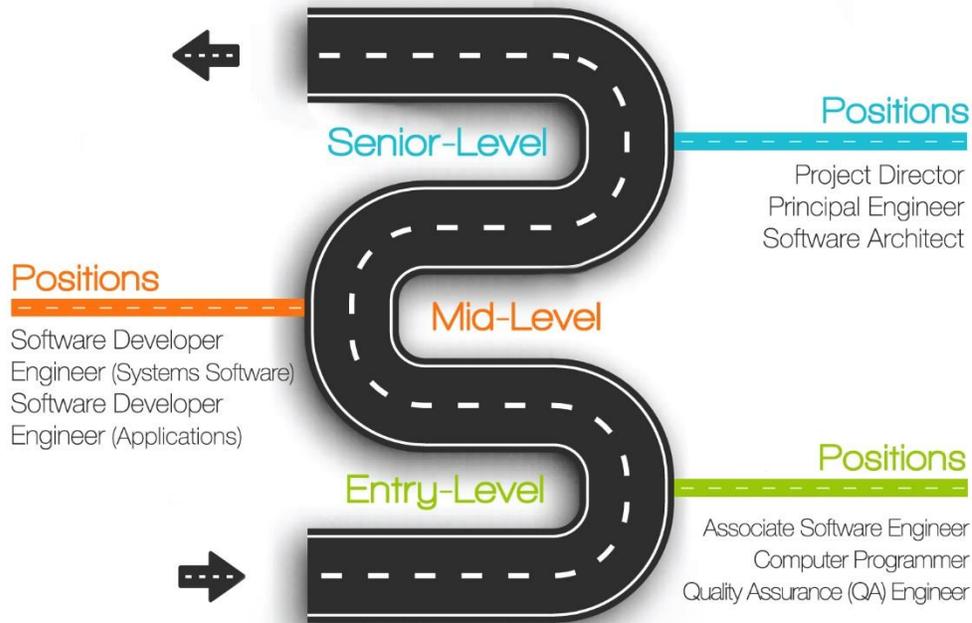
Positions (senior-level): Project Director, Principal Engineer, and Software Architect

⁴² For more information on this research go to http://workforce.org/sites/default/files/pdfs/reports/industry/ict_sdwp_2014-10-02.pdf



Figure 22: Career Pathways for Software Development

Software Development including web & mobile applications



FOUNDATIONAL SKILLS

Individuals going into this career pathway should have strong quantitative and critical thinking skills with the ability to problem solve using logic and mathematical principles. Several occupational categories in this pathway can also benefit from the design skills that are found with the technical artists.

TRAINING & EDUCATION

These positions often require a 4 year degree in computer science, software engineering or a related science. These positions can also require certifications, particularly in certain specialties. These certifications include; Microsoft Certified Applications Developer, Oracle Certified Master Java SE6 Developer and Certified Scrum Professional.

II. Technical Artists, Designers and Multimedia Developers

Foundational Skills: Individuals going into this career pathway need strong design skills, the ability to use technical tools and the creativity to develop visually stunning artwork.

Training & Education: The positions can require a 4 year degree in a technical design or creative field, but often employers are more focused on mastery of different applications, relevant work experience and strong portfolios.

Positions (entry-level): Graphic Designer, CAD Designer, and Associate Technical Artist

