










# Water and Wastewater Treatment Plant and System Operators

Labor Market Analysis: Imperial County

March 2022

## Summary

NEW PROGRAM RECOMMENDATION?	EVIDENCE OF A SUPPLY GAP?	AT OR ABOVE THE LIVING WAGE?	EXPECTED LEVEL OF EDUCATION
 <p><b>Do Not Proceed with New Program</b></p>	 	 	<input type="checkbox"/> Bachelor's Degree+ <input type="checkbox"/> Associate Degree <input type="checkbox"/> Some College or Certificate
<p>SUPPORT FOR PROGRAM MODIFICATION?</p>  	<p>NUMBER OF INSTITUTIONS THAT PROVIDE TRAINING</p> <p>MEDIUM</p> 	<p>NUMBER OF ANNUAL JOB OPENINGS</p> <p>MEDIUM</p> 	<input checked="" type="checkbox"/> HS Diploma or Equivalent <input type="checkbox"/> Less than a HS Diploma <input type="checkbox"/> Apprenticeship

The San Diego-Imperial Center of Excellence for Labor Market Research (COE) developed this brief to assist the region's community colleges with strategic planning and program development. According to available labor market information, *Water and Wastewater Treatment Plant and System Operators* in Imperial County have a labor market demand of 12 annual job openings (average demand for a single occupation in Imperial County is also 12 annual job openings), and one educational institution in Imperial County supplies 13 awards for this occupation, suggesting that supply is met in the labor market. Entry-level and median wages for this occupation are above the living wage. This brief recommends that the colleges do not proceed with developing a **new** program for this occupation but supports a program modification because 1) supply is met by the college in the region and 2) entry-level and median wages are above the living wage.

## Introduction

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

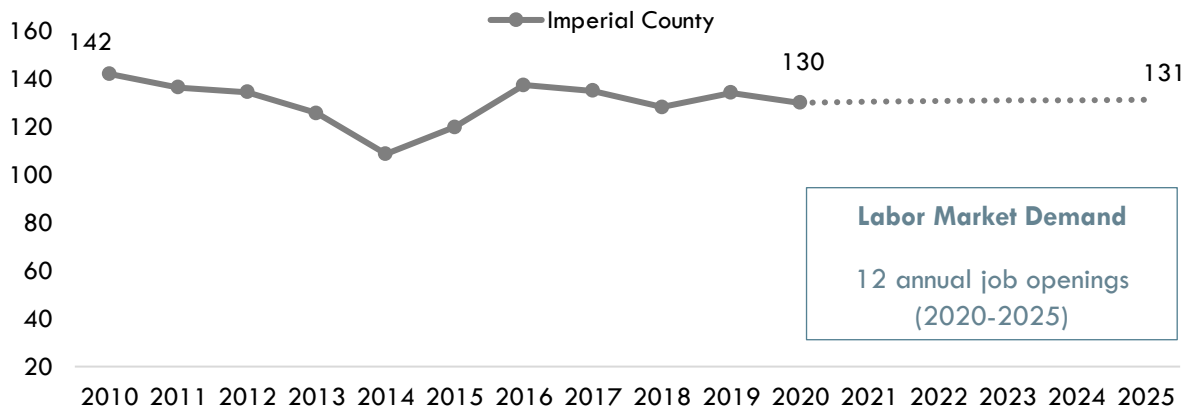
**Water and Wastewater Treatment Plant and System Operators (SOC 51-8031):** Operate or control an entire process or system of machines, often through the use of control boards, to transfer or treat water or wastewater. Sample reported job titles include:

- Wastewater Treatment Operator
- Water Treatment Plant Operator
- Wastewater Treatment Plant Operator
- Water Plant Operator
- Wastewater Operator
- Plant Operator
- Water Treatment Operator
- Water Operator
- Wastewater Plant Operator
- Water System Operator

## Projected Occupational Demand

Between 2020 and 2025, *Water and Wastewater Treatment Plant and System Operators* are projected to increase by **one net job** or **one percent** (Exhibit 1). Employers in Imperial County will need to hire **12** 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 *Water and Wastewater Treatment Plant and System Operators* (2010-2025)<sup>2</sup>**



