

# Radio, Cellular, and Tower Equipment Installers and Repairers

Labor Market Analysis: San Diego County

July 2019

## Summary

- Do not Proceed
- Proceed with Caution
- Proceed

**PROCEED WITH  
NEW PROGRAM?**



**SUPPLY  
GAP?**



**AT OR ABOVE  
THE LIVING WAGE**



- Bachelor's Degree+
- Associate Degree
- Some College or Certificate
- High School Diploma or Equivalent
- Less than a HS Diploma
- Apprenticeship

**EXPECTED LEVEL  
OF EDUCATION**

- High
- Medium
- Low

**NUMBER OF  
INSTITUTIONS THAT  
PROVIDE TRAINING**

- High
- Medium
- Low

**NUMBER OF ANNUAL  
JOB OPENINGS**

According to available labor market information, *Radio, Cellular, and Tower Equipment Installers and Repairers* have a labor market demand of 13 annual job openings, while average demand for an occupation in San Diego County is 277 annual job openings. One educational institution in San Diego County supplies four awards for this occupation, suggesting that there is a very small supply gap. This occupation's entry-level and median wages are above the living wage, suggesting that students who successfully complete a program and obtain employment in a related field may earn a living wage. This brief also reviews online job postings for technologies such as fiber optics, 5G wireless, tower climbing, spectrum management, and wireless security. The information suggests that while there is a small labor market demand for the *Radio, Cellular, and Tower Equipment Installers and Repairers*, employers are interested in these skills sets for occupations such as *Electricians, Network Engineers, Electronics Technicians, Systems Engineers, and Electrical Engineers*.

## Introduction

This report provides labor market information in San Diego County for the following occupational code in the Standard Occupational Classification (SOC)<sup>1</sup> system:

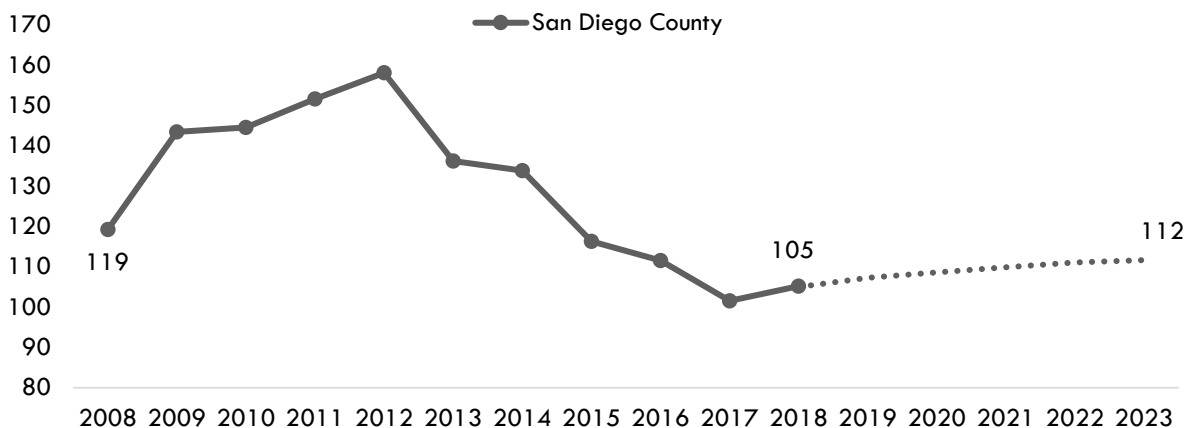
**Radio, Cellular, and Tower Equipment Installers and Repairers (SOC 49-2021):** Repair, install or maintain mobile or stationary radio transmitting, broadcasting, and receiving equipment, and two-way radio communications systems used in cellular telecommunications, mobile broadband, ship-to-shore, aircraft-to-ground communications, and radio equipment in service and emergency vehicles. May test and analyze network coverage. Sample reported job titles include:

- Avionics Repair Technician
- Avionics Technician
- Communications Tower Technician
- Field Service Technician
- Installation Technician
- Installer
- Radio Technician
- Tower Climber
- Tower Hand
- Tower Technician

## Projected Occupational Demand

Between 2018 and 2023, *Radio, Cellular, and Tower Equipment Installers and Repairers* are projected to increase by **seven** jobs or **seven** percent (Exhibit 1). Employers in San Diego County will need to hire **13** workers annually to fill new jobs and backfill jobs due to attrition caused by turnover and retirement, for example.

