

# Appendix B

## Supply Chain Management



July 2017

Prepared by Los Angeles/Orange County Center of Excellence for Labor Market Research

### Occupation Codes and Descriptions

Currently, there is one occupation in the standard occupational classification (SOC) system related to supply chain management, and four emerging O\*NET occupations.<sup>1</sup> The occupation titles and descriptions, as well as reported job titles are included in Exhibit 1.

**Exhibit 1 – Occupations, job descriptions and sample job title(s)**

| SOC/O*NET Code | Title                             | Description  | Sample of Reported Job Titles   |
|----------------|-----------------------------------|--|---|
| 11-3061        | Purchasing Manager                | Plan, direct, or coordinate the activities of buyers, purchasing officers, and related workers involved in purchasing materials, products, and services. Includes wholesale or retail trade merchandising managers and procurement managers. | Commodity Manager, Director of Materials, Director of Purchasing, Director of Strategic Sourcing, Materials Manager, Procurement Manager, Procurement Officer, Purchasing Director, Purchasing Manager, Purchasing Supervisor |
| 11-3071.01     | Transportation Managers           | Plan, direct, or coordinate the transportation operations within an organization or the activities of organizations that provide transportation services.  | Director of Operations, Fleet Manager, Freight Coordinator, Global Transportation Manager, Traffic Manager, Train Operations Manager, Trainmaster, Transportation Director, Transportation Manager, Transportation Supervisor |
| 11-3071.02     | Storage and Distribution Managers | Plan, direct, or coordinate the storage or distribution operations within an organization or the activities of organizations that are engaged in storing or distributing materials or products.  | Cold Storage Supervisor, Customer Service Manager, Distribution Center Manager, Distribution Manager, Distribution Operation Manager, Load Out Supervisor, Shipping Manager, Shipping   |

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Supervisor, Stores  
Supervisor, Warehouse Manager

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|            |                    |   |   |
|------------|--------------------|---|---|
| 11-3071.03 | Logistics Managers | Plan, direct, or coordinate purchasing, warehousing, distribution, forecasting, customer service, or planning services. Manage logistics personnel and logistics systems and direct daily operations. | Global Logistics Manager, Integrated Logistics Programs Director, Logistics Manager, Logistics Solution Manager, Supply Chain Logistics Manager |
|------------|--------------------|---|---|

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|            |                       |  |  |
|------------|-----------------------|--|--|
| 11-9199.04 | Supply Chain Managers | Direct or coordinate production, purchasing, warehousing, distribution, or financial forecasting services or activities to limit costs and improve accuracy, customer service, or safety. Examine existing procedures or opportunities for streamlining activities to meet product distribution needs. Direct the movement, storage, or processing of inventory. | Global Supply Chain Director, Supply Chain Director, Supply Chain Manager, Supply Chain Vice President |
|------------|-----------------------|--|--|

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Source: O\*NET Online

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<sup>1</sup> New and emerging occupations (N&E) are incorporated into the O\*NET-SOC classification system based on the evolving nature of workforce requirements stemming from changes in technology, society, law, and business practices. Incorporating N&E occupations into the O\*NET system makes O\*NET information more beneficial and responsive. <https://www.onetcenter.org/reports/NewEmerging.html>

## Current and Future Employment

In Los Angeles County, the number of supply chain management–related jobs is expected to increase by 1% over the next five years. Although new job growth is not significant, there are forecasted to be nearly 200 job openings each year during the five–year frame, due to retirements or workers leaving the field. Exhibit 2 contains detailed employment projections data for these occupations.

**NOTE:** Although employment projections are not available for emerging occupations (11-3071.01, 11-3071.02, and 11-3071.03), data is available for 11-3071 (Transportation, Storage, and Distribution Managers). Projections are not available for “All Other” SOC Code 11-9199.

**Exhibit 2 – Five–year projections for Supply Chain Management Occupations in Los Angeles County, 2016–2021**

| SOC     | Occupation   | 2016 Jobs    | 2021 Jobs    | 2016 – 2021 Change | 2016 – 2021 % Change | Annual Openings |
|---------|--|--------------|--------------|--------------------|----------------------|-----------------|
| 11–3061 | Purchasing Managers                                | 2,437        | 2,373        | (64)               | (3%)                 | 57              |
| 11–3071 | Transportation, Storage, and Distribution Managers | 4,788        | 4,896        | 108                | 2%                   | 128             |
|         |  | <b>7,226</b> | <b>7,269</b> | <b>43</b>          | <b>1%</b>            | <b>185</b>      |

Source: Economic Modeling Specialists International (EMSI) – 2017.2

## Earnings

In Los Angeles County, the combined entry–level average wage for the supply chain management occupations is \$23.75 per hour, which is above the MIT Living Wage<sup>2</sup> estimate of \$13.08 per hour for a single adult. The average annual earnings for these occupations in Los Angeles County is \$98,904 per year, assuming full–time employment.