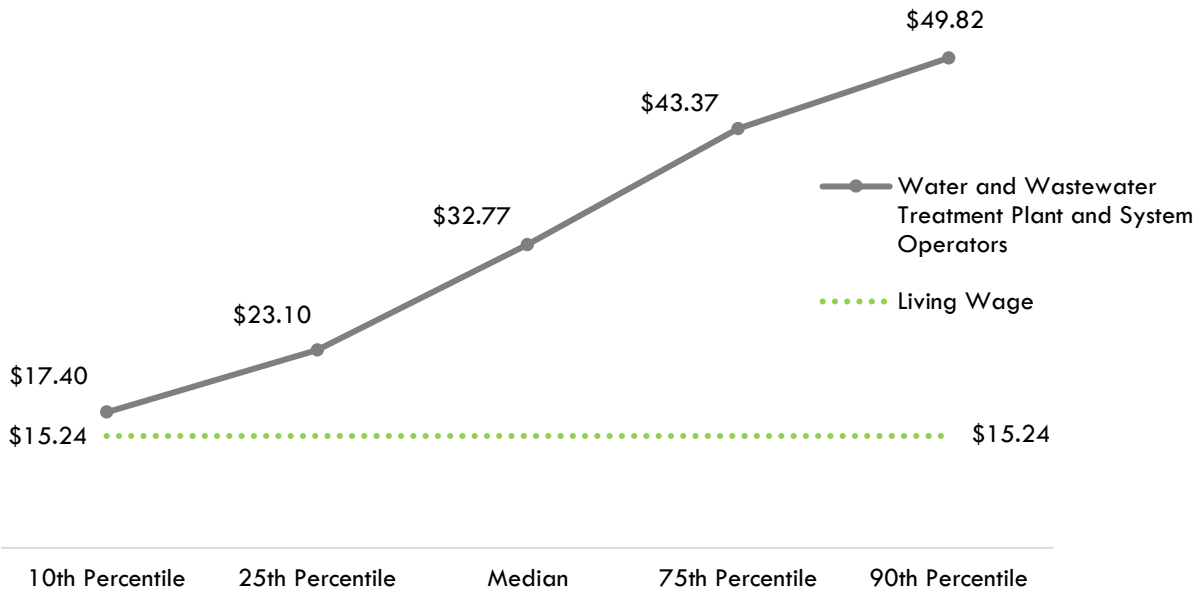
<sup>1</sup> The Standard Occupational Classification (SOC) system is used by federal statistical agencies to classify workers into occupational categories for the purpose of collecting, calculating or disseminating data. [bls.gov/soc](https://www.bls.gov/soc/).

<sup>2</sup> EMSI 2021.4; QCEW, Non-QCEW, Self-Employed.

## Earnings

Water and Wastewater Treatment Plant and System Operators receive entry-level hourly earnings of \$23.10; this is more than the living wage for a household of two adults and two school-age children in Imperial County, which is \$15.24 per hour (Exhibit 2).<sup>3</sup>

**Exhibit 2: Hourly Earnings<sup>4</sup> for Water and Wastewater Treatment Plant and System Operators in Imperial County<sup>5</sup>**



<sup>3</sup> "Family Needs Calculator (formerly the California Family Needs Calculator)," Insight: Center for Community Economic Development, last updated 2021. [insightccd.org/family-needs-calculator/](https://insightccd.org/family-needs-calculator/).

<sup>4</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>5</sup> EMSI 2021.4; 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>6</sup> There is **one** TOP code and **one** CIP code related to *Water and Wastewater Treatment Plant and System Operators* (Exhibit 3).

**Exhibit 3: Related TOP and CIP Codes for *Water and Wastewater Treatment Plant and System Operators***

TOP or CIP Code	TOP or CIP Program Title
TOP 0958.00	Water and Wastewater Technology
CIP 15.0506	Water Quality and Wastewater Treatment Management and Recycling Technology/Technician

According to TOP data, **one** community college supplies the region with awards for these occupations: **Imperial Valley College**. According to CIP data, **no** non-community-college institution supplies the region with awards (Exhibit 4).

