WORKFORCE DEVELOPMENT BOARD OF VENTURA COUNTY

CLEAN/GREEN COMMITTEE MEETING

Friday, March 17, 2017
8:00 a.m. - 9:30 a.m.

VCCF Nonprofit Center (Community Room)
4001 Mission Oaks Blvd., Camarillo, CA

AGENDA

8:00 a.m.	**1.0 Call to Order and Agenda Review**	Anthony Mireles
8:02 a.m.	**2.0 Public Comments** *Procedure: The public is welcome to comment. All comments not related to items on the agenda may be made at the beginning of the meeting only.*	Anthony Mireles
8:05 a.m.	**3.0 Approval of Minutes:** January 20, 2017	Anthony Mireles
8:10 a.m.	**4.0 Committee Chair Comments:** Welcome New Committee Member	Anthony Mireles
	5.0 Ventura County Regional Strategic Workforce Development Plan	
8:20 a.m.	• Workgroup Report: Employer Awareness	John Brooks Patricia Duffy
8:30 a.m.	• Hospitality Update:	Rebekah Evans
8:40 a.m.	• Water/Wastewater Survey Update:	Patricia Duffy
8:50 a.m.	• Career Pathways Update: VC Innovates	Darrell Gooden
9:00 a.m.	• WIOA Sector Planning	Patricia Duffy Committee Members
9:20 a.m.	**6.0 Committee Member Comments**	Committee Members
9:30 a.m.	**7.0 Adjournment**	Anthony Mireles

Next Meeting
May 19, 2017 (8:00 a.m.– 9:30 a.m.)
VCCF Nonprofit Center (Community Room)
4001 Mission Oaks Blvd., Camarillo, CA

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WDB Clean/Green Committee Meeting
January 20, 2017

MINUTES

Meeting Attendees

Committee Members	WDB Staff	Guests
Anthony Mireles* (Chair)	Patricia Duffy	No guests
John Brooks		
Holly Chavez		
David Fleisch		
Valeria Makarova		
Mary Anne Rooney		

**WDB Members*

1.0 Call to Order and Agenda Review

Anthony Mireles called the meeting to order at 8:10 a.m. No changes were made to the agenda.

2.0 Public Comments

There were no public comments.

3.0 Approval of Minutes: September 16, 2016

Motion to approve: John Brooks
Second: Valeria Makarova
Motion carried

4.0 Ventura County Regional Strategic Workforce Development Plan

- Employer Awareness Workgroup Report
  The Employer Awareness Workgroup shared their progress on ways to help businesses understand the value of incorporating sustainability into their business practices. The workgroup was exploring a way to create short videos of local industry success stories on how sustainable practices in business saves money, grows business, and creates jobs. Following up on a suggestion from a committee member, the Ventura Adult and Continuing Education (VACE) multi-media program was contacted and the workgroup was asked to submit a short proposal. The workgroup reported that the proposal was accepted and that they have been working with the VACE multi-media instructor on plans to begin production of the video in late February.

- Deputy Sector Navigator Report
  Holly Chavez, Deputy Sector Navigator for Agriculture, Water and Environmental Technologies for the Community Colleges South Central Coast Region, reported on the recently completed water/wastewater survey for the region. The Clean/Green Committee had been actively involved with developing a list of key contacts, for the water/wastewater companies in Ventura County. The response rate from Ventura was over 40% of the total respondents. The complete survey will be provided at the next meeting when survey results are finalized. The initial results reported a high need for employees in the industry with a 3.7% employment growth rate, not including an anticipated high rate of retirements, nearly a third of the current workforce in some occupations, retiring in the next 3 years. A shortage of relevant skills and a need for offsite customized training was reported.

- WIOA Sector Planning
  The Committee continued the discussion on workforce development priorities, identifying additional industries who should be represented on the committee. The need for an inventory of existing green jobs and industries in Ventura was identified. The County is a champion in sustainable industries, as the home of industries recognized worldwide for their sustainable practices in manufacturing, biotech, and agriculture. The committee members recognized the importance of an industry inventory and the need for additional surveys to identify the training and credentials needed to support the regional workforce needs.

5.0 Committee Member Comments

Mary Anne Rooney announced Girls STEM Day at Pacifica High School on January 28th.

6.0 Adjournment

Motion to adjourn: Holly Chavez
Second: Mary Anne Rooney
Motion carried

Anthony Mireles adjourned the meeting at 9:35 a.m.

Next Meeting:
March 17, 2017 (8:00 a.m.- 9:30 a.m.)
VCCF Nonprofit Center (Community Room)
4001 Mission Oaks Blvd., Camarillo, CA.

American Water Works Association

Water Career Clusters Map

Career Clusters

A grouping of occupations and broad industries based on commonalities. The sixteen career clusters provide an organizing tool for schools, small learning communities, academics, and magnet schools and linked to career and technical education.

Clusters

Pathways

Architecture and Construction

Designing, planning, managing, building and maintaining the built environment

- Design and Pre-construction
- Construction
- Maintenance Operations

Science, Technology, Engineering and Mathematics

Planning, managing, and providing technical services

- Engineering and Technology
- Science and Math

Agriculture, Food & Natural Resources

Planning, processing, marketing, distribution and financing of agricultural commodities and resources

- Power, Structural and Technical Systems
- Natural Resources Systems
- Environmental Service Systems

Source: State Career Clusters Initiative, http://www.careerclusters.org

American Water Works Association

Water Career Clusters Map

Clusters

Pathways

Architecture and Construction

Design and Pre-construction:
- Environmental Engineer
- Environmental Engineering Technician
- Electrical Engineer
- Electrical & Electronic Engineering Technician
- Mechanical Engineer
- Civil Engineer

Construction:
- Plumber
- Technician

Maintenance Operations:
- Electrician
- Plumber
- Wastewater Maintenance Technician
- *Water Maintenance Technician**
- *Maintenance Mechanic**
- *Maintenance Manager**
- *Instrumentation* Technician*
- *I&C Technician**
- *SCADA Technician**
- *GIS Technician**

Science, Technology, Engineering and Mathematics

Engineering and Technology:
- Civil Engineer
- Electrical Engineer
- Mechanical Engineer
- Water Treatment Engineer
- Environmental Engineer
- Electrician
- Electronics Technician
- Project Engineer

Science and Math:
- Biologist
- Chemist
- Conservation Scientist
- Hydrologist
- Laboratory Technician
- *Microbiologist**

Agriculture, Food & Natural Resources

Power, Structural and Technical Systems:
- Electronics Systems Technicians
- Waste Water Plant Operator
- *Water Plant Operator**
- *System Operator**
- *High-Tech Operator**
- *Plant Operator**
- *Collection Operator**
- *Industrial Waste Operator**

Natural Resources Systems:
- Water Monitoring Technician
- Hydrologists
- Watershed Manager

Environmental Service Systems:
- Environmental Sampling and Analysis Scientists/Technicians
- Water Environment Manager
- Water Quality Manager
- Waste Water Manager
- *Environmental Manager**
- *Conservation Manager**

Recommended additions in Italics that could be added.

Source: State Career Clusters Initiative, http://www.careerclusters.org

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2016 WATER & WASTEWATER EMPLOYER SURVEY

Produced by the Center for Economic Development

Funded by the Deputy Sector Navigator for Agriculture, Water, and Environmental Technology for the South Central Coast Region at Allan Hancock College

South Central Coast Region

Acknowledgements

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Table of Contents

Executive Summary

Introduction

This report contains the results of a survey conducted in Fall 2016 of the water and wastewater agencies and utilities in the South Central Coast region. The results of this survey should provide valuable information for local community colleges looking to expand career and technical education programs, and partner with water and wastewater agencies and utilities.

Background

In September 2016, the Center for Economic Development at California State University, Chico was contracted by the Deputy Sector Navigator (DSN) for Agriculture, Water, and Environmental Technology for the South Central Coast region hosted at Allan Hancock College. The Deputy Sector Navigator provided CED with a survey questionnaire and distribution list, from which CED implemented an online version of the survey and distributed the survey to its intended recipients.

Survey Results

The survey targeted water and wastewater agencies and private utilities within the counties of San Luis Obispo, Santa Barbara, Ventura, and nothern portions of Los Angeles County. Organizations within Ventura County contributed the greatest number of responses (14 responses or 42 percent), closely followed by organizations within Santa Barbara county, with that county's 12 responses representing 36 percent of all responses. Four respondents (12 percent) were contributed by organizations in San Luis Obispo County, and three respondents (9 percent) were contributed by organizations in the northern portions of Los Angeles County. The largest category of business to respond (12 responses) were combination water & wastewater departments within multiple function facilities at 36 percent of all responses. The next-largest categories to respond were combination water & wastewater agencies and utilities, and utilities/agencies dealing only with wastewater, at 7 responses (21 percent) each. Six respondents were agencies and utilities dealing only with water, and a single respondent reported their agency as "other - water/wastewater related."

Out of a total of 33 respondents, 29 (88 percent) indicated one or more partnership opportunity that would be of interest to their agency or utility. The most popular partnership opportunity is community college programs that would provide agencies/utilities with students as part-time interns, apprentices, or work-study positions, with 23 respondents (70 percent) indicating an interest in such an opportunity. This opportunity was closely followed by on or off-site customized training for the agency/utility's current employees, at 21 responses (64 percent of all respondents). Fifteen respondents (45 percent) indicated an interest in having their agency or utility's staff serve in an advisory capacity to a local community college program. Only four respondents (12 percent) did not indicate an interest in any of the listed partnership opportunities.

Respondents to the survey reported 1,708 total current permanent employees and expected to hire a total of 51 new permanent employees over the next three years, indicating an expected growth rate of 3.7% in new employees.Respondents also indicated they were expecting 243 retirements within the next three years across all six reported occupations. Of the 94 current water treatment employees sampled, 28 (29.8 percent) are eligible for retirement in three years.

