

## Program Endorsement Brief: 0201.00 – Architecture and Architectural Technology Architectural Design - AS

Los Angeles/Orange County Center of Excellence, August 2021

### Summary Analysis

|  |  |  |  |
|--|--|--|--|
| <b>Program Endorsement:</b>                            | <b>Endorsed:<br/>All Criteria Met</b> <input type="checkbox"/> | <b>Endorsed:<br/>Some Criteria Met</b> <input checked="" type="checkbox"/> | <b>Not<br/>Endorsed</b> <input type="checkbox"/> |
| <b>Program Endorsement Criteria</b>                    |  |  |  |
| <b>Supply Gap:</b>                                     | Yes <input type="checkbox"/>                                   | No <input checked="" type="checkbox"/> (See comments below)                |  |
| <b>Living Wage:<br/>(Entry-Level, 25<sup>th</sup>)</b> | Yes <input checked="" type="checkbox"/>                        | No <input type="checkbox"/>  |  |
| <b>Education:</b>                                      | Yes <input checked="" type="checkbox"/>                        | No <input type="checkbox"/>  |  |
| <b>Emerging Occupation(s)</b>                          |  |  |  |
| Yes <input type="checkbox"/>                           |  | No <input checked="" type="checkbox"/>                                     |  |

The Los Angeles/Orange County Center of Excellence for Labor Market Research (COE) prepared this report to provide Los Angeles/Orange County regional labor market supply and demand data related to three middle-skill occupations:

- *Architectural and civil drafters* (17-3011);
- *Electrical and electronics drafters* (17-3012); and
- *Mechanical drafters* (17-3013).

Middle-skill occupations typically require some postsecondary education, but less than a bachelor's degree.<sup>1</sup> This report is intended to help determine whether there is demand in the local labor market that is not being met by the supply from community college programs that align with the relevant occupations.

Based on the available data, there does not appear to be a supply gap for the three middle-skill occupations of interest in the region; however, the oversupply is within the COE's acceptable margin (25% over or under the number of annual job openings) and is therefore considered "supply met" rather than a "supply gap."

In addition to the Bureau of Labor Statistics (BLS) listing an associate degree as the typical education level for the occupations, all three entry-level wages exceed the self-sufficiency standard wage in both counties. **Therefore, due to some of the criteria being met, the COE endorses this proposed program.** Detailed reasons include:

<sup>1</sup> The COE classifies middle-skill jobs as the following:

- All occupations that require an educational requirement of some college, associate degree or apprenticeship;
- All occupations that require a bachelor's degree, but also have more than one-third of their existing labor force with an educational attainment of some college or associate degree; or
- All occupations that require a high school diploma or equivalent or no formal education, but also require short- to long-term on-the-job training where multiple community colleges have existing programs.

### Demand:

- **Supply Gap Criteria** – Over the next five years, there will be **629 jobs available annually** in the region due to retirements and workers leaving the field, **which is less than the 779 awards (3-year average) conferred** by educational institutions in the region.
  - Although there are more awards conferred than job openings, the data suggests that the **demand has been met for these occupations within the LA/OC region** since the three-year average number of awards (supply) is within the COE's 25% margin of annual job openings (demand).
- **Living Wage Criteria** – In Los Angeles County, all three occupations have entry-level wages above the county's living wage (\$18.10 in Los Angeles County).<sup>2</sup>
- **Educational Criteria** – The Bureau of Labor Statistics (BLS) lists an associate degree as the typical entry-level education for the three middle-skill occupations.
  - National-level educational attainment data indicates **between 53% and 55% of workers in the field have completed some college or an associate degree.**

### Supply:

- Between 2017 and 2020, **20 community colleges** in the LA/OC region issued awards in programs that have historically trained for the three occupations of interest, conferring an average of **615 awards**.
- Between 2016 and 2019, non-community college institutions in the region conferred an average of **164 awards in relevant programs**.

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<sup>2</sup> Self-Sufficiency Standard wage data was pulled from The Self-Sufficiency Standard Tool for California on 8/20/2021. For more information, visit: <http://selfsufficiencystandard.org/california>.