**Exhibit 1: Number of Jobs for Radio, Cellular, and Tower Equipment Installers and Repairers (2008-2023)<sup>2</sup>**



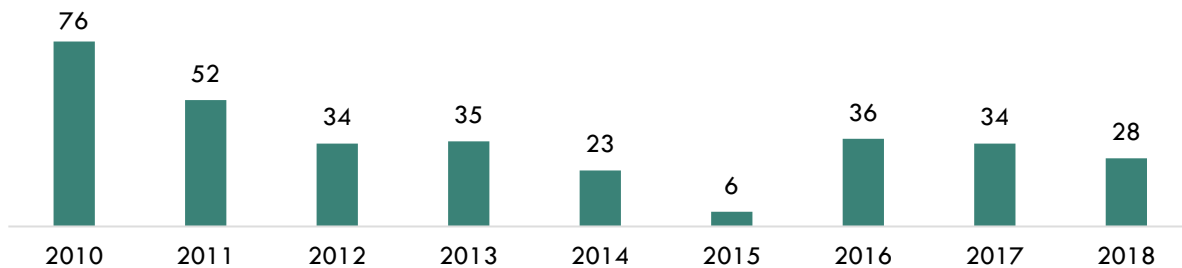
<sup>1</sup> The Standard Occupational Classification (SOC) system is used by federal statistical agencies to classify workers into occupational categories for the purpose of collecting, calculating or disseminating data. [bls.gov/soc](https://www.bls.gov/soc/).

<sup>2</sup> Emsi 2019.02; QCEW, Non-QCEW, Self-Employed.

## Online Job Postings and Top Job Titles

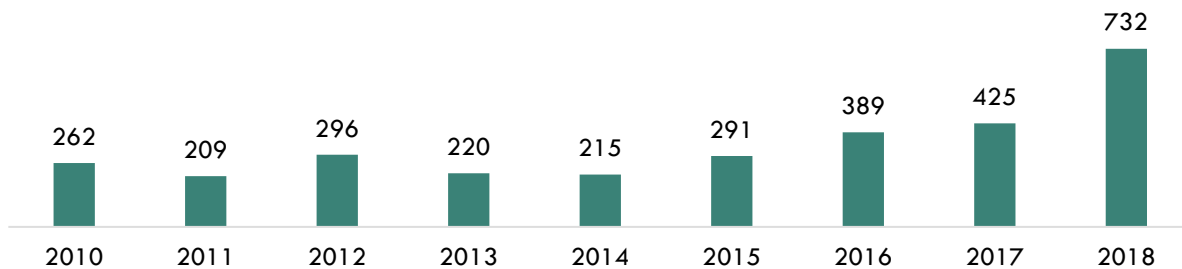
Between 2010 and 2018, there was an average of 36 online job postings per year for *Radio, Cellular, and Tower Equipment Installers and Repairers* in San Diego County (Exhibit 2a).

**Exhibit 2a: Number of Online Job Postings for Radio, Cellular, and Tower Equipment Installers and Repairers in San Diego County (2010-2018)<sup>3</sup>**



Between January 1, 2010, and December 31, 2018, there were 338 online job posting for jobs with the skills *fiber optics, 5G wireless, tower climbing, spectrum management, and wireless security* in San Diego County (Exhibit 2b).

**Exhibit 2b: Number of Online Job Postings with Skills Fiber Optics, 5G Wireless, Tower Climbing, Spectrum Management, and Wireless Security in San Diego County (2010-2018)<sup>4</sup>**



Similarly, during this period, there were 3,039 online job postings for occupations with the skills *fiber optics, 5G wireless, tower climbing, spectrum management, and wireless security* in San Diego County. The top job titles include *Electricians, Network Engineers, Electronics Technicians, Systems Engineers, and Electrical Engineers* (Exhibit 3).

<sup>3</sup> Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2010-2018.

<sup>4</sup> Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2010-2018.