Recommendations and Conclusions

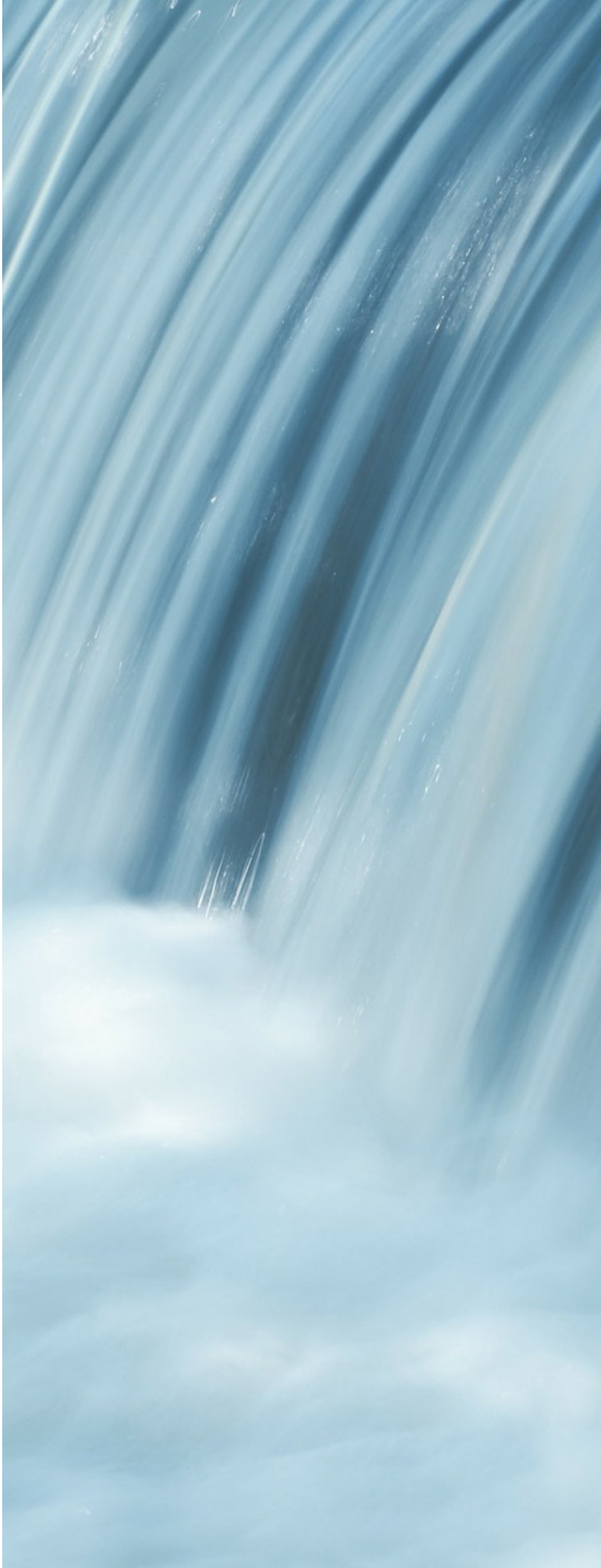
This survey highlights a need for a workforce that can meet the challenges and demands of the water/wastewater industry over the next three years. Respondents not only indicated that their workforces overall would grow by 3.7 percent within the next three years, but also indicated a substantial number of current employees who will be eligible for retirement within the next three years – nearly a third of the current workforce in some occupations such as water distribution operators, wastewater treatment operators, and wastewater collections operators.

The amount of agencies and utilities that indicated a willingness to partner with local community colleges is heartening. Out of 33 respondents, only 4 did not indicate an interest in any of the listed partnership opportunities. The most popular opportunity that utilities and agencies indicated an interest in was community college programs that would provide utilities and agencies with students as part-time interns, apprentices, or work-study positions.

CED encourages local community colleges to prioritize such programs, in addition to the other partnership opportunities listed: on or off-site customized training for current employees, and staff from the surveyed agencies and utilities serving in an advisory capacity to community college programs.

This survey also found that water and wastewater agencies and utilities have been experiencing some difficulty in hiring for their positions – indicating a possible shortage of relevant skills in the local workforce. Wastewater treatment operators, water distribution operators, and water treatment operators were especially difficult to hire for, according to respondents reporting about those categories. The CED recommends that community college partnership programs focus on those three occupations specifically to address the area of greatest need.

Finally, this survey found that many positions within the water and wastewater industry in the South Central Coast region tend to be relatively high-paying despite a lack of advanced degree requirements. Typical annual salaries across all occupations for apprentice-level employees ranged from $40,000 to $67,000, while typical annual salaries for journey-level employees ranged from $57,000 to $77,700.



Introduction

The Center for Economic Development (CED) at California State University, Chico was contracted by the Deputy Sector Navigator (DSN) for Agriculture, Water, and Environmental Technology hosted at Allan Hancock College in September 2016 to complete surveys of employers in the water and wastewater industry within the South Central Coast area. This report assesses the current state of the workforce in terms of upcoming retirements and anticipated hiring, identifies minimum educational requirements and any hardships in recruiting across common occupations within the industry, reports typical salaries for apprentice-level and junior-level employees across occupations, and identifies interest in partnership opportunities between the agencies and utilities surveyed and the local community colleges that serve them.

As part of this analysis, the CED was responsible for implenting an online interface to distribute a survey form that had been previously designed and distributed by the DSN at Allan Hancock College, administering the survey by making phone calls and contacting recipients via e-mail, providing secondary data about the water and wastewater industry in a national scope, and making conclusions and recommendations based on the results of this survey.

The geographic scope of the 2016 South Central Coast Water/Wastewater Industry Survey includes the South Central Coast DSN's counties: San Luis Obispo, Santa Maria, Ventura, and portions of northern Los Angeles County including the Santa Clarita and Antelope valleys.

Methods of The Study

The survey was designed by the Agriculture, Water, and Environmental Technology DSN hosted by Allan Hancock College to capture four key elements of the water and watewater industries:

- Current and future employment needs
- Necessary training (skills and education) for employment
- Typical salaries for full-time employees
- Partnership opportunities with community colleges

The 2016 South Central Coast Water/Wastewater Industry Survey survey was implemented by staff at CSU Chico's Center for Economic Development (CED) using SurveyCTO, an online survey deployment and collection platform. CED was provided with a comprehensive list of over 60 contact people in the water and wastewater industries within the DSN's four-county region. Survey promotion was conducted first via targetted e-mail advertisements to the list of provided contacts, and next by a series of personal phone calls and emails to contact people at each agency and utility within the four-county region.

In addition to the survey collection, the CED collected secondary data about the water and wastewater industries. The secondary data was collected online from IBIS World.

Survey results are outlined in detail in the next section, while a copy of the original survey document is available in Appendix A. Additional comments by respondents are included in Appendix B.

RESPONDENT CHARACTERISTICS

Agency / Utility Location

In what county is this water/wastewater agency/ utility located?

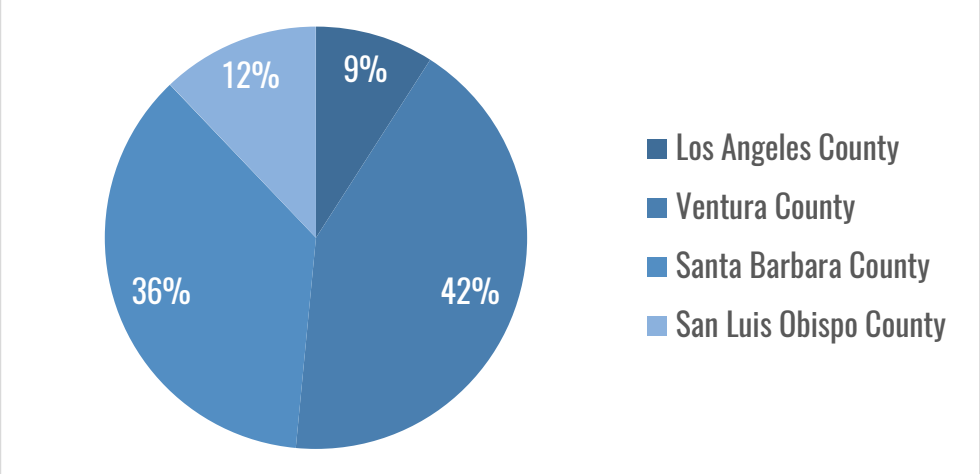
Table 1 and Figure 1 below show responses to the South Central Coast Water/Wastewater Employer Survey by county. The survey targeted water and wastewater agencies and private utilities within the counties of San Luis Obispo, Santa Barbara, Ventura, and nothern portions of Los Angeles County. Organizations within Ventura County contributed the greatest number of responses (14 responses or 42 percent), closely followed by organizations within Santa Barbara County, with that County's 12 responses representing 36 percent of all responses. Four respondents (12 percent) were contributed by organizations in San Luis Obispo County, and three respondents (9 percent) were contributed by organizations in the northern portions of Los Angeles County.

Figure 2 (on the next page) displays the total number of survey responses by county on a map. See a more detailed interactive map on CED's CARTO site at: https://cedcal.carto.com/viz/8c745afa-d690-11e6-8092-0e3ebc282e83/public_map

Table 1: Company Location

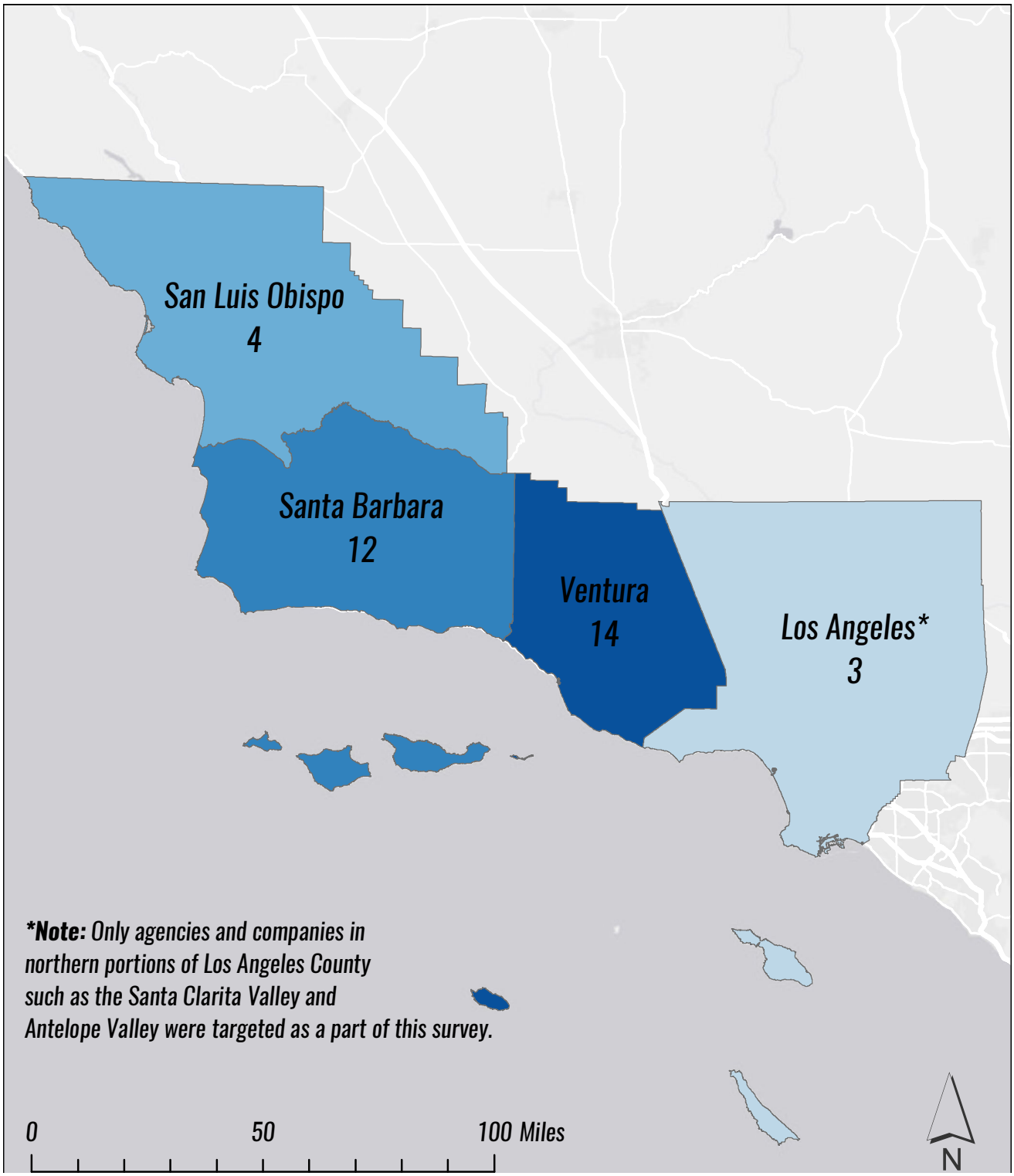
Location	Responses	Percent
Los Angeles County	3	9%
Ventura County	14	42%
Santa Barbara County	12	36%
San Luis Obispo County	4	12%
Total	33	100%