**Exhibit 4: Number of Awards (Certificates and Degrees) Conferred by Postsecondary Institutions  
(Program Year 2016-17 through PY2019-20 Average)**

TOP or CIP Code	TOP or CIP Program Title	3-Yr Annual Average CC Awards (PY17-18 to PY19-20)	Other Educational Institutions 3-Yr Annual Average Awards (PY16-17 to PY18-19)	3-Yr Total Average Supply (PY16-17 to PY19-20)
0958.00	Water and Wastewater Technology	<b>13</b>	<b>0</b>	<b>13</b>
	<ul style="list-style-type: none"> <li>Imperial Valley</li> </ul>	13	0	
<b>Total</b>				<b>13</b>

<sup>6</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>7</sup> suggests that **supply is met** for this occupation in Imperial County, with **12** annual openings and **13** awards. Comparatively, there are **1,014** annual openings in California and **732** awards, suggesting that there is a supply gap across the state<sup>8</sup> (Exhibit 5).

**Exhibit 5: Labor Demand (Annual Openings) Compared with Labor Supply (Average Annual Awards)**

	<b>Demand</b> (Annual Openings)	<b>Supply</b> (Total Annual Average Supply)	<b>Supply Gap or Oversupply</b>
Imperial	12	13	<b>1</b>
California	1,014	732	<b>282</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.

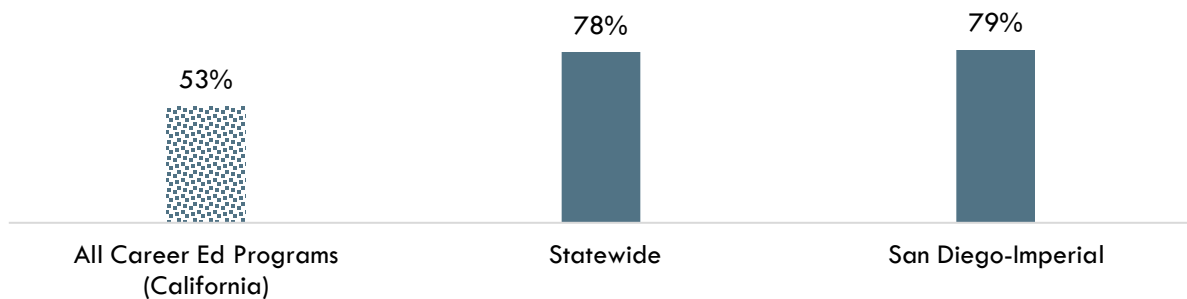
<sup>7</sup> Labor supply can be found from two different sources: EMSI or the California Community Colleges Chancellor's Office MIS Data Mart. EMSI uses CIP codes while MIS uses TOP codes. Different coding systems result in differences in the supply numbers.

<sup>8</sup> "Supply and Demand," Centers of Excellence Student Outcomes, [coecc.net/Supply-and-Demand.aspx](http://coecc.net/Supply-and-Demand.aspx).

## Student Outcomes and Regional Comparisons

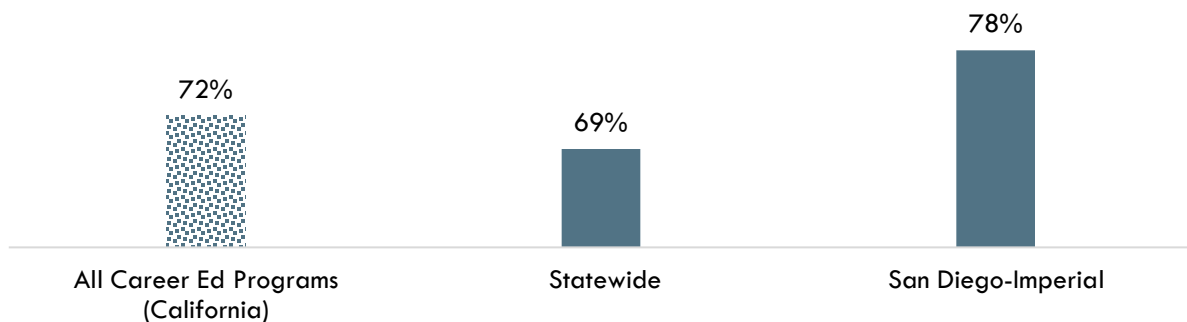
According to the California Community Colleges LaunchBoard, 79 percent of students in the San Diego-Imperial region earned a living wage after completing a Water and Wastewater Technology (TOP 0958.00) program, compared to 78 percent statewide and 53 percent of students in Career Education programs in general across the state (Exhibit 6a).<sup>9</sup>