## Occupational Demand

Exhibit 1 shows the five-year occupational demand projections for the three middle-skill occupations of interest. In Los Angeles/Orange County, the number of jobs related to these occupations is projected to decrease by 3% through 2025. However, there will be more than 600 job openings per year through 2025 due to retirements and workers leaving the field.

*This report includes employment projection data by Emsi which uses EDD information. Emsi's projections are modeled on recorded (historical) employment figures and incorporate several underlying assumptions, including the assumption that the economy, during the projection period, will be at approximately full employment. To the extent that a recession or labor shock, such as the economic effects of COVID-19, can cause long-term structural change, it may impact the projections. At this time, it is not possible to quantify the impact of COVID-19 on projections of industry and occupational employment. Therefore, the projections included in this report do not take the impacts of COVID-19 into account.*

**Exhibit 1: Occupational demand in Los Angeles and Orange Counties<sup>3</sup>**

| Geography    | 2020 Jobs    | 2025 Jobs    | 2020-2025 Change | 2020-2025 % Change | Annual Openings |
|--------------|--------------|--------------|------------------|--------------------|-----------------|
| Los Angeles  | 4,550        | 4,354        | (196)            | (4%)               | 388             |
| Orange       | 2,706        | 2,688        | (18)             | (1%)               | 241             |
| <b>Total</b> | <b>7,256</b> | <b>7,042</b> | <b>(214)</b>     | <b>(3%)</b>        | <b>629</b>      |

## Wages

The labor market endorsement in this report considers the hourly wages for the three middle-skill occupations in Los Angeles County, as they relate to the county's self-sufficiency standard wage. Orange County wages are included below in order to provide a complete analysis of the LA/OC region. Detailed wage information, by county, is included in Appendix A.

**Los Angeles County** – All three middle-skill occupations have entry-level wages above the self-sufficiency standard wage for one adult (\$18.10 in Los Angeles County). Typical entry-level hourly wages are in a range between \$22.47 and \$25.73. Experienced workers can expect to earn wages between \$36.66 and \$38.23, which are higher than the self-sufficiency standard wage estimate.

**Orange County** – All three middle-skill occupations have entry-level wages above the self-sufficiency standard wage for one adult (\$20.63 in Orange County). Typical entry-level hourly wages are in a range between \$23.41 and \$26.74. Experienced workers can expect to earn wages between \$37.92 and \$39.97, which are higher than the self-sufficiency standard wage estimate.

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<sup>3</sup> Five-year change represents new job additions to the workforce. Annual openings include new jobs and replacement jobs that result from retirements and separations.

## Job Postings

Over the past 12 months, there have been 1,236 online job postings related to the three middle-skill occupations in the region. The highest number of job postings were for drafters, electrical designers, mechanical designers, CAD drafters, and architectural drafters. The top skills were AutoCAD, Revit, project management, calculation, and SolidWorks. The top employers, by number of job postings, in the region were The Boeing Company, Raytheon, and Skyworks Solutions Incorporated.

*It is important to note that the job postings data included in this section reflects online job postings listed in the past 12 months and does not yet demonstrate the impact of COVID-19. While employers have generally posted fewer online job postings since the beginning of the pandemic, the long-term effects are currently unknown.*

## Educational Attainment

The Bureau of Labor Statistics (BLS) lists an associate degree as the typical entry-level education for the three middle-skill occupations studied in this report. National-level educational attainment data indicates between 53% and 55% of workers in the field have completed some college or an associate degree. Of the 60% of job postings listing a minimum education requirement in Los Angeles/Orange County, 60% (444) requested a bachelor's degree, 22% (164) requested an associate degree, and 18% (134) requested high school or vocational training.

## Educational Supply

**Community College Supply** – Exhibit 2 shows the annual and three-year average number of awards conferred by community colleges in programs that have historically trained for the occupations of interest. The colleges with the most completions in the region are Mt. San Antonio, East LA, Cerritos, and Orange Coast. Over the past 12 months, there were six other related program recommendation requests from regional community colleges.