Exhibit 3 contains hourly wages and annual average earnings for these occupations. Entry hourly earnings are represented by the 10<sup>th</sup> percentile of wages, median hourly earnings are represented by the 50<sup>th</sup> percentile of wages, and experienced hourly earnings are represented by the 90<sup>th</sup> percentile of wages.

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<sup>2</sup>MIT Living Wage Calculator. <http://livingwage.mit.edu/>

**Exhibit 3 – Earnings for Supply Chain Management  
Occupations in Los Angeles County,  
2016–2021**

| SOC         | Occupation  | Entry–<br>Level<br>Hourly<br>Earnings | Media<br>n<br>Hourly<br>Earnings | Experienc<br>ed Hourly<br>Earnings | Averag<br>e<br>Annual<br>Earnings |
|-------------|---|---------------------------------------|----------------------------------|------------------------------------|-----------------------------------|
| 11–<br>3061 | Purchasing<br>Managers                                      | \$20.47                               | \$48.0<br>7                      | \$81.01                            | \$106,14<br>2                     |
| 11–<br>3071 | Transportation,<br>Storage, and<br>Distribution<br>Managers | \$25.45                               | \$40.7<br>0                      | \$72.64                            | \$95,160                          |
|             |   | \$23.75                               | \$43.2<br>1                      | \$75.49                            | \$98,904                          |

Source: Economic Modeling Specialists International (EMSI)

### Employer Job Postings

In this research brief, real-time labor market information is used to provide a more nuanced view of the current job market, as it captures job advertisements for occupations relevant to the field of study.

Employer job postings are consulted to understand who is employing supply chain management workers, and what they are looking for in potential candidates.

To identify job postings related to supply chain management, the following keywords/search terms and occupation codes were used: purchasing manager (11–3061), transportation managers (11–3071.01), storage and distribution managers (11–3071.02), logistics managers (11–3071.03), and supply chain managers (11–9199.04).

*Top Occupations*

In 2016, there were 2,655 employer postings for supply chain management workers. Nearly two-fifths of the postings (38%) were for storage and distribution managers (868 job postings). There were 2,237 job postings for supply chain management workers in 2015, and 1,904 job postings in 2014.

**Exhibit 4 - Top occupations (n=2,655)**

| <b>SOC/O*NE<br/>T<br/>Code</b> | <b>Occupation</b>                    | <b>Job Postings,<br/>Full Year 2016</b> |
|--------------------------------|--------------------------------------|---|
| 11-<br>3071.02                 | Storage and Distribution<br>Managers | 99<br>9                                 |
| 11-3061                        | Purchasing Managers                  | 55<br>2                                 |
| 11-<br>3071.03                 | Logistics Managers                   | 52<br>5                                 |
| 11-<br>9199.04                 | Supply Chain Managers                | 38<br>0                                 |
| 11-<br>3071.01                 | Transportation Managers              | 19<br>9                                 |

Source: Labor Insight/Jobs (Burning Glass)

### *Top Titles*

The top job titles for supply chain management workers are listed in exhibit 5. Warehouse manager is mentioned as the job title in 11% of all relevant job postings (302 postings).

**Exhibit 5 –Job titles  
(n=2,655)**

| <b>Title</b>                   | <b>Job Postings,<br/>Full Year<br/>2016</b> |
|--------------------------------|---|
| Warehouse Manager              | 302   |
| Warehouse Supervisor           | 283   |
| Supply Chain Manager           | 207   |
| Logistics Coordinator          | 195   |
| Purchasing Manager             | 192   |
| Logistics Manager              | 186   |
| Distribution Manager           | 127   |
| Procurement Manager            | 109   |
| Transportation Manager         | 100   |
| Sourcing / Procurement Manager | 66  |

Source: Labor Insight/Jobs (Burning Glass)

### *Top Employers*

Exhibit 6 lists the top employers hiring supply chain management workers. Top employers posting job ads locally in 2016 included: Accenture, Berkshire Hathaway, and Edison International. The top worksite cities in the region for these jobs were Los Angeles, Torrance, and Long Beach.

**Exhibit 6 – Top employers (n=1,383)**

| <b>Employer</b>      | <b>Job Postings,<br/>Full Year<br/>2016</b> |
|----------------------|---|
| Accenture            | 42  |
| Berkshire Hathaway   | 32  |
| Edison International | 18  |

|                                  |    |
|----------------------------------|----|
| Pacific American Fish Co (PAFCO) | 16 |
| Deloitte                         | 15 |
| Raytheon                         | 15 |
| Northrop Grumman                 | 14 |
| Sony Electronics Incorporated    | 13 |
| Ultimate                         | 13 |
| Golden State Foods Corporation   | 11 |

Source: Labor Insight/Jobs (Burning Glass)



## Top Skills and Certifications

Job-specific skills desired by employers include Microsoft Excel, logistics, scheduling, purchasing, and budgeting. Desired certifications include project management (E.G. PMP), production and inventory management, American production and inventory control society certification (APICS), and forklift operation.