**Exhibit 6a: Percentage of Students Who Earned a Living Wage by Program  
(Water and Wastewater Technology, PY 2018-19)<sup>10</sup>**



According to the California Community Colleges LaunchBoard, 78 percent of students in the San Diego-Imperial region obtained a job closely related to their field of study after completing a Water and Wastewater Technology (TOP 0958.00) program, compared to 69 percent statewide and 72 percent of students in Career Education programs in general across the state (Exhibit 6b).<sup>11</sup>

**Exhibit 6b: Percentage of Students in a Job Closely Related to Field of Study by Program  
(Water and Wastewater Technology, PY 2017-18)<sup>12</sup>**



<sup>9</sup> "California Community Colleges Strong Workforce Program," California Community Colleges, [calpassplus.org/LaunchBoard/SWP.aspx](http://calpassplus.org/LaunchBoard/SWP.aspx).

<sup>10</sup> Among completers and skills builders who exited, the proportion of students who attained a living wage.

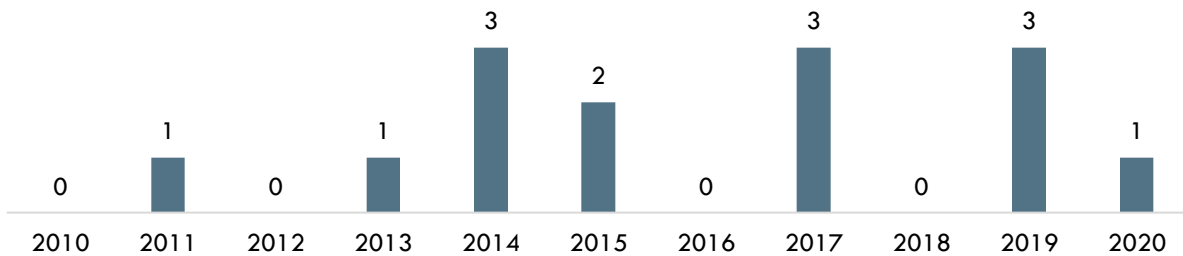
<sup>11</sup> "California Community Colleges Strong Workforce Program," California Community Colleges, [calpassplus.org/LaunchBoard/SWP.aspx](http://calpassplus.org/LaunchBoard/SWP.aspx).

<sup>12</sup> Most recent year with available data is Program Year 2017-18. Percentage of Students in a Job Closely Related to Field of Study: Among students who responded to the CTEOS, the percentage reporting employment in the same or similar field as their program of study.

## Online Job Postings

This report analyzes not only historical and projected (traditional LMI) data, but also recent data from online job postings (real-time LMI). Online job postings may provide additional insight about recent changes in the labor market that are not captured by historical data. Between 2010 and 2020, there was an average of **one** online job posting per year for *Water and Wastewater Treatment Plant and System Operators* in Imperial County (Exhibit 7). Please note that online job postings do **not** equal labor market demand; demand is represented by annual job openings (see Exhibit 1). Employers may post a position multiple times for various reasons, such as increasing the pool of applicants, for example.

**Exhibit 7: Number of Online Job Postings for *Water and Wastewater Treatment Plant and System Operators* in Imperial County (2010-2020)<sup>13</sup>**



## Top Employers

Between January 1, 2018 and December 31, 2020, the top employers in Imperial County for *Water and Wastewater Treatment Plant and System Operators* were [American States Water Company](#), [City of Imperial](#), and [Johnson & Johnson](#) based on online job postings (Exhibit 8).

**Exhibit 8: Top Employers for *Water and Wastewater Treatment Plant and System Operators* in Imperial County <sup>14</sup>**

### Top Employers

- American States Water Company
- City of Imperial
- Johnson & Johnson

<sup>13</sup> Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2010-2020.