**Exhibit 2: Regional community college awards (certificates and degrees), 2017-2020**

| TOP     | Program                                   | College        | 2017-18 Awards | 2018-19 Awards | 2019-20 Awards | 3-Year Average |
|---------|---|----------------|----------------|----------------|----------------|----------------|
| 0201.00 | Architecture and Architectural Technology | Cerritos       | 17             | 24             | 44             | 28             |
|         |   | Citrus         | 2              | 3              | 6              | 4              |
|         |   | Compton        | -              | 2              | -              | 1              |
|         |   | East LA        | 34             | 57             | 25             | 39             |
|         |   | El Camino      | 35             | 14             | 21             | 23             |
|         |   | Glendale       | 4              | 6              | 6              | 5              |
|         |   | LA Harbor      | 5              | 5              | 4              | 5              |
|         |   | LA Pierce      | 8              | 9              | 4              | 7              |
|         |   | LA Trade       | 8              | 11             | 8              | 9              |
|         |   | LA Valley      | 4              | 1              | 3              | 3              |
|         |   | Long Beach     | 10             | 14             | 13             | 12             |
|         |   | Mt San Antonio | 82             | 97             | 51             | 77             |

| TOP                            | Program                | College            | 2017-18 Awards | 2018-19 Awards | 2019-20 Awards | 3-Year Average |
|--------------------------------|------------------------|--------------------|----------------|----------------|----------------|----------------|
|                                |                        | Pasadena           | 11             | 16             | 18             | 15             |
|                                |                        | Rio Hondo          | 19             | 20             | 3              | 14             |
|                                |                        | <b>LA Subtotal</b> | <b>239</b>     | <b>279</b>     | <b>206</b>     | <b>241</b>     |
|                                |                        | Fullerton          | 8              | 5              | 12             | 8              |
|                                |                        | Orange Coast       | 82             | 40             | 59             | 60             |
|                                |                        | Saddleback         | 12             | 15             | 8              | 12             |
|                                |                        | <b>OC Subtotal</b> | <b>102</b>     | <b>60</b>      | <b>79</b>      | <b>80</b>      |
| <b>Supply Subtotal/Average</b> |                        |                    | <b>341</b>     | <b>339</b>     | <b>285</b>     | <b>322</b>     |
| 0953.00                        | Drafting Technology    | Cerritos           | 48             | 35             | 14             | 32             |
|                                |                        | Citrus             | 6              | 13             | 15             | 11             |
|                                |                        | East LA            | 38             | 36             | 7              | 27             |
|                                |                        | El Camino          | 15             | 21             | 9              | 15             |
|                                |                        | LA Harbor          | 1              | 3              | -              | 1              |
|                                |                        | LA Pierce          | 7              | 5              | 2              | 5              |
|                                |                        | LA Valley          | 4              | 1              | 3              | 3              |
|                                |                        | Long Beach         | -              | -              | 1              | 0              |
|                                |                        | Mt San Antonio     | 34             | 42             | 23             | 33             |
|                                |                        | Pasadena           | 21             | 5              | 6              | 11             |
|                                |                        | Rio Hondo          | 93             | 14             | 12             | 40             |
|                                |                        | <b>LA Subtotal</b> | <b>267</b>     | <b>175</b>     | <b>92</b>      | <b>178</b>     |
|                                |                        | Fullerton          | 11             | 5              | 4              | 7              |
|                                |                        | Golden West        | 18             | 57             | 9              | 28             |
|                                |                        | Irvine Valley      | -              | 2              | 10             | 4              |
|                                |                        | Saddleback         | 2              | 1              | 2              | 2              |
|                                |                        | Santa Ana          | 23             | 15             | 27             | 22             |
| <b>OC Subtotal</b>             | <b>54</b>              | <b>80</b>          | <b>52</b>      | <b>62</b>      |                |                |
| <b>Supply Subtotal/Average</b> |                        |                    | <b>321</b>     | <b>255</b>     | <b>144</b>     | <b>240</b>     |
| 0953.10                        | Architectural Drafting | Citrus             | -              | -              | 2              | 1              |
|                                |                        | Long Beach         | 8              | 7              | 9              | 8              |
|                                |                        | Rio Hondo          | -              | -              | 8              | 3              |
|                                |                        | <b>LA Subtotal</b> | <b>8</b>       | <b>7</b>       | <b>19</b>      | <b>11</b>      |
|                                |                        | Fullerton          | 4              | 3              | 1              | 3              |
|                                |                        | Santa Ana          | 3              | 3              | 1              | 2              |
| <b>OC Subtotal</b>             | <b>7</b>               | <b>6</b>           | <b>2</b>       | <b>5</b>       |                |                |
| <b>Supply Subtotal/Average</b> |                        |                    | <b>15</b>      | <b>13</b>      | <b>21</b>      | <b>16</b>      |