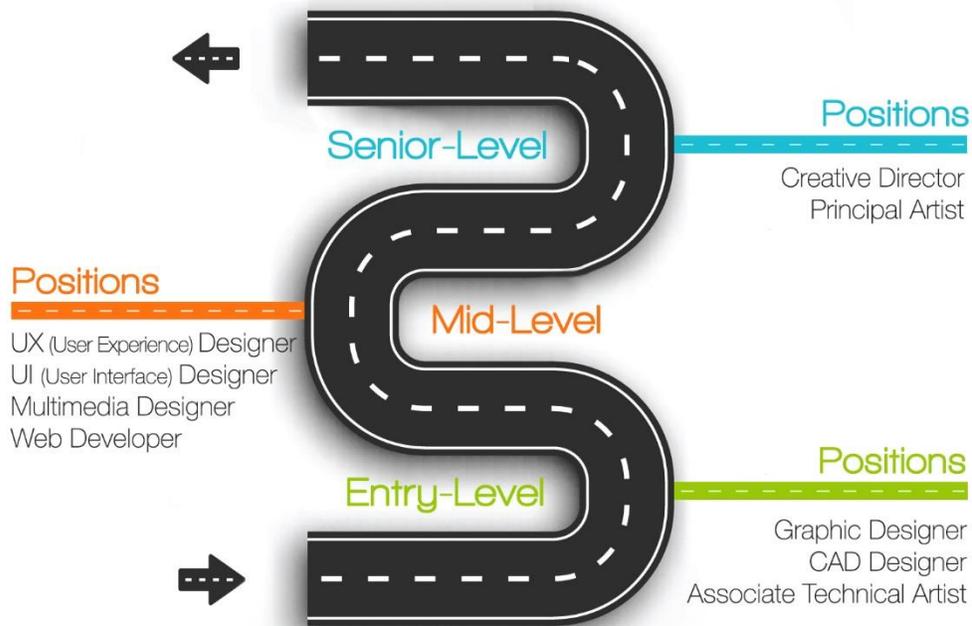


Positions (mid-level): UX (User Experience) or UI (User Interface) Designer, Multimedia Designer, and Web Developer

Positions (senior-level): Creative Director and Principal Artist

Figure 23: Career Pathways for Technical Artists, Designers & Multimedia Developers

Technical Artists, Designers & Multimedia Developers



FOUNDATIONAL SKILLS

Individuals going into this career pathway need strong design skills, the ability to use technical tools and the creativity to develop visually stunning artwork.

TRAINING & EDUCATION

These positions can require a 4 year degree in a technical design or creative field, but often employers are more focused on mastery of different applications, relevant work experience and strong portfolios.

III. IT Management, Analysis and Planning

Foundational Skills: Individuals going into this career pathway should have a strong information technology and business administration background and the ability to see big picture between the two. This positions typically require strong written and spoken communication skills as well as the ability to manage and work collaboratively with diverse groups.



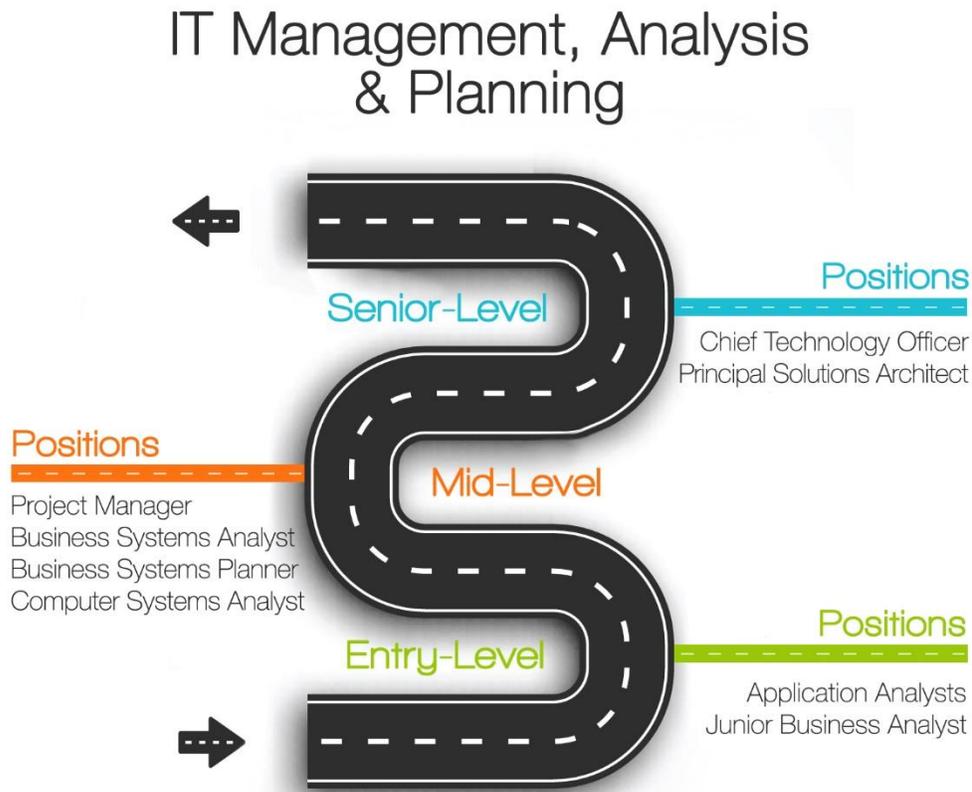
Training & Education: These positions almost universally require a 4 year degree or more in information systems or a related field or a business degree in economics or business administration with additional studies in computing and management information systems.