Figure 1: Company Location



Agency / Utility Location

Figure 2: Map of Survey Respondents by County



Business Classification

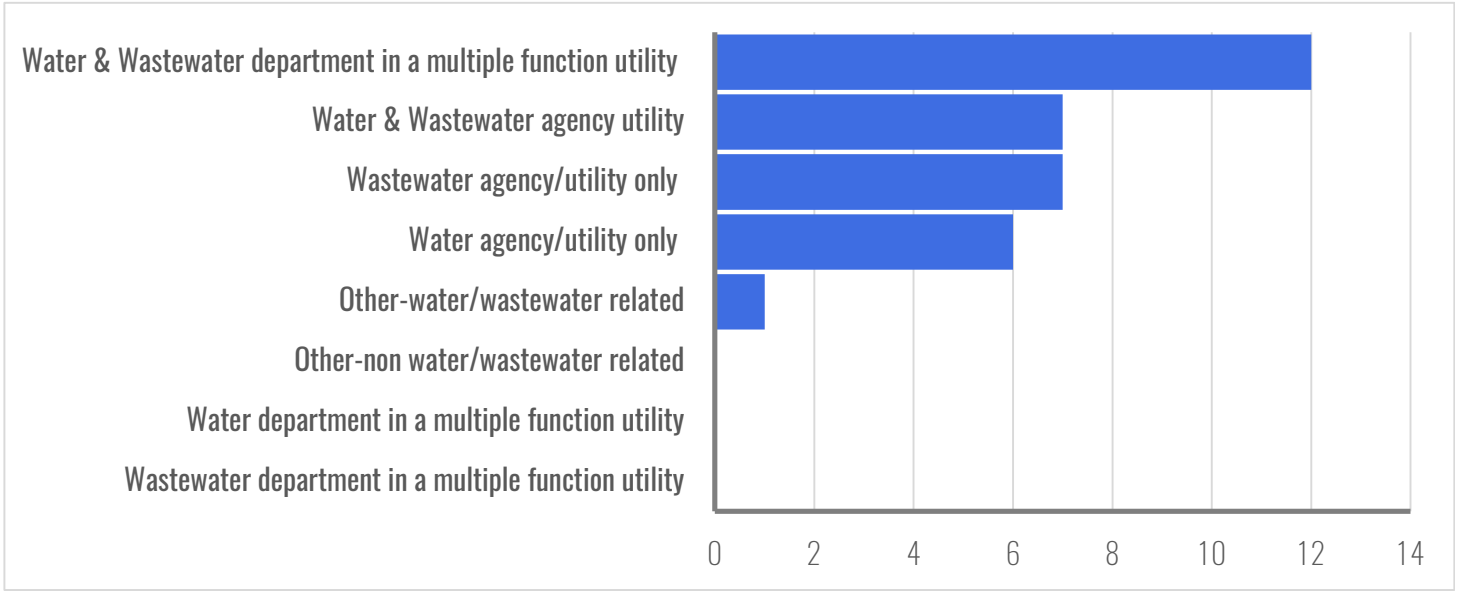
How would you classify your business? Please select all that apply.

Table 2 and Figure 3 below show the classification of businesses responding to the survey. The largest business class to respond (12 responses) were combination water & wastewater departments within multiple function facilities at 36 percent of all responses. The next-largest categories to respond were combination water & wastewater agencies and utilities, and utilities/agencies dealing only with wastewater, at 7 responses (21 percent) each. Six respondents were agencies and utilities dealing only with water, and a single respondent reported their agency as "other - water/wastewater related."

Table 2: Business Classifications

Classification	Responses	Percent
Water agency/utility only	6	18%
Wastewater agency/utility only	7	21%
Water & Wastewater agency utility	7	21%
Water department in a multiple function utility	0	0%
Wastewater department in a multiple function utility	0	0%
Water & Wastewater department in a multiple function utility	12	36%
Other-water/wastewater related	1	3%
Other-non water/wastewater related	0	0%
Total	33	100%

Figure 3: Number of Businesses by Classification



Community College Partnerships

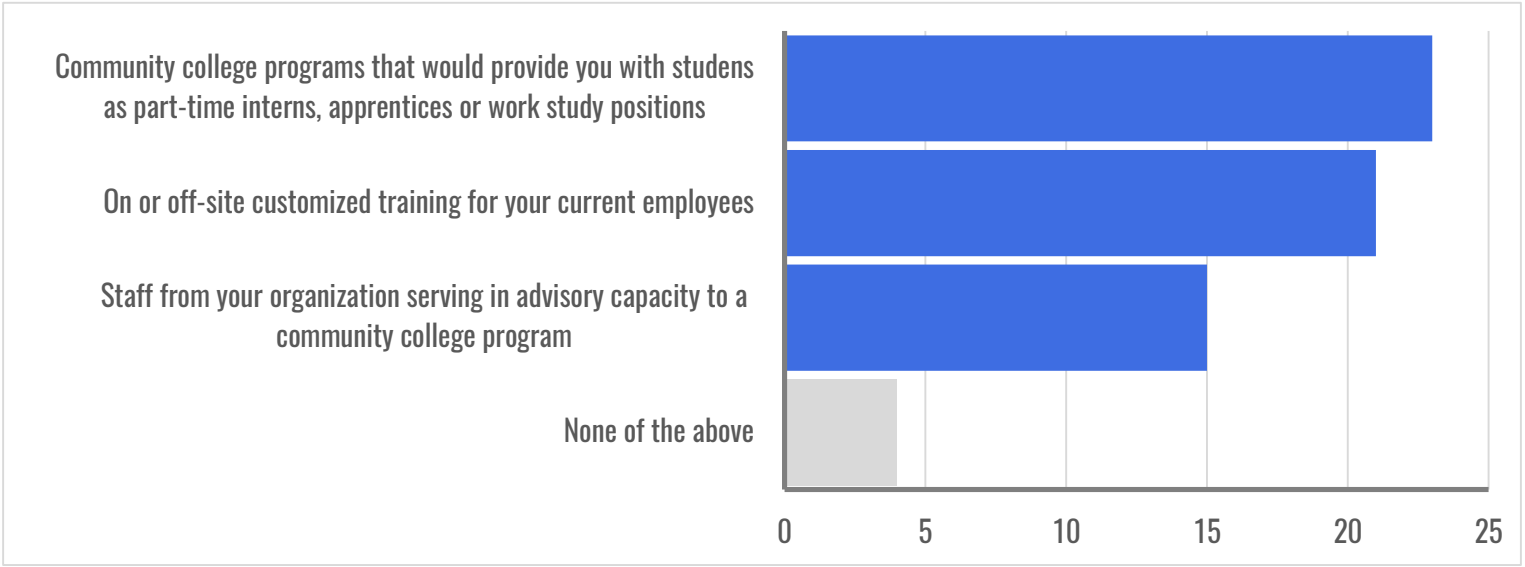
Please indicate whether you or your organization would have interest in any of the following community college partnership opportunities. (Select all that apply)

Table 3 and Figure 4 below show agency and utility interest in three specific community college partnership opportunities. Out of a total of 33 respondents, 29 (88 percent) indicated one or more partnership opportunity that would be of interest to their agency or utility. The most popular partnership opportunity is community college programs that would provide agencies/utilities with students as part-time interns, apprentices, or work-study positions, with 23 respondents (70 percent) indicating an interest in such an opportunity. This opportunity was closely followed by on or off-site customized training for the agency/utility's current employees, at 21 responses (64 percent of all respondents). Fifteen respondents (45 percent) indicated an interest in having their agency or utility's staff serve in an advisory capacity to a local community college program. Only four respondents (12 percent) did not indicate an interest in any of the listed partnership opportunities.

Table 3: Partnership Opportunities

Partnership Opportunity	Responses	Percent (Responses)	Percent (Respondents)
On or off-site customized training for your current employees	21	33%	64%
Community college programs that would provide you with students as part-time interns, apprentices or work study positions	23	37%	70%
Staff from your organization serving in advisory capacity to a community college program	15	24%	45%
None of the above	4	6%	12%
Total	63	100%	N/A

Figure 4: Partnership Opportunities



WATER AND WASTEWATER EMPLOYMENT

Full-time Employment

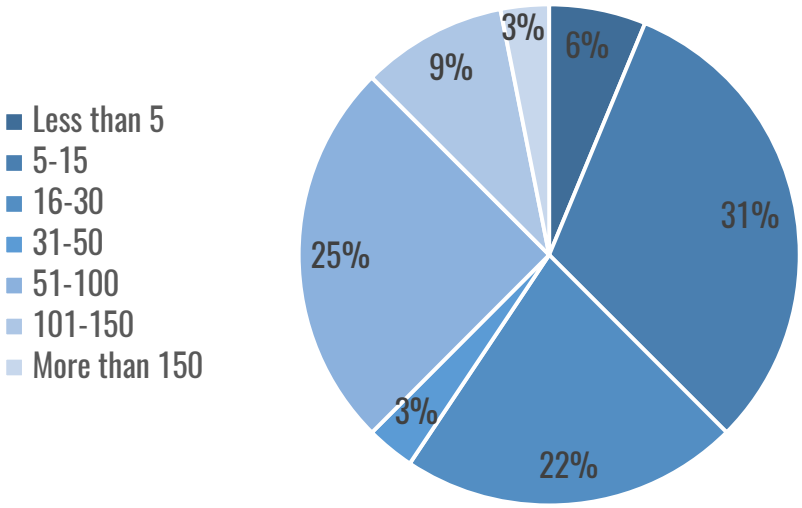
How many permanent full-time employees work in your water/wastewater agency/utility? A permanent full-time employee is someone who works 30 hours a week or more regularly.

Table 4 and Figure 4 below show the distribution of respondents according to the number of full-time employees at their agency or utility. Respondents represent a diverse set of agency/utility sizes, with the largest group of respondents reporting 6 to 15 full-time employees (31 percent), and the next-largest group reporting 50 to 100 employees (25 percent). The remainder of the respondents were well-spread with 2 employing less than 5 people full time, 8 between 16 and 49 people, and 4 agencies employing over 100 people full-time.

Table 4: Number of Full-time Employees

Full-Time Employees	Responses	Percent
Less than 5	2	6%
5-15	10	31%
16-30	7	22%
31-50	1	3%
51-100	8	25%
101-150	3	9%
More than 150	1	3%
Total	32	100%

Figure 5: Number of Full-time Employees



Part-time Employment

How many part-time employees work in your water/ wastewater agency/utility? A part-time employee is someone who works less than 30 hours a week.