| TOP                            | Program   | College                        | 2017-18 Awards | 2018-19 Awards | 2019-20 Awards | 3-Year Average |
|--------------------------------|---|--------------------------------|----------------|----------------|----------------|----------------|
| 0953.20                        | Civil Drafting  | Rio Hondo                      | 2              | 1              | 3              | 2              |
|                                |   | <b>LA Subtotal</b>             | <b>2</b>       | <b>1</b>       | <b>3</b>       | <b>2</b>       |
|                                |   | Irvine Valley                  | 1              | 1              | 3              | 2              |
|                                |   | <b>OC Subtotal</b>             | <b>1</b>       | <b>1</b>       | <b>3</b>       | <b>2</b>       |
| <b>Supply Subtotal/Average</b> |   |                                | <b>3</b>       | <b>2</b>       | <b>6</b>       | <b>4</b>       |
| 0953.30                        | Electrical, Electronic, and Electro-Mechanical Drafting | Glendale                       | 6              | 2              | 2              | 3              |
|                                |   | <b>LA Subtotal</b>             | <b>6</b>       | <b>2</b>       | <b>2</b>       | <b>3</b>       |
|                                |   | <b>Supply Subtotal/Average</b> |                |                | <b>6</b>       | <b>2</b>       |
| 0953.40                        | Mechanical Drafting                                     | Glendale                       | -              | 5              | 11             | 5              |
|                                |   | LA Pierce                      | -              | 1              | -              | 0              |
|                                |   | LA Valley                      | 8              | 5              | 9              | 7              |
|                                |   | Long Beach                     | 23             | 8              | 10             | 14             |
|                                |   | <b>LA Subtotal</b>             | <b>31</b>      | <b>19</b>      | <b>30</b>      | <b>27</b>      |
|                                |   | Irvine Valley                  | -              | 4              | 5              | 3              |
|                                |   | <b>OC Subtotal</b>             | <b>-</b>       | <b>4</b>       | <b>5</b>       | <b>3</b>       |
| <b>Supply Subtotal/Average</b> |   |                                | <b>31</b>      | <b>23</b>      | <b>35</b>      | <b>30</b>      |
| <b>Supply Total/Average</b>    |   |                                | <b>717</b>     | <b>634</b>     | <b>493</b>     | <b>615</b>     |

**Non-Community College Supply** – For a comprehensive regional supply analysis, it is important to consider the supply from other institutions in the region that provide training programs for the three middle-skill occupations of interest. Exhibit 3 shows the annual and three-year average number of awards conferred by these institutions in programs crosswalked to the TOP in Exhibit 2. Due to different data collection periods, the most recent three-year period of available data is from 2016 to 2019. Between 2016 and 2019, non-community college institutions in the region conferred an average of 164 awards annually in related training programs.

**Exhibit 3: Regional non-community college awards, 2016-2019**

| CIP                         | Program   | Institution   | 2016-17 Awards | 2017-18 Awards | 2018-19 Awards | 3-Year Average |
|-----------------------------|---|---|----------------|----------------|----------------|----------------|
| 04.0401                     | Environmental Design/Architecture                     | Otis College of Art and Design                      | 12             | 18             | 13             | 14             |
| 15.1302                     | CAD/CADD Drafting and/or Design Technology/Technician | Los Angeles ORT College-Los Angeles Campus (CLOSED) | 10             | 10             | 17             | 12             |
| 50.0404                     | Industrial and Product Design                         | CSU-Fullerton                                       | -              | -              | 125            | 42             |
|                             |   | CSU-Long Beach                                      | 39             | 31             | 37             | 36             |
|                             |   | Fashion Institute of Design & Merchandising-LA      | 41             | 28             | 34             | 34             |
|                             |   | Otis College of Art and Design                      | 28             | 30             | 18             | 25             |
| <b>Supply Total/Average</b> |   |   | <b>130</b>     | <b>117</b>     | <b>244</b>     | <b>164</b>     |