Positions (entry-level): Application Analysts and Junior Business Analyst

Positions (mid-level): Project Manager, Business Systems Analyst, Business Systems Planner, and Computer systems analysts

Positions (senior-level): Principal Solutions Architect and Chief Technology Officer

Figure 24: Career Pathways for IT Managers, Analysts & Planners



FOUNDATIONAL SKILLS

Individuals going into this career pathway should have a strong information technology and business administration background and the ability to see big picture between the two. This position typically requires strong written and spoken communication skills as well as the ability to manage and work collaboratively with diverse groups.

TRAINING & EDUCATION

These positions almost universally require a 4 year degree or more in information systems or a related field or a business degree in economics or business administration with additional studies in computing and management information systems.



IV. Hardware, Storage, Data and IT Infrastructure services

Foundational Skills: Individuals going into this career pathway should have strong understanding of networks, operating systems and relevant supporting software applications. Employer's typically prefer strong hands on experience with the tools and applications they will be working with over an extensive educational background.

Training & Education: More entry-level positions will often not require a 4 year degree, but an Associate degree or more advanced degree may be required for experienced positions. Certifications can be valuable for different specialties, including; CompTIA Server+, Microsoft Windows 7 Enterprise Desktop Support, Cisco Certified Network Professional Data Center & Oracle Certified Professional.

Positions (entry-level): Computer support specialists (hardware or software), Network & Computer Systems Technicians, and Helpdesk Support

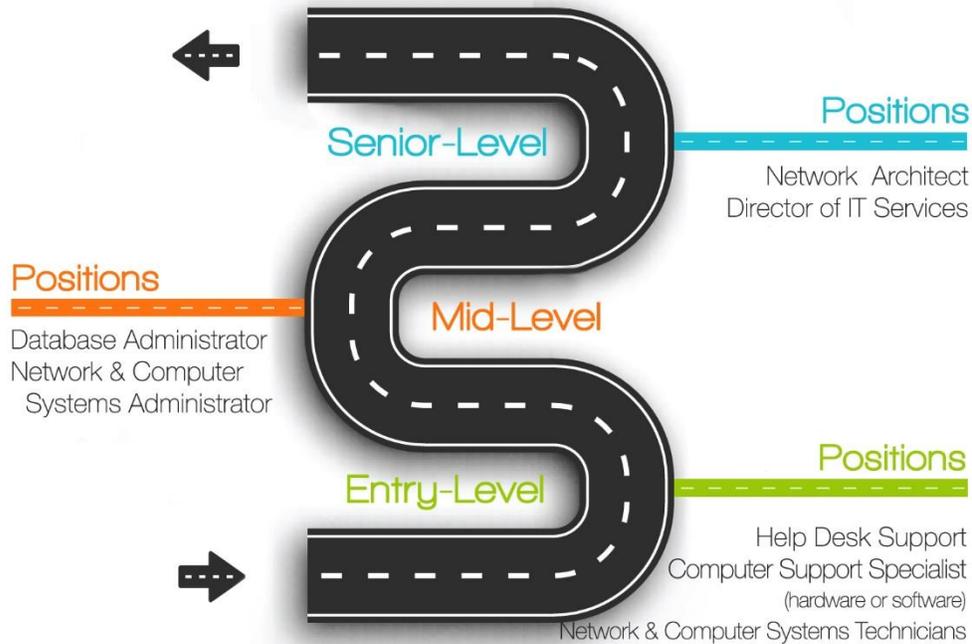
Positions (mid-level): Database Administrators and Network & Computer Systems Administrator

Positions (senior-level): Network architect and Director of IT Services



Figure 25: Career Pathways for Hardware, Storage, Data and IT Support Services

Hardware, Storage, Data & IT Infrastructure Services



FOUNDATIONAL SKILLS

Individuals going into this career pathway should have a strong understanding of networks, operating systems and relevant supporting software applications. Employer's typically prefer strong hands on experience with the tools and applications they will be working with over an extensive educational background.