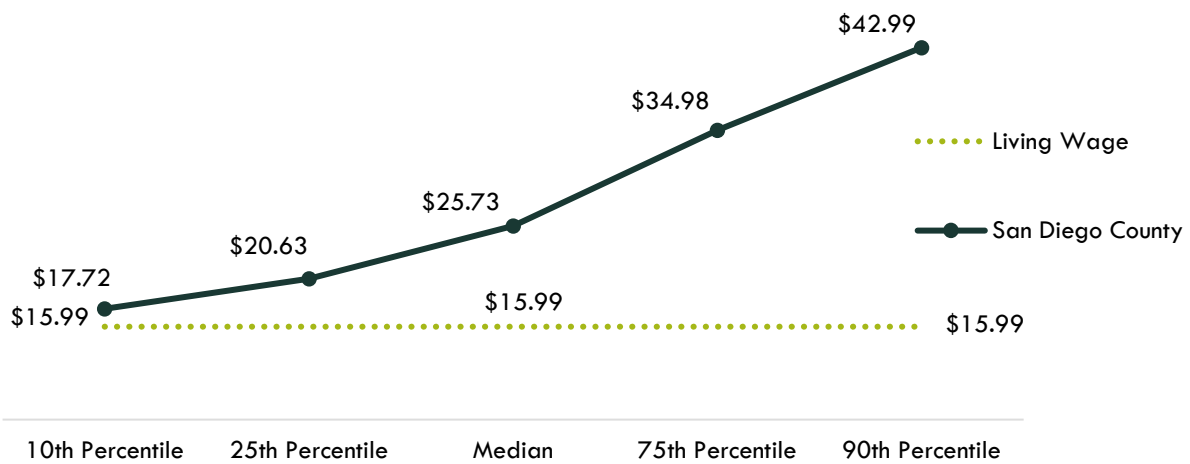
**Exhibit 3: Top Job Titles in Online Job Postings for Skills Fiber Optics, 5G Wireless, Tower Climbing, Spectrum Management, and Wireless Security in San Diego County (2010-2018)<sup>5</sup>**

Top Job Titles (Number of Online Job Postings)	
• Electricians (125)	• Network Technicians (48)
• Network Engineers (118)	• RF Engineers (43)
• Electronics Technicians (115)	• Network Administrators (42)
• Systems Engineers (108)	• Fiber Optics Technicians (40)
• Electrical Engineers (66)	• Cable Technicians (40)
• Software Development Engineers (55)	• Engineering Technicians (39)
• Communications Technicians (54)	• Technicians (38)

**Earnings**

Radio, Cellular, and Tower Equipment Installers and Repairers receive median hourly earnings of **\$25.73**; this is above the California Family Needs Calculator (commonly known as the “living wage”) for a single adult in San Diego County, which is **\$15.99** per hour (Exhibit 4).<sup>6</sup>

**Exhibit 4: Hourly Earnings<sup>7</sup> for Radio, Cellular, and Tower Equipment Installers and Repairers in San Diego County<sup>8</sup>**



<sup>5</sup> Burning Glass Technologies, “Labor Insight Real-Time Labor Market Information Tool.” 2010-2018.

<sup>6</sup> California Family Needs Calculator. Insight: Center for Community Economic Development. 2019. selfsufficiency.org

<sup>7</sup> 10th and 25th percentiles could be considered entry-level wages, and 75th and 90th percentiles could be considered experienced wages for individuals who may have been in the occupation longer, received more training than others, etc.

<sup>8</sup> Emsi 2019.02; QCEW, Non-QCEW, Self-Employed.

## Educational Supply

Educational supply for an occupation can be estimated by analyzing the number of awards in related Taxonomy of Programs (TOP) or Classification of Instructional Programs (CIP) codes.<sup>9</sup> There is **one** TOP code and **two** CIP codes related to *Radio, Cellular, and Tower Equipment Installers and Repairers* (Exhibit 5).

### Exhibit 5: Related TOP and CIP Codes for *Radio, Cellular, and Tower Equipment Installers and Repairers*

#### *Radio, Cellular, and Tower Equipment Installers and Repairers*

TOP 093430: Telecommunications Technology

CIP 15.0305: Telecommunications Technology/Technician

CIP 47.0103: Communications Systems Installation and Repair Technology

According to TOP data, **one** community college supplies the region with awards for this occupation: **San Diego City College**. According to CIP data, **no** non-community college supplies the region with awards (Exhibit 6).