**Exhibit 7 –Job skills (n=2,409) and certifications (n=416)**

| Skills                     | Job Postings,<br>Full Year<br>2016 | Certification  | Job Postings,<br>Full Year<br>2016 |
|----------------------------|------------------------------------|--|------------------------------------|
| Microsoft Excel            | 840                                | Project Management (E.G.PMP)   | 80                                 |
| Logistics                  | 725                                | Certified in Production and<br>Inventory Management                              | 54                                 |
| Scheduling                 | 609                                | American Production and<br>Inventory<br>Control Society Certification<br>(APICS) | 46                                 |
| Purchasing                 | 604                                | Forklift Operation   | 41                                 |
| Budgeting                  | 579                                |  |                                    |
| Supply Chain<br>Management | 548                                |  |                                    |
| Procurement                | 547                                |  |                                    |
| Microsoft Office           | 545                                |  |                                    |
| Supervisory Skills         | 531                                |  |                                    |
| Project Management         | 508                                |  |                                    |

Source: Labor Insight/Jobs (Burning Glass)

## Industry Concentration

Supply chain management jobs are most often found in the corporate, subsidiary, and regional managing office firms (8% of total jobs in the industry). Exhibit 8 shows the industries that are the largest employers of supply chain management workers in Los Angeles County.

## Exhibit 8 – Industries with the largest number of jobs related to Supply Chain Management, 2016

| NAICS<br>(6-<br>Digit) | Industry  | Occupation<br>Group Jobs<br>in Industry<br>(2016) | % of<br>Occupati<br>on Group<br>in<br>Industr<br>y |
|------------------------|---|---|--|
| 551114                 | Corporate, Subsidiary, and Regional Managing Office | 592   | 8%   |
| 488510                 | Freight Transportation Arrangement                  | 356   | 5%   |
| 493110                 | General Warehousing and Storage                     | 213   | 5%   |

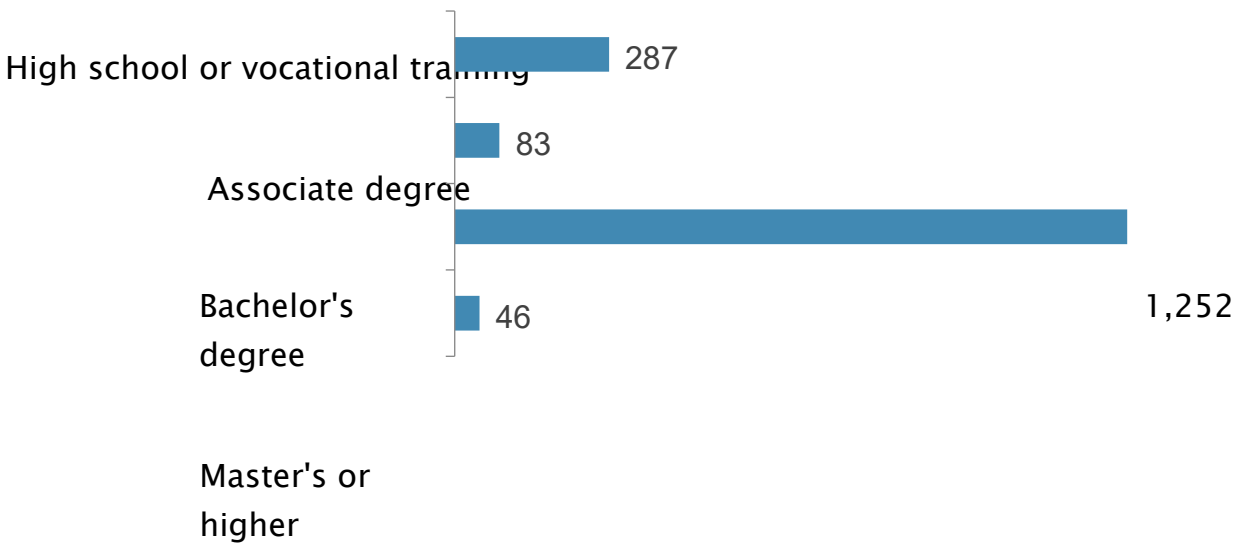
Source: Economic Modeling Specialists International (EMSI)

## Education and Training

Exhibit 8 displays the education level requested by employers in online job ads. The majority of supply chain management employers in 2016 were looking for a candidate with a bachelor’s degree.

Approximately 37% of job postings did not specify a level of education.