TRAINING & EDUCATION

More entry-level positions will often not require a 4 year degree, but an Associate degree or more advanced degree may be required for experienced positions. Certifications can be valuable for different specialties, including; CompTIA Server+, Microsoft Windows 7 Enterprise Desktop Support, Cisco Certified Network Professional Data Center & Oracle Certified Professional.

V. Information Security

Foundational Skills: Individuals going into this career pathway should have a deep understanding of networks, operating systems and the web. Individuals in this career pathway must be willing to continuously update their ICT skills and knowledge.

Training & Education: These positions often start with a required 4 year degree in computer science or an information systems related field with the relevant certifications. Entry-level certifications include; Microsoft Technology Associate: Security Fundamentals, CompTIA Security+, Cisco Certified Network Professional Security and GIAC Information Security Professional. More experienced positions may require certifications such as; CompTIA Advanced Security Practitioner (CASP), GIAC Security



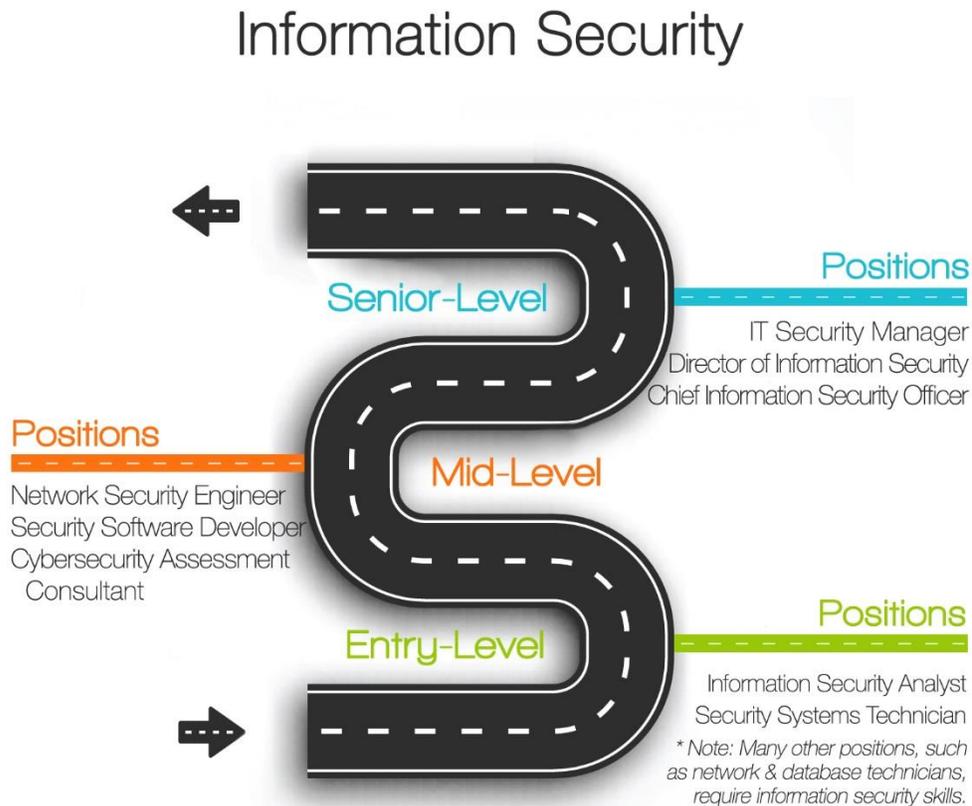
Leadership Certification and Certified Information Systems Security Professional (CISSP).

Positions (entry-level): Information Security Analyst and Security Systems Technician. Note that many other positions, such as network and database technicians, require information security skills.