<sup>14</sup> Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2018-2020.

## Education, Skills, and Certifications

Exhibit 9 indicates the educational attainment for the occupation found currently in the national labor force. The typical entry-level education is a [high school diploma or equivalent](#).<sup>15</sup>

**Exhibit 9: National Educational Attainment of Water and Wastewater Treatment Plant and System Operators<sup>16</sup>**

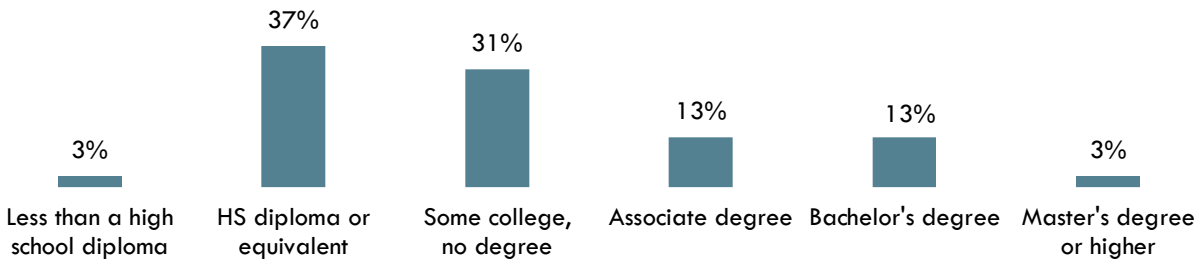


Exhibit 10 lists the top specialized, soft, and software skills that appeared in online job postings between January 1, 2018 and December 31, 2020.

**Exhibit 10: Top Skills for Water and Wastewater Treatment Plant and System Operators in Imperial County<sup>17</sup>**

Specialized Skills	Soft Skills	Software Skills
<ul style="list-style-type: none"> <li>• Chemistry</li> <li>• Water Treatment</li> <li>• Biology</li> <li>• Calculation</li> <li>• Hydraulics</li> <li>• Power Tools</li> <li>• Pumping Systems</li> <li>• Repair</li> <li>• Spreadsheets</li> <li>• Water Distribution</li> <li>• Water Utility Industry Knowledge</li> <li>• California Public Employees' Retirement System</li> <li>• Electric Motors</li> <li>• Equipment Operation</li> <li>• Inventory Maintenance</li> </ul>	<ul style="list-style-type: none"> <li>• Physical Abilities</li> <li>• Detail-Oriented</li> <li>• Listening</li> <li>• Organizational Skills</li> <li>• Self-Starter</li> <li>• Time Management</li> <li>• Typing</li> <li>• Writing</li> </ul>	<ul style="list-style-type: none"> <li>• SCADA</li> </ul>

<sup>15</sup> EMSI 2021.4; QCEW, Non-QCEW, Self-Employed.

<sup>16</sup> "Educational Attainment for Workers 25 Years and Older by Detailed Occupation," Bureau of Labor Statistics, last modified September 4, 2019. [bls.gov/emp/tables/educational-attainment.htm](https://bls.gov/emp/tables/educational-attainment.htm).

<sup>17</sup> Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2018-2020.



Exhibit 11 lists the top certifications that appeared in online job postings between January 1, 2018 and December 31, 2020.

**Exhibit 11: Top Certifications for *Water and Wastewater Treatment Plant and System Operators* in Imperial County<sup>18</sup>**

Top Certifications in Online Job Postings

1. Wastewater Treatment Plant Operator
  2. CDL Class B
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<sup>18</sup> Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2018-2020.

Prepared by:

Tina Ngo Bartel, Director ([tngobartel@miracosta.edu](mailto:tngobartel@miracosta.edu))

John Edwards, Research Analyst ([jedwards@miracosta.edu](mailto:jedwards@miracosta.edu))

San Diego-Imperial Center of Excellence for Labor Market Research



### 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.

This workforce demand report uses state and federal job projection data that was developed before the economic impact of COVID-19. The COE is monitoring the situation and will provide more information as it becomes available. Please consult with local employers to understand their current employment needs.