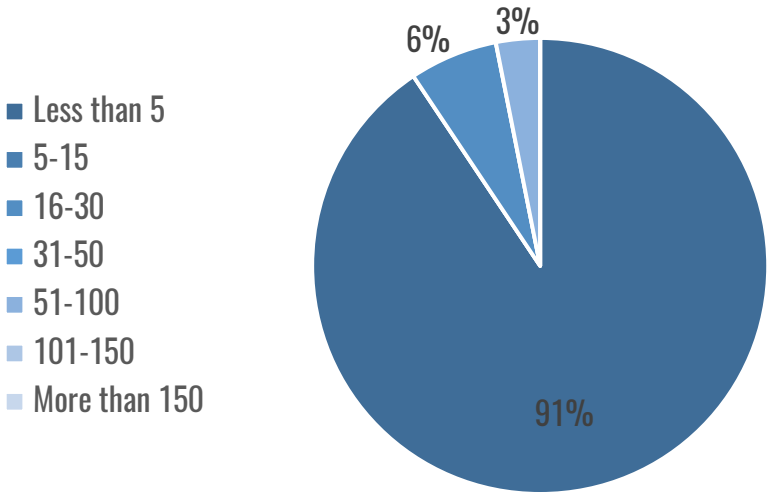
Table 5 and Figure 6 below show the number of part-time employees reported by each agency or utility. A large majority of respondents indicated that they employed fewer than five people on a part-time (less than 20 hours per week) basis. Two respondents indicated that they employed between 16 and 30 people on a part-time basis, and a single respondent reported that they employed between 51 and 100 people on a part-time basis.

Part-time employment figures were added to full-time employment figures to create the total employment information shown in Table 6 and Figures 7 and 8, at right.

Table 5: Number of Part-time Employees

Part-Time Employees	Responses	Percent
Less than 5	29	91%
5-15	0	0%
16-30	2	6%
31-50	0	0%
51-100	1	3%
101-150	0	0%
More than 150	0	0%
Total	32	100%

Figure 6: Number of Part-time Employees



Total Employment

Table 6: Total Number of Employees

Total Employees	Responses	Percent
Less than 5	2	6%
6-15	9	28%
16-30	8	25%
31-50	1	3%
50-100	7	22%
100-150	4	13%
150+	1	3%
Total	32	100%

Figure 7: Number of Employees

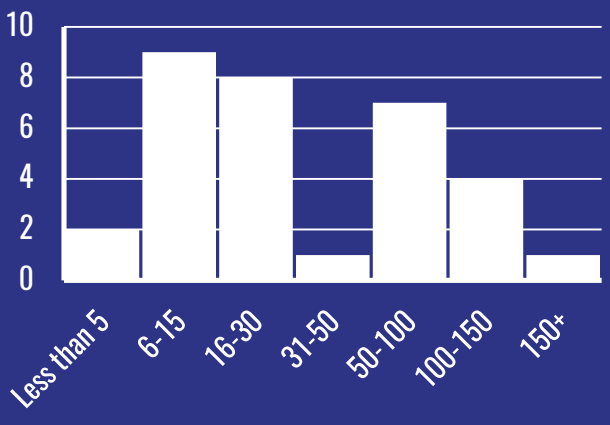
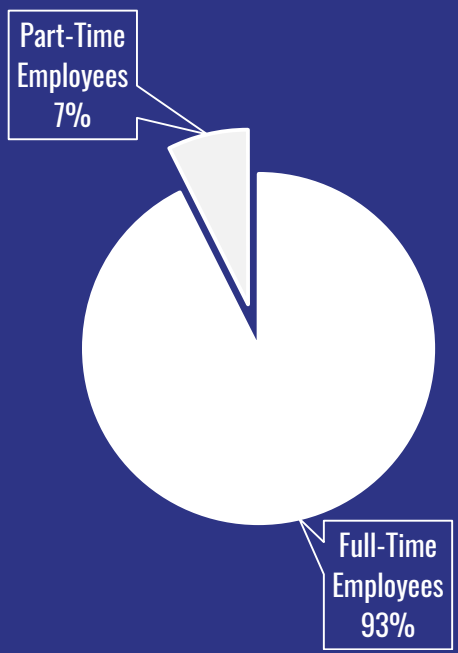


Figure 8: Percent of Employees Part-time



Future Employment Expectations

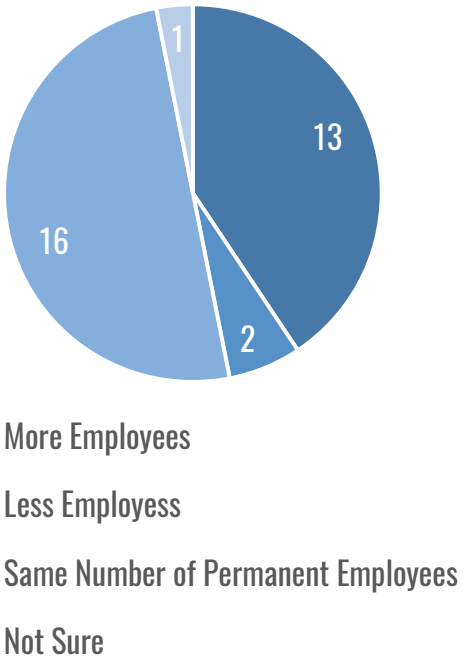
You mentioned you currently have _____ full-time and part-time permanent employees at your location. How many more or how many fewer permanent employees do you expect to have at your location three years from now?

Table 6 and Figure 9 below summarize respondents' expectations regarding the size of their workforce three years into the future. While half of the respondents indicated that they expected to have the same amount of employees in three years, 13 respondents indicated they would have more employees (69 more permanent positions across all employers) and two indicated that they would have less employees (10 fewer permanent positions across all employers) in three years. This means that across the entire sample, respondents expected to have 59 additional permanent employees in three years' time, a 3.7 percent increase in permanent employees from the survey's date of Fall 2016.

Table 6: Future Expected Permanent Employees

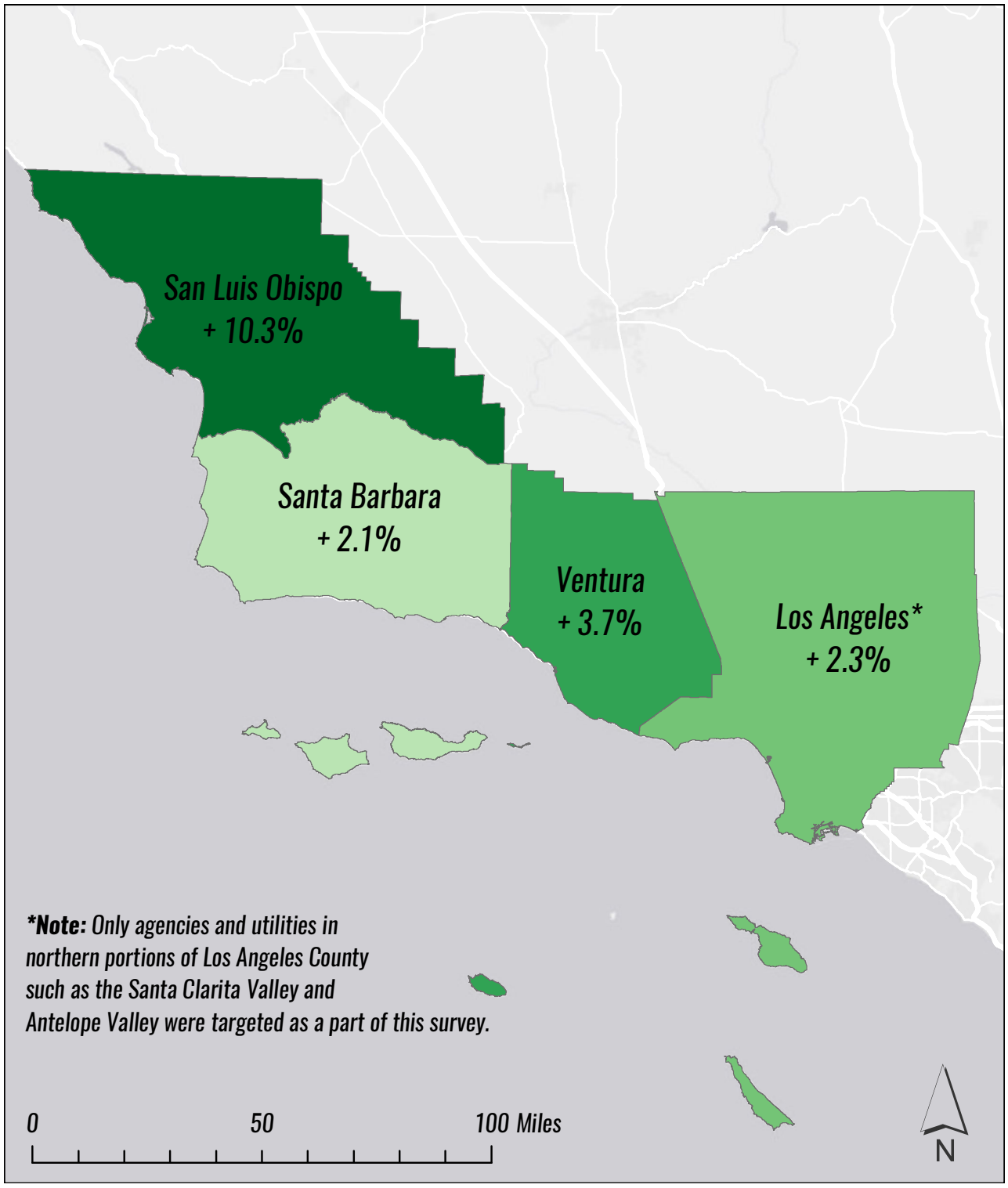
Expected Future Employees	Number of Respondents	Total Change in Employees
More Employees	13	69
Less Employess	2	10
Same Number of Permanent Employees	16	n/a
Not Sure	1	n/a
Total	32	59

Figure 9: Respondents by Expected Future Employment



Expected Employee Increase by County

Figure 10: Map of Future Expected Permanent Employees by County



Expected Employee Retirement

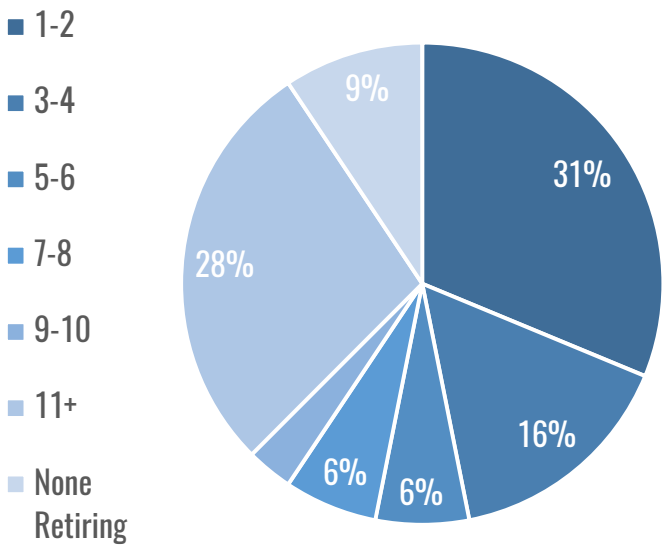
Within the next three years, how many of your _____ current employees do you estimate will be eligible to retire without penalty?

Table 7 and Figure 11 below show the amount of employees across all occupations who will be able to retire without penalty in the next three years. The most common response was 1-2 employees, indicated by ten respondents (31 percent of the surveyed total). However, the second-most common response was 11 or more employees, indicating that many of the region's larger water and wasterwater agencies and utilities will have to carry out replacement hires throughout this time period. The remainder of the responses were spread out from 3-4 retirements (5 reponses; 16 percent), 5-6 retirements (2 responses; 6 percent), 7-8 retirements (2 responses; 6 percent), and 9-10 retirements (1 response, 3 percent), and no expected retirements at 3 responses (9 percent).