Positions (mid-level): Cybersecurity Assessment Consultant, Network Security Engineer, and Security Software Developer

Positions (senior-level): IT Security Manager, Director of Information Security, and Chief Information Security Officer

Figure 26: Career Pathways for Information Security



FOUNDATIONAL SKILLS

Individuals going into this career pathway should have a deep understanding of networks, operating systems and the web. Individuals in this career pathway must be willing to continuously update their ICT skills and knowledge.

TRAINING & EDUCATION

These positions often start with a required 4 year degree in computer science or an information systems related field with the relevant certifications. Entry-level certifications include; Microsoft Technology Associate: Security Fundamentals, CompTIA Security+, Cisco Certified Network Professional Security and GIAC Information Security Professional. More experienced positions may require certifications such as; CompTIA Advanced Security Practitioner (CASP), GIAC Security Leadership Certification & Certified Information Systems Security Professional (CISSP).



ICT Career Pathway Resources

http://certification.comptia.org/ExploreCareers/careerpaths/career_roadmap.aspx

<http://www.ichoosetechnology.com.au/home/career-pathways/what-job-fits-you>

<http://itpathways.org/careers>



APPENDIX A: SAN LUIS OBISPO COUNTY INDUSTRY CLUSTER DEFINITIONS

| BUILDING, DESIGN & CONSTRUCTION | |
|--|--|
| Building & Construction | |
| NAICS | Description |
| 2361 | Residential Building Construction |
| 2362 | Nonresidential Building Construction |
| 2371 | Utility System Construction |
| 2372 | Land Subdivision |
| 2373 | Highway, Street, and Bridge Construction |
| 2379 | Other Heavy and Civil Engineering Construction |
| 2381 | Foundation, Structure, and Building Exterior Contractors |
| 2382 | Building Equipment Contractors |
| 2383 | Building Finishing Contractors |
| 2389 | Other Specialty Trade Contractors |
| Design | |
| NAICS | Description |
| 5311 | Lessors of Real Estate |
| 5312 | Offices of Real Estate Agents and Brokers |
| 5313 | Activities Related to Real Estate |
| 5413 | Architectural, Engineering, and Related Services |

| GREEN ENERGY | |
|---------------------|--|
| NAICS | Description |
| 221111 | Hydroelectric Power Generation |
| 221112 | Fossil Fuel Electric Power Generation |
| 221113 | Nuclear Electric Power Generation |
| 221114 | Solar Electric Power Generation |
| 221115 | Wind Electric Power Generation |
| 221116 | Geothermal Electric Power Generation |
| 221117 | Biomass Electric Power Generation |
| 221118 | Other Electric Power Generation |
| 221121 | Electric Bulk Power Transmission and Control |
| 221122 | Electric Power Distribution |
| 541620 | Environmental Consulting Services |



| HEALTH SERVICES | |
|---|--|
| Allied Health | |
| NAICS | Description |
| 6211 | Offices of Physicians |
| 6212 | Offices of Dentists |
| 6213 | Offices of Other Health Practitioners |
| 6214 | Outpatient Care Centers |
| 6215 | Medical and Diagnostic Laboratories |
| 6216 | Home Health Care Services |
| 6219 | Other Ambulatory Health Care Services |
| 6221 | General Medical and Surgical Hospitals |
| 6222 | Psychiatric and Substance Abuse Hospitals |
| 6223 | Specialty (except Psychiatric and Substance Abuse) Hospitals |
| Residential Care and Rehabilitation Services | |
| 6231 | Nursing Care Facilities (Skilled Nursing Facilities) |
| 6232 | Residential Intellectual and Developmental Disability, Mental Health, and Substance Abuse Facilities |
| 6233 | Continuing Care Retirement Communities and Assisted Living Facilities for the Elderly |
| 6239 | Other Residential Care Facilities |
| 6241 | Individual and Family Services |
| 6243 | Vocational Rehabilitation Services |