### Exhibit 6: Number of Awards (Certificates and Degrees) Conferred by Postsecondary Institutions (Program Year 2013-14 through PY2016-17 Average)

TOP6 or CIP	TOP6 or CIP Title	3-Yr Annual Average CC Awards (PY14-15 to PY16-17)	Other Educational Institutions 3-Yr Annual Average Awards (PY13-14 to PY15-16)	3-Yr Total Average Supply (PY13-14 to PY16-17)
093430	Telecommunications Technology	<b>4</b>	<b>0</b>	<b>4</b>
	<ul style="list-style-type: none"> <li>San Diego City</li> </ul>	4	0	
			<b>Total</b>	<b>4</b>

<sup>9</sup> TOP data comes from the California Community Colleges Chancellor's Office MIS Data Mart (datamart.cccco.edu) and CIP data comes from the Integrated Postsecondary Education Data System (nces.ed.gov/ipeds/use-the-data).

## Demand vs. Supply

Comparing labor demand (annual openings) with labor supply<sup>10</sup> suggests that there is a **supply gap** for this occupation in San Diego County, with **116** annual openings and **64** awards. Comparatively, there are **251** annual openings in California and **186** awards<sup>11</sup> (Exhibit 7).

**Exhibit 7: Labor Demand (Annual Openings) Compared with Labor Supply (Average Annual Awards)**

Community Colleges and Other Postsecondary Educational Institutions	Demand (Annual Openings)	Supply (Total Annual Average Supply)	Supply Gap or <b>Oversupply</b>
San Diego	13	4	<b>9</b>
California	251	186	<b>65</b>

**Please note:** This is a basic analysis of supply and demand of labor. The data does not include workers currently in the labor force who could fill these positions or workers who are not captured by publicly available data. This data should be used to discuss the potential gaps or oversupply of workers; however, it should not be the only basis for determining whether or not a program should be developed.

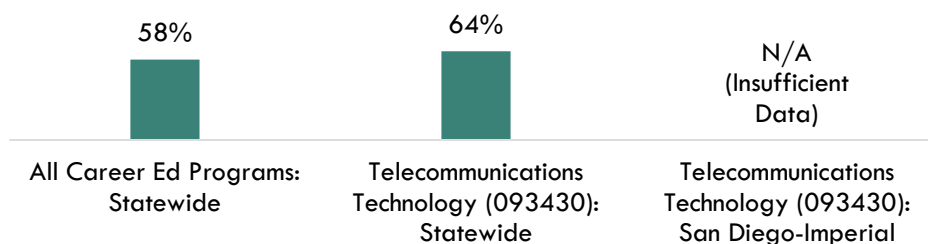
## Student Outcomes and Regional Comparisons

According to the California Community Colleges LaunchBoard, there was insufficient data to calculate the “Percentage of Students Employed in a Job Closely Related to Field of Study” in the San Diego-Imperial region and Statewide for Telecommunications Technology (093430); however, there was data at the Statewide level for the “Proportion of Students Who Earned a Living Wage.” Sixty-four percent of students earned a living wage in the Telecommunications Technology (093430) program, compared to 58 percent of students who earned a living wage in Career Education programs across the state (Exhibit 8).

<sup>10</sup> Labor supply can be found from two different sources: EMSI or the California Community Colleges Chancellor's Office MIS Data Mart. EMSI uses CIP codes while MIS uses TOP codes. Different coding systems result in differences in the supply numbers.

<sup>11</sup> “Supply and Demand,” Centers of Excellence Student Outcomes, [coecc.net/Supply-and-Demand.aspx](http://coecc.net/Supply-and-Demand.aspx).

**Exhibit 8: Proportion of Students Who Earned a Living Wage, PY2015-16<sup>12</sup>**



## Top Employers and Work Locations

Between January 1, 2016 and December 31, 2018, the top five employers in San Diego County for this occupation were [AT&T](#), [RF-Lambda](#), [Qualcomm](#), [DIRECTV](#), and [Aethercomm](#) (Exhibit 9).