Table 7: Expected Number of Employees Eligible for Retirement

Employees	Responses	Percent
1-2	10	31%
3-4	5	16%
5-6	2	6%
7-8	2	6%
9-10	1	3%
11+	9	28%
None Retiring	3	9%
Total	32	100%

Figure 11: Expected Number of Employees Eligible for Retirement



Current Occupational Employment

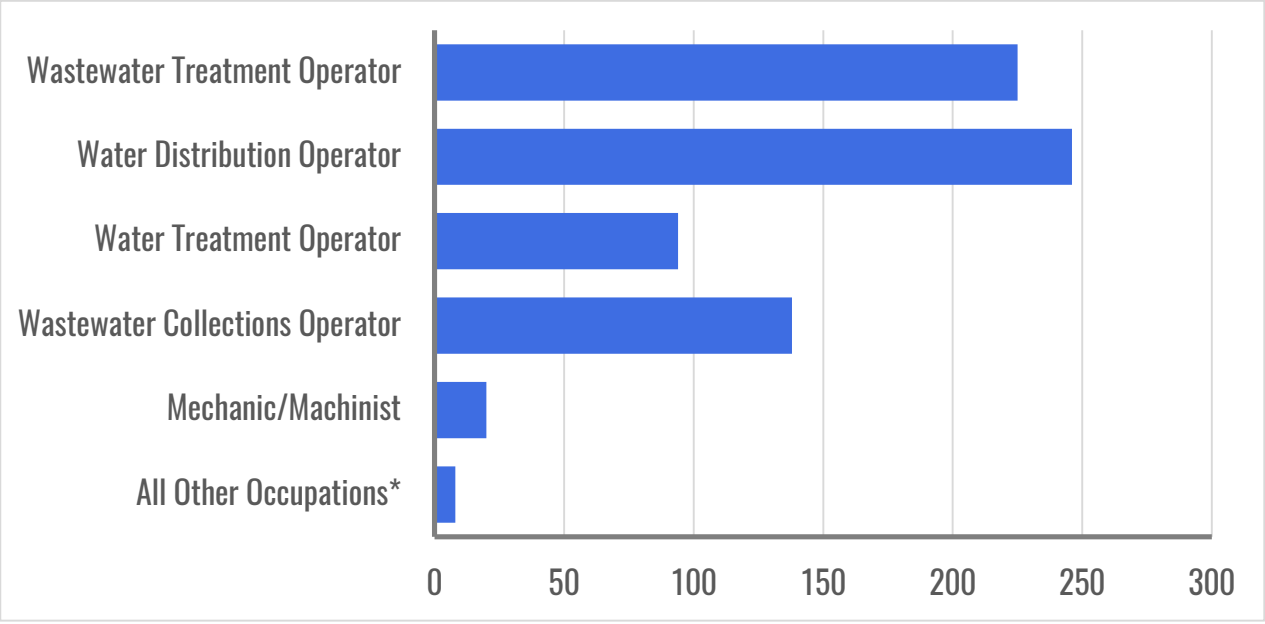
Does your organization employ, at your location, individuals in positions matching the following general occupational titles?

Table 8 and Figure 12 below show the occupations each respondent reported having at their agency or utility. Note that respondents were only asked to report additional details (such as the total number of employees by occupation) for the three occupations they deemed 'most important', so while Table 8 shows that all 32 agencies had one or more employees falling under the "all other occupations" category, only a handful provided additional information about that category, meaning that the sample of employees for "all other occupations" is 8. The most common response for 'occupations present" aside from "all other occupations" was "water distribution operator" at 23 agencies accounting for 246 total employees. The second-most common response was "wastewater treatment operator" at 20 responses, representing 225 employees.

Table 8: Current Occupational Employment

Occupation	Agencies With Occupation Present	Total Sample Of Employees
All Other Occupations*	32	8
Mechanic/Machinist	11	20
Wastewater Collections Operator	21	138
Water Treatment Operator	19	94
Water Distribution Operator	23	246
Wastewater Treatment Operator	20	225
Total	32	731

Figure 12: Current Occupational Employment



Expected Employee Retirement By Occupation

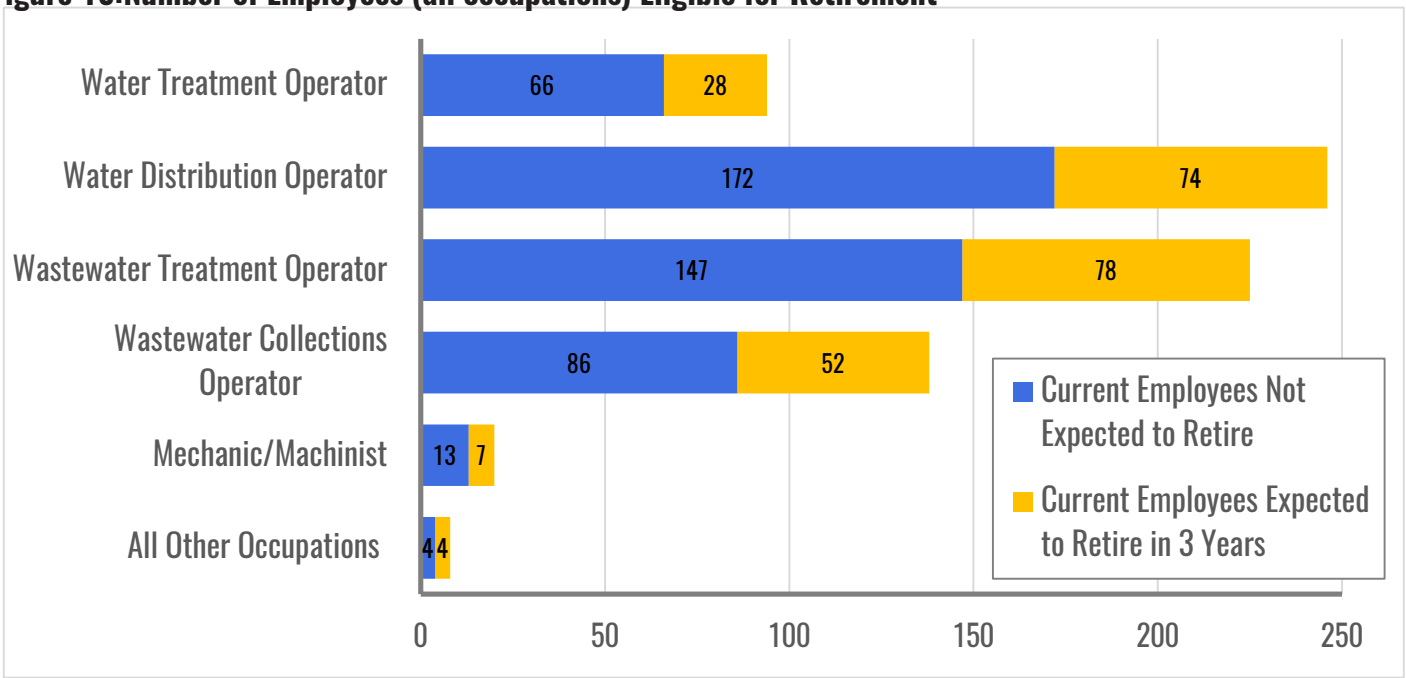
How many of your [Occupation Title] will be eligible to retire without penalty in the next 3 years? Please exclude temporary, seasonal, and independent workers from these counts.

Table 9 and Figure 13 below show each respondent's expected number of employees who will be eligible for retirement within the next three years for each of six occupations that agencies or utilities reported about. Table 7 lists the total of current employees sampled in each occupation, in addition to expected retirements in each occupation, while Figure 9 graphically shows how the amount of expecteed retirees (orange bar) compares to the amount of current employees not retiring (blue bar). Of the 94 current water treatment employees sampled, 28 (29.8 percent) are eligible for retirement in three years. For water distribution operators, and wastewater treatment operators, the percentage of the current workforce eligible for retirement within the next three years is even greater: among sampled water distribution operators, 74 of 246 current employees (30.1 percent) are eligible for retirement, and among wastewater treatment operators, 78 of 225 current employees (34.7 percent) are eligible. Wastewater collections operators had an even higher percentage of its current workforce eligible for retirement - 52 of its 138 current employees (37.6 percent).

Table 9: Number of Employees (all occupations) Eligible for Retirement

Occupation	Total Sample Of Employees	Retirements Within Next 3 Years
Water Treatment Operator	94	28
Water Distribution Operator	246	74
Wastewater Treatment Operator	225	78
Wastewater Collections Operator	138	52
Mechanic/Machinist	20	7
All Other Occupations	8	4
Total	731	243

Figure 13:Number of Employees (all occupations) Eligible for Retirement



Future Employees by Occupation

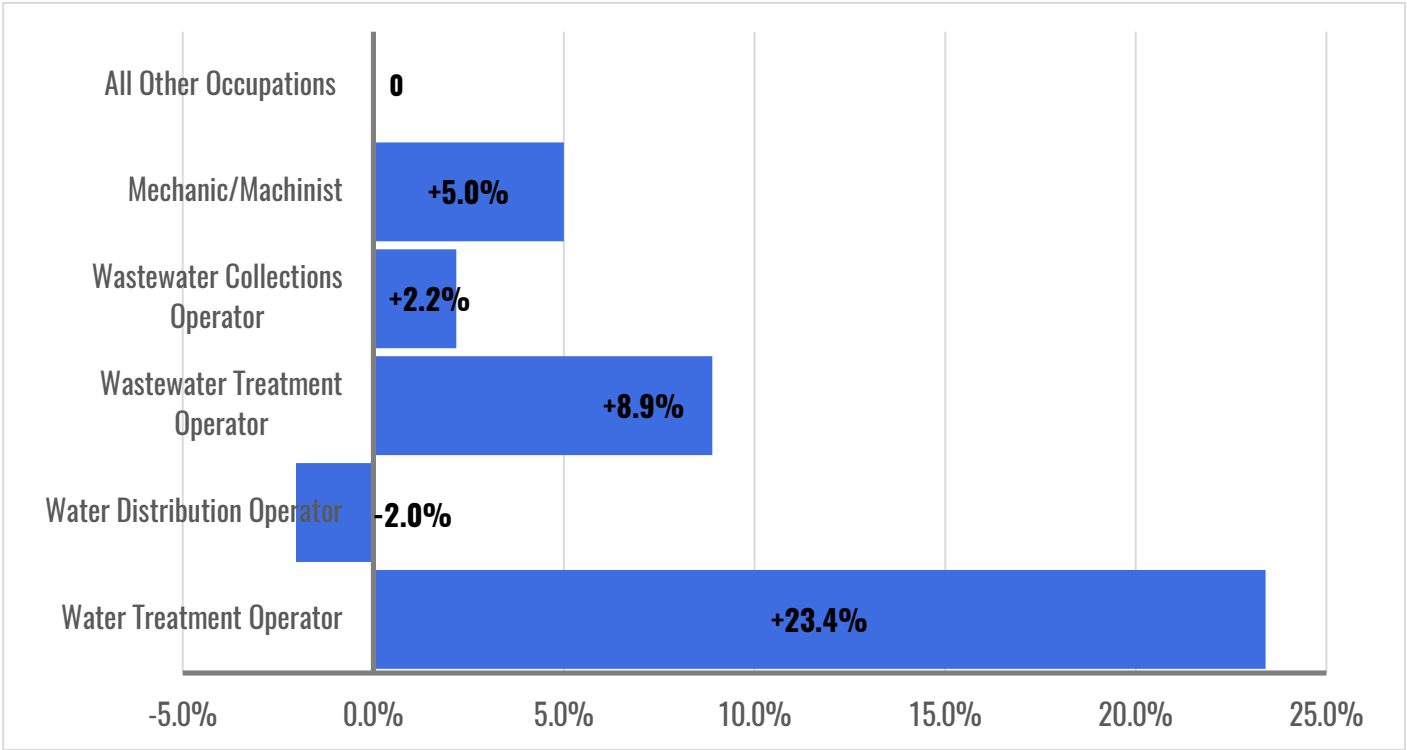
If you currently have [Occupation Title] at your current business location, how many more or less [Occupation Title] do you expect to have at your location 3 years from now? Please exclude temporary, seasonal, and independent workers from these counts.