| KNOWLEDGE & INNOVATION | |
|---|--|
| Internet, Knowledge & Consulting | |
| NAICS | Description |
| 518210 | Data Processing, Hosting, and Related Services |
| 519130 | Internet Publishing and Broadcasting and Web Search Portals |
| 541511 | Custom Computer Programming Services |
| 541512 | Computer Systems Design Services |
| 541513 | Computer Facilities Management Services |
| 541519 | Other Computer Related Services |
| 541611 | Administrative Management and General Management Consulting Services |
| 541612 | Human Resources Consulting Services |
| 541613 | Marketing Consulting Services |
| 541614 | Process, Physical Distribution, and Logistics Consulting Services |
| 541618 | Other Management Consulting Services |
| 541690 | Other Scientific and Technical Consulting Services |
| 541810 | Advertising Agencies |
| 541820 | Public Relations Agencies |
| 541830 | Media Buying Agencies |
| 541840 | Media Representatives |



| | |
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| 541850 | Display Advertising |
| 541860 | Direct Mail Advertising |
| 541870 | Advertising Material Distribution Services |
| 541890 | Other Services Related to Advertising |
| 541910 | Marketing Research and Public Opinion Polling |
| 541921 | Photography Studios, Portrait |
| 541922 | Commercial Photography |
| 541930 | Translation and Interpretation Services |
| 541940 | Veterinary Services |
| 541990 | All Other Professional, Scientific, and Technical Services |
| 611310 | Colleges, Universities, and Professional Schools (Private) |

Computer Software, Hardware & Training

| NAICS | Description |
|--------|--|
| 323111 | Commercial Gravure Printing |
| 323113 | Commercial Screen Printing |
| 334111 | Electronic Computer Manufacturing |
| 334112 | Computer Storage Device Manufacturing |
| 423430 | Computer and Computer Peripheral Equipment and Software Merchant Wholesalers |
| 425110 | Business to Business Electronic Markets |
| 454111 | Electronic Shopping |
| 454112 | Electronic Auctions |
| 511210 | Software Publishers |
| 611420 | Computer Training (Private) |
| 811212 | Computer and Office Machine Repair and Maintenance |

Telecommunications

| NAICS | Description |
|--------|--|
| 517110 | Wired Telecommunications Carriers |
| 517410 | Satellite Telecommunications |
| 811213 | Communication Equipment Repair and Maintenance |

SPECIALIZED MANUFACTURING

Commodity Manufacturing

| NAICS | Description |
|-------|---|
| 3119 | Other Food Manufacturing |
| 3162 | Footwear Manufacturing |
| 3169 | Other Leather and Allied Product Manufacturing |
| 3255 | Paint, Coating, and Adhesive Manufacturing |
| 3256 | Soap, Cleaning Compound, and Toilet Preparation Manufacturing |
| 3259 | Other Chemical Product and Preparation Manufacturing |



| | |
|-------------------------------|--|
| 3261 | Plastics Product Manufacturing |
| 3262 | Rubber Product Manufacturing |
| 3271 | Clay Product and Refractory Manufacturing |
| 3273 | Cement and Concrete Product Manufacturing |
| 3279 | Other Nonmetallic Mineral Product Manufacturing |
| 3311 | Iron and Steel Mills and Ferroalloy Manufacturing |
| Advanced Manufacturing | |
| 3313 | Alumina and Aluminum Production and Processing |
| 3251 | Basic Chemical Manufacturing |
| 3252 | Resin, Synthetic Rubber, and Artificial Synthetic Fibers and Filaments Manufacturing |
| 3253 | Pesticide, Fertilizer, and Other Agricultural Chemical Manufacturing |
| 3254 | Pharmaceutical and Medicine Manufacturing |
| 3272 | Glass and Glass Product Manufacturing |
| 3322 | Cutlery and Handtool Manufacturing |
| 3323 | Architectural and Structural Metals Manufacturing |
| 3324 | Boiler, Tank, and Shipping Container Manufacturing |
| 3325 | Hardware Manufacturing |
| 3326 | Spring and Wire Product Manufacturing |
| 3327 | Machine Shops; Turned Product; and Screw, Nut, and Bolt Manufacturing |
| 3329 | Other Fabricated Metal Product Manufacturing |
| 3331 | Agriculture, Construction, and Mining Machinery Manufacturing |
| 3332 | Industrial Machinery Manufacturing |
| 3333 | Commercial and Service Industry Machinery Manufacturing |
| 3334 | Ventilation, Heating, Air-Conditioning, and Commercial Refrigeration Equipment Manufacturing |
| 3335 | Metalworking Machinery Manufacturing |
| 3336 | Engine, Turbine, and Power Transmission Equipment Manufacturing |
| 3339 | Other General Purpose Machinery Manufacturing |
| 3342 | Communications Equipment Manufacturing |
| 3343 | Audio and Video Equipment Manufacturing |
| 3344 | Semiconductor and Other Electronic Component Manufacturing |
| 3345 | Navigational, Measuring, Electromedical, and Control Instruments Manufacturing |
| 3351 | Electric Lighting Equipment Manufacturing |
| 3352 | Household Appliance Manufacturing |
| 3353 | Electrical Equipment Manufacturing |
| 3359 | Other Electrical Equipment and Component Manufacturing |
| 3361 | Motor Vehicle Manufacturing |
| 3363 | Motor Vehicle Parts Manufacturing |