**Exhibit 9: Top Employers in San Diego County for Radio, Cellular, and Tower Equipment Installers and Repairers<sup>13</sup>**

Top Employers	
• AT&T	• CommUSA
• RF-Lambda	• U.S. Army
• Qualcomm	• MaxLinear
• DIRECTV	• Huawei
• Aethercomm	• Viasat, Inc.

## Skills, Education, and Certifications

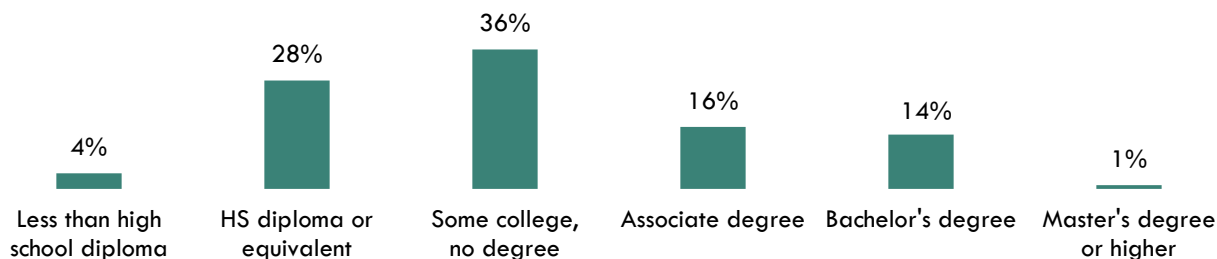
Exhibit 10 indicates the educational attainment for the occupation found currently in the national labor force. The typical on-the-job training for this profession is [moderate-term on-the-job training](#). The typical entry-level education is an [associate degree](#).<sup>14</sup>

<sup>12</sup> Among completers and skills builders who exited, the proportion of students who attained a living wage.

<sup>13</sup> Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2016-2018.

<sup>14</sup> Source: Emsi, 2018.04; QCEW, Non-QCEW, Self-Employed.

**Exhibit 10: National Educational Attainment of Radio, Cellular, and Tower Equipment Installers and Repairers<sup>15</sup>**



\*May not add to 100% due to rounding

Exhibit 11 lists the top specialized, soft, and software skills that appeared in online job postings between January 1, 2016 and December 31, 2018.

**Exhibit 11: Top Skills for Radio, Cellular, and Tower Equipment Installers and Repairers in San Diego County<sup>16</sup>**

Specialized Skills	Soft Skills	Software Skills
<ul style="list-style-type: none"> <li>• Repair</li> <li>• Hand Tools</li> <li>• Lifting Ability</li> <li>• Predictive / Preventative Maintenance</li> <li>• Motor Vehicle Operation</li> </ul>	<ul style="list-style-type: none"> <li>• Troubleshooting</li> <li>• Communication Skills</li> <li>• Teamwork / Collaboration</li> <li>• Physical Abilities</li> <li>• Computer Literacy</li> </ul>	<ul style="list-style-type: none"> <li>• Microsoft Excel</li> <li>• Microsoft PowerPoint</li> <li>• LabVIEW</li> <li>• C++</li> <li>• Really Simple Syndication</li> </ul>

Prepared by:

Tina Ngo Bartel, Director

John Edwards, Research Analyst

San Diego-Imperial Center of Excellence for Labor Market Research

[tngobartel@miracosta.edu](mailto:tngobartel@miracosta.edu)

[jedwards@miracosta.edu](mailto:jedwards@miracosta.edu)



<sup>15</sup> "Educational Attainment for Workers 25 Years and Older by Detailed Occupation," Bureau of Labor Statistics, last modified October 18, 2018. [bls.gov/emp/tables/educational-attainment.htm](https://bls.gov/emp/tables/educational-attainment.htm).

<sup>16</sup> Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2016-2018.



**Important Disclaimers**

All representations included in this report have been produced from primary research and/or secondary review of publicly and/or privately available data and/or research reports. This study examines the most recent data available at the time of the analysis; however, data sets are updated regularly and may not be consistent with previous reports. Efforts have been made to qualify and validate the accuracy of the data and the report findings; however, neither the Centers of Excellence for Labor Market Research (COE), COE host district, nor California Community Colleges Chancellor's Office are responsible for the applications or decisions made by individuals and/or organizations based on this study or its recommendations.