Table 10 and Figure 14 show expected changes in employees by each reported occupation type. Table 10 shows the total sample of employees for each occupation, the projected change in those employees over the next three years, and the percent change that the increase or decrease represents. Figure 12 visualizes those percent changes in employees by occupation. Water treatment operators are the occupation with the most growth in expected employees over the time period (23.4 percent), while the total number of water distribution operators is expected to drop slightly (2 percent).

Table 10: Expected Future Employees by Occupation

Occupation	Total Sample Of Employees	Change in Employees Over 3 Years	Total Sample Employees in 3 Years	Percent Change in Employees in 3 Years
Water Treatment Operator	94	22	116	23.4%
Water Distribution Operator	246	-5	241	-2.0%
Wastewater Treatment Operator	225	20	245	8.9%
Wastewater Collections Operator	138	3	141	2.2%
Mechanic/Machinist	20	1	21	5.0%
All Other Occupations	8	0	8	0.0%
Total	731	41	772	37.4%

Figure 14: Expected Future Employees by Occupation



EMPLOYEE EDUCATION & EXPERIENCE BY OCCUPATION

Minimum Entry-Level Requirements

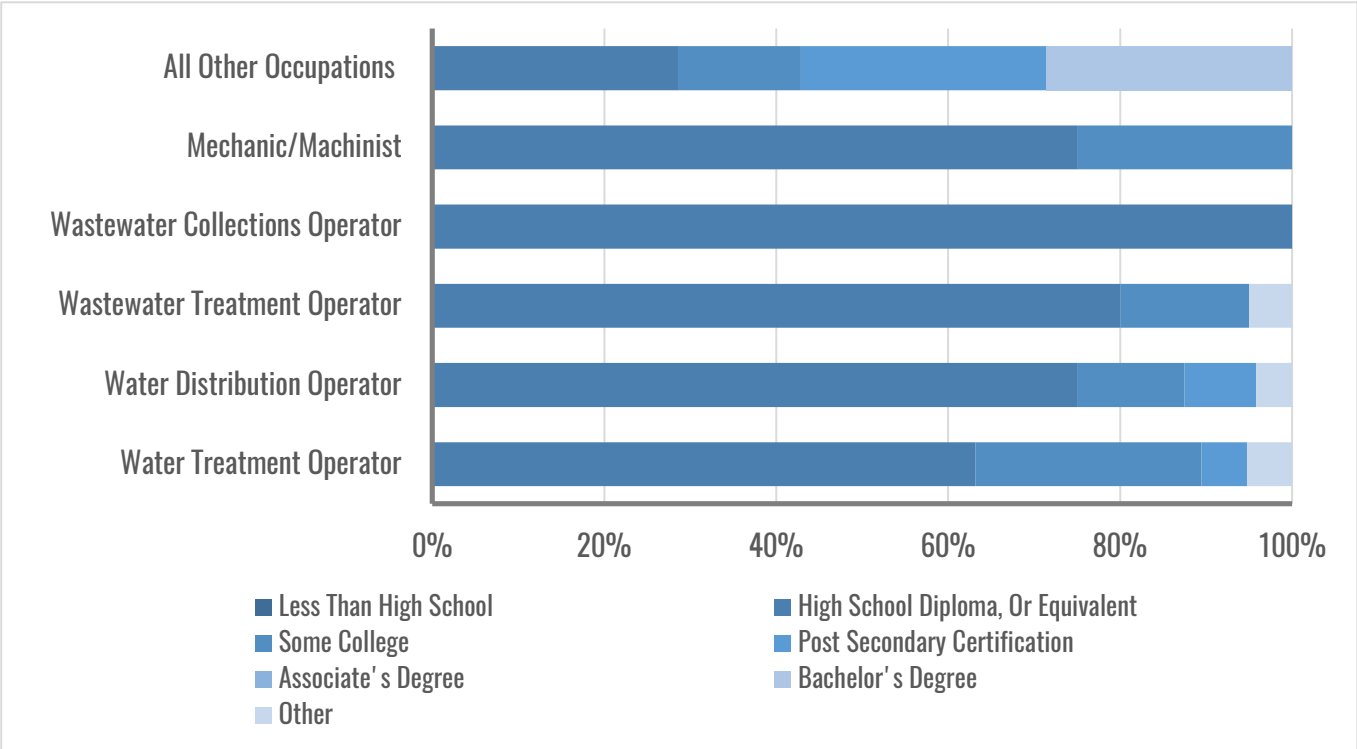
What is the minimum education requirement for [OCCUPATION TITLE]. Please select one.

Table 11 and Figure 15 below show the minimum level of education and/or training required for each occupation. The most common response was a high school diploma (62 responses, 72.9 percent), followed closely by some college (13 responses, 15.3 percent). Post-secondary certification had five responses at 5.9 percent. A relatively small portion of respondents deemed formal higher education a requirement: there were only two responses (2.4 percent) that indicated a bachelor's degree requirement, 0 respondents require an associate's degree. Note that respondents had the option to select up to 3 occupations and describe the education requirements for each selected occupation. There was a total of 85 responses to this question due to the fact that respondents reported on multiple occupations.

Table 11: Entry-level Minimum Requirements

Occupation	Less Than High School	High School Diploma, Or Equivalent	Some College	Post Secondary Certification	Associate's Degree	Bachelor's Degree	Other
Water Treatment Operator	0	12	5	1	0	0	1
Water Distribution Operator	0	18	3	2	0	0	1
Wastewater Treatment Operator	0	16	3	0	0	0	1
Wastewater Collections Operator	0	11	0	0	0	0	0
Mechanic/Machinist	0	3	1	0	0	0	0
All Other Occupations	0	2	1	2	0	2	0
Total	0	62	13	5	0	2	3

Figure 15: Entry-level Minimum Requirements



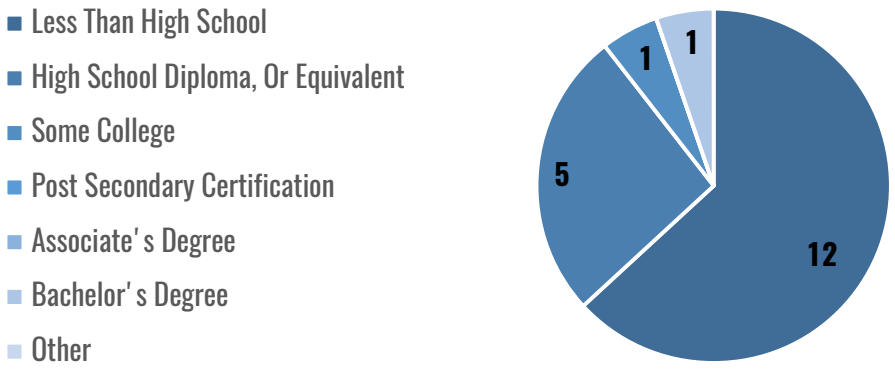
Minimum Entry-Level Requirements

Occupation: Water Treatment Operator

What is the minimum education requirement for [OCCUPATION TITLE]. Please select one.

Figure 16 shows that the most frequent response for minimum level of education required for water treatment operators is a high school diploma or its equivalent (12 responses, 63 percent), followed by some college (5 responses, 26 percent). Post-secondary certification and 'other' each garnered only one response each.

Figure 16: Entry-level Minimum Requirements: Water Treatment Operator

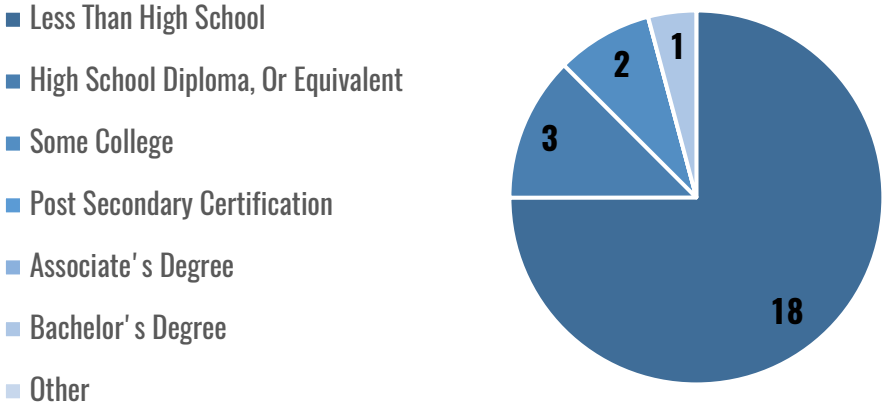


Occupation: Water Distribution Operator

What is the minimum education requirement for [OCCUPATION TITLE]. Please select one.

FIgure 17 shows that the most frequent response for minimum level of education required for water distribution operators is a high school diploma or its equivalent, as evidenced by 18 responses (75 percent of respondents reporting on this occupation). The next-most common response was 'some college' with three responses, "post-secondary certification"' with two responses, and finally 'other' at one response.

Figure 17: Entry-level Minimum Requirements: Water Distribution Operator



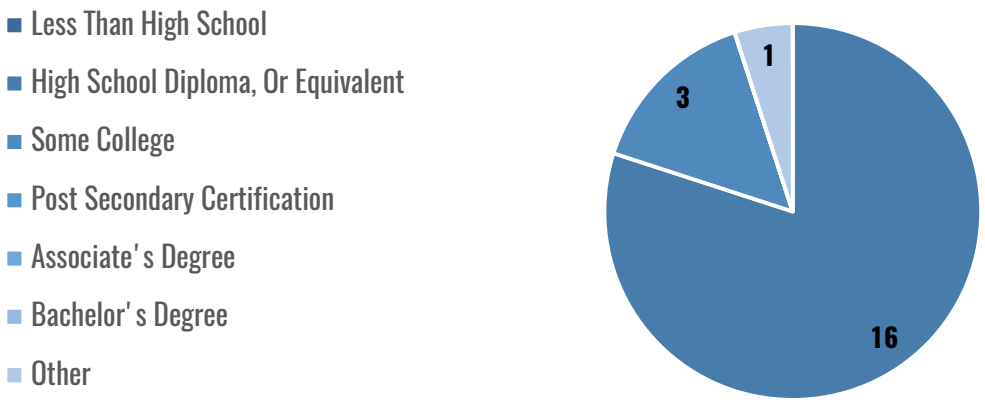
Minimum Entry-Level Requirements

Occupation: Wastewater Treatment Operator

What is the minimum education requirement for [OCCUPATION TITLE]. Please select one.