| | |
|------|--|
| 3364 | Aerospace Product and Parts Manufacturing |
| 3365 | Railroad Rolling Stock Manufacturing |
| 3369 | Other Transportation Equipment Manufacturing |
| 3391 | Medical Equipment and Supplies Manufacturing |
| 3399 | Other Miscellaneous Manufacturing |

| UNIQUELY SLO COUNTY | |
|-------------------------------------|---|
| Wine and Agriculture | |
| NAICS | Description |
| 111000 | Crop Production |
| 113110 | Timber Tract Operations |
| 113210 | Forest Nurseries and Gathering of Forest Products |
| 113310 | Logging |
| 114111 | Finfish Fishing |
| 114112 | Shellfish Fishing |
| 114119 | Other Marine Fishing |
| 114210 | Hunting and Trapping |
| 115111 | Cotton Ginning |
| 115112 | Soil Preparation, Planting, and Cultivating |
| 115113 | Crop Harvesting, Primarily by Machine |
| 115114 | Postharvest Crop Activities (except Cotton Ginning) |
| 115115 | Farm Labor Contractors and Crew Leaders |
| 115116 | Farm Management Services |
| 115210 | Support Activities for Animal Production |
| 115310 | Support Activities for Forestry |
| Recreation and Accommodation | |
| 312120 | Breweries |
| 312130 | Wineries |
| 481111 | Scheduled Passenger Air Transportation |
| 481211 | Nonscheduled Chartered Passenger Air Transportation |
| 481212 | Nonscheduled Chartered Freight Air Transportation |
| 481219 | Other Nonscheduled Air Transportation |
| 487210 | Scenic and Sightseeing Transportation, Water |
| 532292 | Recreational Goods Rental |
| 711110 | Theater Companies and Dinner Theaters |
| 711120 | Dance Companies |
| 711130 | Musical Groups and Artists |
| 711190 | Other Performing Arts Companies |
| 711211 | Sports Teams and Clubs |



| | |
|--------|---|
| 711212 | Racetracks |
| 711219 | Other Spectator Sports |
| 711310 | Promoters of Performing Arts, Sports, and Similar Events with Facilities |
| 711320 | Promoters of Performing Arts, Sports, and Similar Events without Facilities |
| 711510 | Independent Artists, Writers, and Performers |
| 712130 | Zoos and Botanical Gardens |
| 713110 | Amusement and Theme Parks |
| 713120 | Amusement Arcades |
| 713210 | Casinos (except Casino Hotels) |
| 713290 | Other Gambling Industries |
| 713910 | Golf Courses and Country Clubs |
| 713990 | All Other Amusement and Recreation Industries |
| 721110 | Hotels (except Casino Hotels) and Motels |
| 721120 | Casino Hotels |
| 721191 | Bed-and-Breakfast Inns |
| 722320 | Caterers |
| 722330 | Mobile Food Services |
| 722410 | Drinking Places (Alcoholic Beverages) |
| 722511 | Full-Service Restaurants |
| 722513 | Limited-Service Restaurants |
| 722514 | Cafeterias, Grill Buffets, and Buffets |
| 722515 | Snack and Nonalcoholic Beverage Bars |