**Exhibit 8 – 2016 online job ads with minimum advertised education requirements**



Source: Labor Insight/Jobs (Burning Glass)

Student completion data was compiled for California community college (CCC) programs that train students for the occupations below. Exhibit 9 shows the typical entry-level educational requirement for the occupations of interest, along with the 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.

**Exhibit 9 – Education and training requirements (2015–2020)**

| SOC | Occupation | Typical entry-level education | Typical on-the-job training | % of Community College Award Holders or Some Postsecondary |
|-----|------------|-------------------------------|-----------------------------|--|
|     |            |                               |                             |  |

|         |  |                       |      | Coursework |
|---------|--|-----------------------|------|------------|
| 11-3061 | Purchasing Managers                                | Bachelor's degree     | None | 26%        |
| 11-3071 | Transportation, Storage, and Distribution Managers | HS diploma/equivalent | None | 35%        |

Source: Economic Modeling Specialists International, Bureau of Labor Statistics Employment Projections (Educational Attainment)

Currently, there are three community colleges in Los Angeles County that train students in programs related to supply chain management occupations. Exhibit 10 displays the headcount and annual average community college awards for each of the colleges training in this field. Headcount is the actual number of students enrolled, regardless of credit hours. It is also important to note that an award is not equivalent to a single person in search of a job opening, since a student may earn more than one award (e.g. an associate degree and a certificate).

Between 2012–2015, the total annual average community college awards conferred was 71 (seven associate degrees and 64 certificates) across one program – Logistics and Materials Transportation (TOP 0510.00).

**Table 10 – CCC Student Awards (by TOP and College)**

| TOP Code | Program                                | College      | 2012 – 2015 Annual Average |                       |                  | Total Average CC Awards |
|----------|--|--------------|----------------------------|-----------------------|------------------|-------------------------|
|          |  |              | CCC Headcount              | CCC Associate Degrees | CCC Certificates |                         |
| 0510.00  | Logistics and Materials Transportation | East LA      | 420                        | 3                     | 62               | 65                      |
|          |  | Rio Hondo    | 73                         | 1                     | 0                | 1                       |
|          |  | Santa Monica | 103                        | 3                     | 2                | 5                       |
|          |  |              | <b>596</b>                 | <b>7</b>              | <b>64</b>        | <b>71</b>               |

Source: California Community Colleges Chancellor’s Office MIS Data Mart

### Student Outcomes

Student outcome information is based on the TOP code(s) relevant to the occupation group and Los Angeles County.

0510.00 Logistics and Materials Transportation programs in Los Angeles County for academic year 2013–14

- The median annual wage after program completion is \$23,292
- 28% of students are employed within six months after completing a program
- 47% of students are earning a living wage

Source: CTE LaunchBoard

## Program Recommendation

This report was compiled by the Los Angeles/Orange County Center of Excellence to provide regional labor market data for the program recommendation of Supply Chain Management. This report is to help determine whether there is demand in the local labor market that is not being met by the supply from programs of study (CCC and non-CCC) that align with this occupation group.

Based on the data, it appears there is an unmet need for Supply Chain workers in Los Angeles County. This finding is based on the following:

- Supply chain management jobs are forecasted to have a need for nearly 200 workers annually over the next five years
- Between 2012–15, the was average of 70 college awards conferred each year.
- The typical entry–level education for the occupations studied is either a HS diploma/equivalent or a Bachelor’s degree. However, between 26–35% of the workforce in each occupation has completed community college level coursework, signaling that these occupations may be accessible for community college level students.

## Sources

O\*Net Online, Labor Insight/Jobs (Burning Glass), Economic Modeling Specialists International (EMSI), MIT Living Wage Calculator, Bureau of Labor Statistics (BLS) Education Attainment, California Community Colleges Chancellor’s Office Management Information Systems (MIS) Data Mart, CTE LaunchBoard, Statewide CTE Outcomes Survey, Employment Development Department Unemployment Insurance Dataset

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## Notes

Data included in this analysis represents the labor market demand for positions most closely related to Supply Chain Management. Standard occupational classification (SOC) codes were chosen based on the national education level required for employment (associate degree and postsecondary certificate) as well as the proportion of current workers who hold a community college award or have had some community college training. This selection process narrows the labor market analysis to the most relevant employment opportunities for students with community college education and/or training.

Traditional labor market information was used to show current and projected employment based on data trends, as well as annual average awards granted by regional community colleges. Real-time labor market information was used to provide a more nuanced view of the current job market, as it captures job post advertisements for occupations relevant to the field of study. Job postings should not be used to establish current job openings, because the numbers may include duplicate job postings or postings intended to gather a pool of applicants. Real-time labor market information can signal demand and show what employers are looking for in potential employees, but is not a perfect measure of the quantity of open positions.