Figure 18 shows that the most frequent response for minimum level of education required for wastewater treatment operators is a high school diploma or its equivalent, at sixteen reponses - 80 percent of the total for this occupation. The next-most common response was 'some college', with three responses, and 'other' with one response.

Figure 18: Entry-level Minimum Requirements: Wastewater Treatment Operator

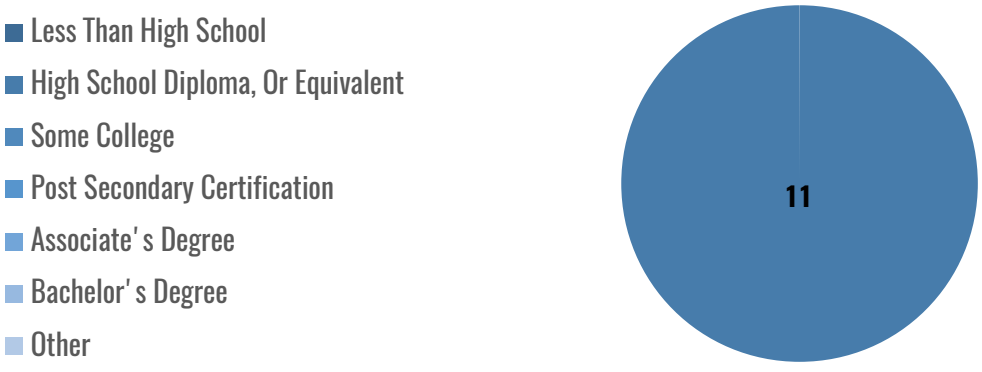


Occupation: Wastewater Collections Operator

What is the minimum education requirement for [OCCUPATION TITLE]. Please select one.

Figure 19 shows that the only response for all eleven respondents who employed wastewater collections operators was that their minimum entry requirement was a high school diploma or its equivalent. This is the only occupation for which no respondents indicated that any type of post-secondary education was required.

Figure 19: Entry-level Minimum Requirements: Wastewater Collections Operator



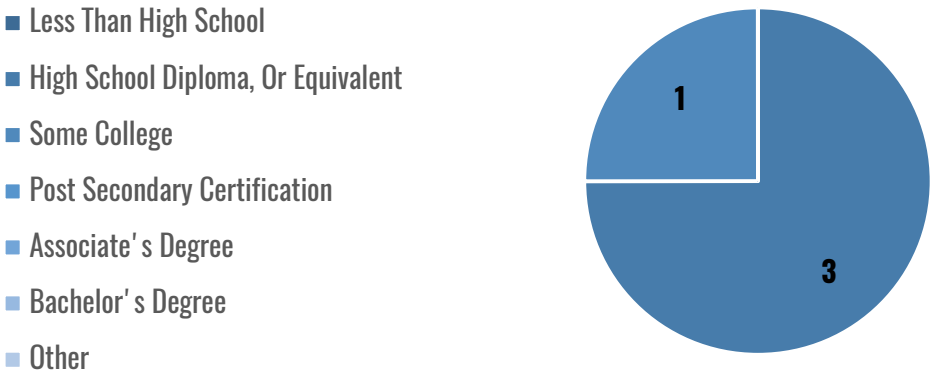
Minimum Entry-Level Requirements

Occupation: Mechanic/Machinist

What is the minimum education requirement for [OCCUPATION TITLE]. Please select one.

Figure 20 shows that the most frequent response for minimum level of education required for mechanics and machinists is a high school diploma or its equivalent (3 responses, 75 percent), with one respondent indicating a minimum entry requirement of "some college".

Figure 20: Entry-level Minimum Requirements: Mechanic/Machinist

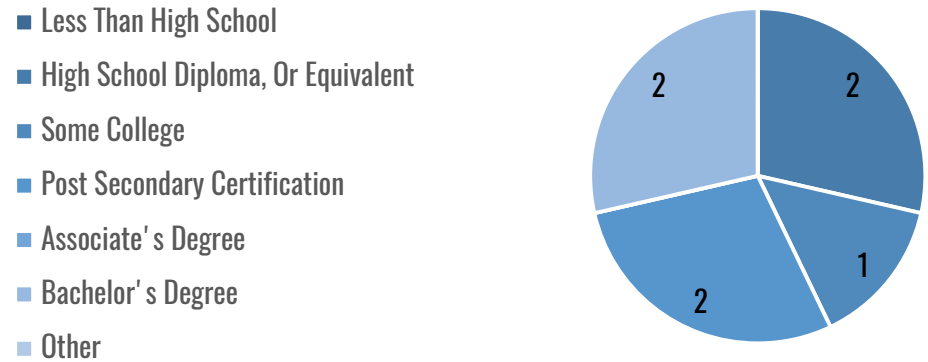


Occupation: All Other Occupations

What is the minimum education requirement for [OCCUPATION TITLE]. Please select one.

Figure 21 shows that for the "all other occupations" category, which includes electricians, electronic maintenance/instrument technicians, environmental compliance technicians, water conservation technicians, and SCADA programmers, there was a three-way tie between post-secondary certification, bachelor's degree, and high school diploma or its equivalent. A single respondent indicated that 'some college' was required for these occupations.

Figure 21: Entry-level Minimum Requirements: Mechanic/Machinist



Current Training or Education Offered to Employees

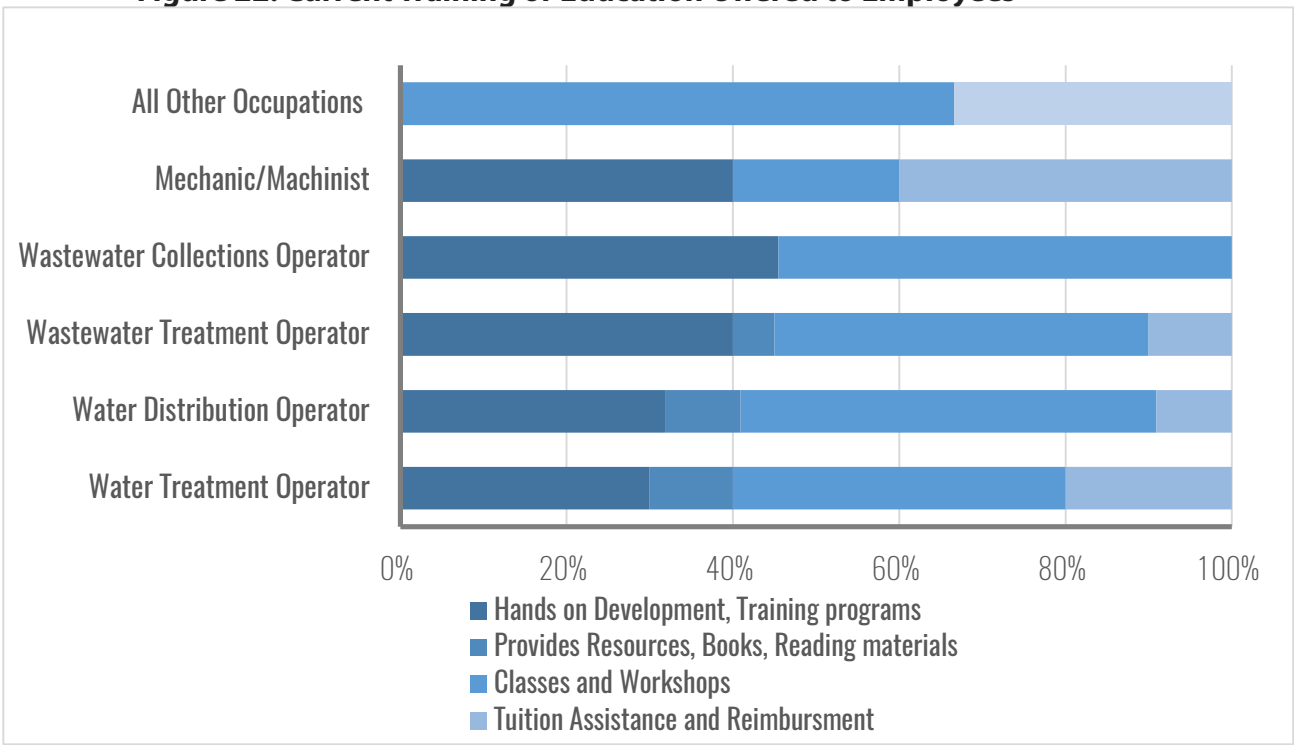
What types of training and education does your organization currently offer in {OccupationTitle} positions?

Table 12 and Figure 22 below show types of training programs offered by respondents to their employees who have gained employment with their company or agency. Note that the following types of training were categorized based on written responses - written responses may be viewed in full in Appendix B. The two most common types of training offered are classes and workshops (37 responses) and hands-on development or training programs (28 responses). Other responses include tuition assistance and reimbursement (10 responses) and provision of resources including books or other reading materisl (5 responses).

Table 12: Current Training or Education Offered to Employees

Occupation	Hands on Development, Training programs	Provides Resources, Books, Reading materials	Classes and Workshops	Tuition Assistance and Reimbursment	None
Water Treatment Operator	6	2	8	4	0
Water Distribution Operator	7	2	11	2	0
Wastewater Treatment Operator	8	1	9	2	0
Wastewater Collections Operator	5	0	6	0	0
Mechanic/Machinist	2	0	1	2	0
All Other Occupations	0	0	2	0	1
Total	28	5	37	10	1

Figure 22: Current Training or Education Offered to Employees



List of Courses Periodically Required

List of Courses and Instructional Method

What types of training and education does your organization currently offer in ${OccupationTitle} positions?

Because responses varied significantly, the following is an abridged list of write-in responses provided by respondents. Please see Appendix B for full written-responses to each question that allowed a write-in answer.

Safety (on-site, off-site, on-line), Continuing Education Units (on-site, off-site, on-line)

on-site, off-site and online.

ACWA aspestos handling, driving safety, flagger training OSHA/CALOSHA reqiurements

sexual harassment, safety, in-house Conflict of interest, on-line.