Appendix A: Occupational demand and wage data by county

Exhibit 4. Los Angeles County

| Occupation (SOC)                              | 2020 Jobs    | 2025 Jobs    | 5-Yr Change  | 5-Yr % Change | Annual Openings | Entry-Level Hourly Earnings (25 <sup>th</sup> Percentile) | Median Hourly Earnings | Experienced Hourly Earnings (75 <sup>th</sup> Percentile) |
|---|--------------|--------------|--------------|---------------|-----------------|---|------------------------|---|
| Architectural and Civil Drafters (17-3011)    | 2,695        | 2,649        | (46)         | (2%)          | 233             | \$25.73   | \$29.88                | \$36.66   |
| Electrical and Electronics Drafters (17-3012) | 630          | 598          | (32)         | (5%)          | 53              | \$23.63   | \$28.81                | \$38.23   |
| Mechanical Drafters (17-3013)                 | 1,225        | 1,107        | (118)        | (10%)         | 102             | \$22.47   | \$28.83                | \$38.18   |
| <b>Total</b>                                  | <b>4,550</b> | <b>4,354</b> | <b>(196)</b> | <b>(4%)</b>   | <b>388</b>      |   |                        |   |

Exhibit 5. Orange County

| Occupation (SOC)                              | 2020 Jobs    | 2025 Jobs    | 5-Yr Change | 5-Yr % Change | Annual Openings | Entry-Level Hourly Earnings (25 <sup>th</sup> Percentile) | Median Hourly Earnings | Experienced Hourly Earnings (75 <sup>th</sup> Percentile) |
|---|--------------|--------------|-------------|---------------|-----------------|---|------------------------|---|
| Architectural and Civil Drafters (17-3011)    | 1,612        | 1,628        | 16          | 1%            | 146             | \$26.74   | \$30.97                | \$37.92   |
| Electrical and Electronics Drafters (17-3012) | 390          | 391          | 1           | 0%            | 35              | \$25.00   | \$30.30                | \$39.97   |
| Mechanical Drafters (17-3013)                 | 705          | 669          | (36)        | (5%)          | 60              | \$23.41   | \$29.88                | \$39.38   |
| <b>Total</b>                                  | <b>2,706</b> | <b>2,688</b> | <b>(18)</b> | <b>(1%)</b>   | <b>241</b>      |   |                        |   |



### Exhibit 6. Los Angeles and Orange Counties

| Occupation (SOC)                              | 2020 Jobs    | 2025 Jobs    | 5-Yr Change  | 5-Yr % Change | Annual Openings | Typical Entry-Level Education |
|---|--------------|--------------|--------------|---------------|-----------------|-------------------------------|
| Architectural and Civil Drafters (17-3011)    | 4,307        | 4,277        | (30)         | (1%)          | 379             | Associate degree              |
| Electrical and Electronics Drafters (17-3012) | 1,020        | 988          | (32)         | (3%)          | 88              | Associate degree              |
| Mechanical Drafters (17-3013)                 | 1,930        | 1,776        | (154)        | (8%)          | 162             | Associate degree              |
| <b>Total</b>                                  | <b>7,256</b> | <b>7,042</b> | <b>(214)</b> | <b>(3%)</b>   | <b>629</b>      |                               |

#### Appendix B: Sources

- O\*NET Online
- Labor Insight/Jobs (Burning Glass)
- Economic Modeling Specialists, International (Emsi)
- Bureau of Labor Statistics (BLS)
- Employment Development Department, Labor Market Information Division, OES
- California Community Colleges Chancellor's Office Management Information Systems (MIS)
- California Family Needs Calculator, Insight Center for Community Economic Development
- Chancellor's Office Curriculum Inventory (COCI 2.0)

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