Mostly through professional organizations like AWA or APWA can be on-site, off-site (one day) or on line

Continuing ed requirements who have certifications - Symposium, attend seminars--get certificate. Monthly safety meetings. There's a lot of different opportunities

Off-site

"CPA, Fire Safety, Safety training

basic courses to keep certification current, online and off-site

Legally required training

The water district requires employees to take all standard safety and occupationally required courses i.e. ladder safety, Sexual harassment, first responder etc. Additionally Water Treatment Staff are required to be 40 Hour Haz-Mat trained. The training is done almost exclusively online through Target Solutions. The chief exception to this is Haz-Mat training that is typically done off-site.

on-site, online, off-stie

CSU Sacramento Water Program courses, off-site PACP Collections system training from NASSCO, on-site Standard safety training, on-site

traffic control, flagger, forklift , cl2 safety, hazmat, heat stress, storm water, first aid , cpr,

confined space; Cla-Val; drivers safety; trench shoring;

just the continuing education required to state licenses and industry certifications. on and off site

RECRUITMENT & RETENTION PRACTICES BY OCCUPATION

Difficulty of Recruitment

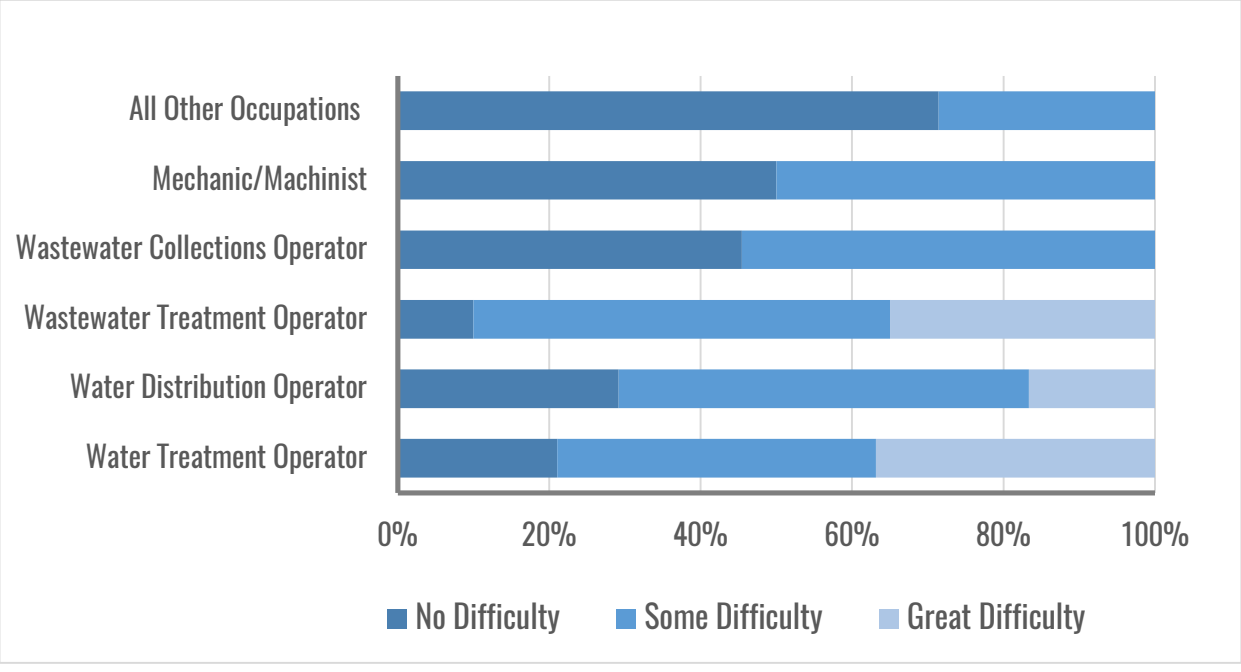
Please indicate whether your organization has no difficulty, some difficulty, or great difficulty hiring [OCCUPATION TITLE]

Table 13 and Figure 23 below show current difficulties in finding qualified employees. A plurality of respondents across all occupations overall indicated that they experience some or great difficulty in finding employees (42 responses, 49 percent), with certain occupations such as wastewater treatment operators (90 percent) and water treatment operators (74 percent) experiencing greater difficulty in recruiting new employees compared to other employee categories. See Figures 22-27 for detailed pie charts examining hiring difficulty within each occupation individually.

Table 13: Businesses' Level of Difficulty in Hiring

Occupation	No Difficulty	Some Difficulty	Great Difficulty
Water Treatment Operator	4	8	7
Water Distribution Operator	7	13	4
Wastewater Treatment Operator	2	11	7
Wastewater Collections Operator	5	6	0
Mechanic/Machinist	2	2	0
All Other Occupations	5	2	0
Total	25	42	18

Figure 23: Businesses' Level of Difficulty in Hiring



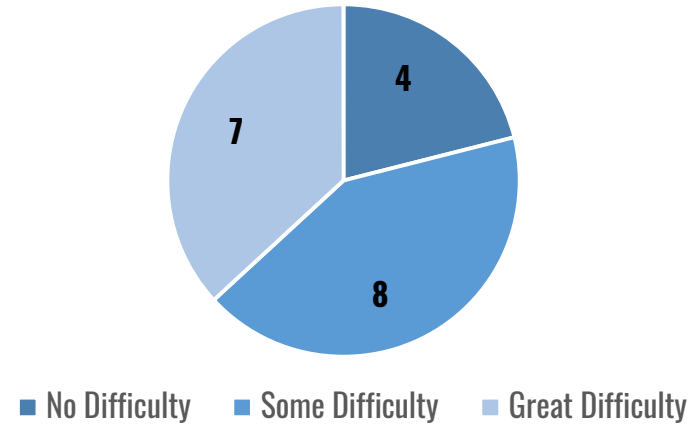
Difficulty of Recruitment (Continued)

Occupation: Water Treatment Operator

Please indicate whether your organization has no difficulty, some difficulty, or great difficulty hiring [OCCUPATION TITLE]

As shown in Figure 24 below, respondents to the water treatment operator occupation indicated some difficulty in hiring for their positions. Eight responses (42 percent) stated they experience some difficulties, and seven responses (37 percent) experienced great difficulty. Only four responses (21 percent) indiciated that they had no difficulty in finding help.

Figure 24: Entry-level Minimum Requirements: Wastewater Treatment Operator

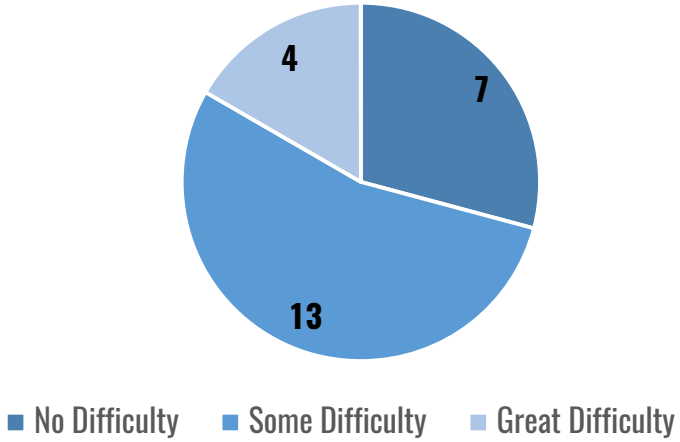


Occupation: Water Distribution Operator

Please indicate whether your organization has no difficulty, some difficulty, or great difficulty hiring [OCCUPATION TITLE]

As shown in Figure 25 below, respondents with the water distribution operator occupation indicated some difficulty in hiring for their positions. Thirteen respondents (54 percent) stated they experience some difficulties, and 4 respondents (17 percent) experienced great difficulty. Seven respondents (29 percent) indiciated that they had no difficulty in finding help.

Figure 25: Entry-level Minimum Requirements: Water Distribution Operator



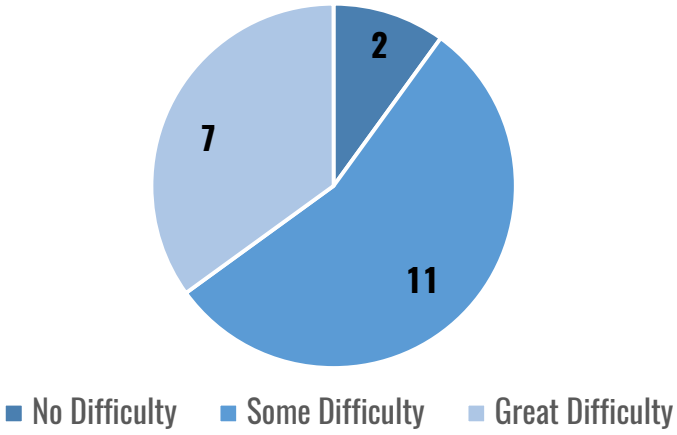
Difficulty of Recruitment (Continued)

Occupation: Wastewater Treatment Operator

Please indicate whether your organization has no difficulty, some difficulty, or great difficulty hiring [OCCUPATION TITLE]

As shown in Figure 26, respondents with the water treatment operator occupation indicated some difficulty in hiring for their positions. eleven responses (55 percent) stated they experience some difficulties, and 2 responses (10 percent) experienced great difficulty. Seven responses (35 percent) indiciated that they had no difficulty in finding help.

Figure 26: Entry-level Minimum Requirements: Wastewater Treatment Operator

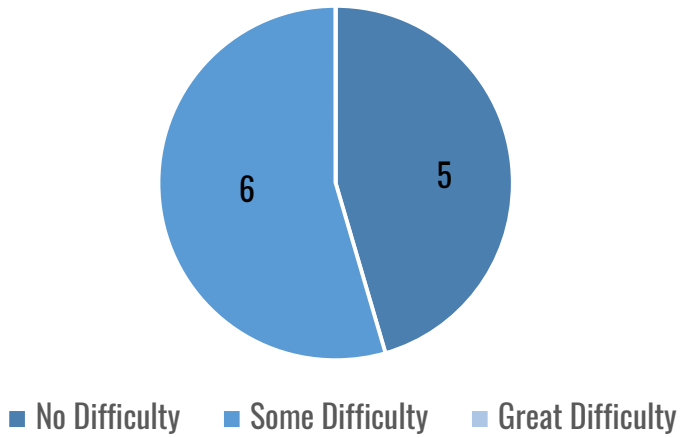


Occupation: Wastewater Collections Operator

Please indicate whether your organization has no difficulty, some difficulty, or great difficulty hiring [OCCUPATION TITLE]

As shown in Figure 27, respondents to the water collections operator occupation indicated some difficulty in hiring for their positions. Six respondents (54 percent) stated they experience some difficulties, the remaining five responses indicated that they did not have difficulty hiring for their positions. No respondents indicated great difficulty in hiring for this position.

Figure 27: Entry-level Minimum Requirements: Wastewater Collections Operator



Difficulty of Recruitment (Continued)

Occupation: Mechanic/Machinist

Please indicate whether your organization has no difficulty, some difficulty, or great difficulty hiring [OCCUPATION TITLE]

As shown in Figure 28 below, respondents with the mechanic/machinist occupation were split in their experience of difficulty in hiring for their positions, with two respondents indicating some difficulty and two respondents indicating no difficulty.

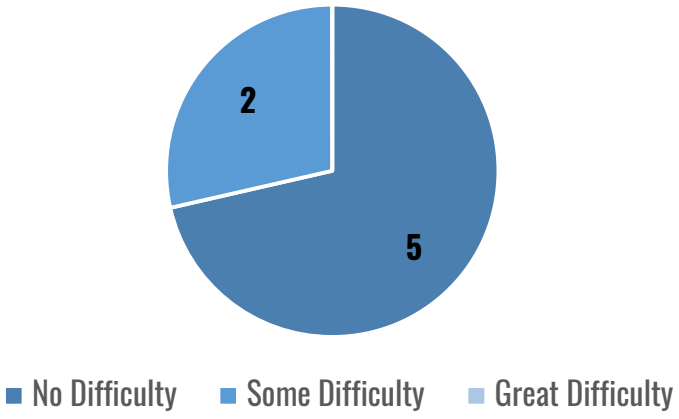
Figure 28: Entry-level Minimum Requirements: Mechanic/Machinist

Occupation: All Other Occupations

Please indicate whether your organization has no difficulty, some difficulty, or great difficulty hiring [OCCUPATION TITLE]

As shown in Figure 29 below, respondents to the "all other occupations" category overall indicated little difficulty in hiring for their positions. Five respondents indicated that they did not experience difficulty in hiring, and 2 respondents (26 percent) indicated some difficulty in hiring for these positions.

Figure 29: Entry-level Minimum Requirements: All Other Occupations



Recruitment Practices

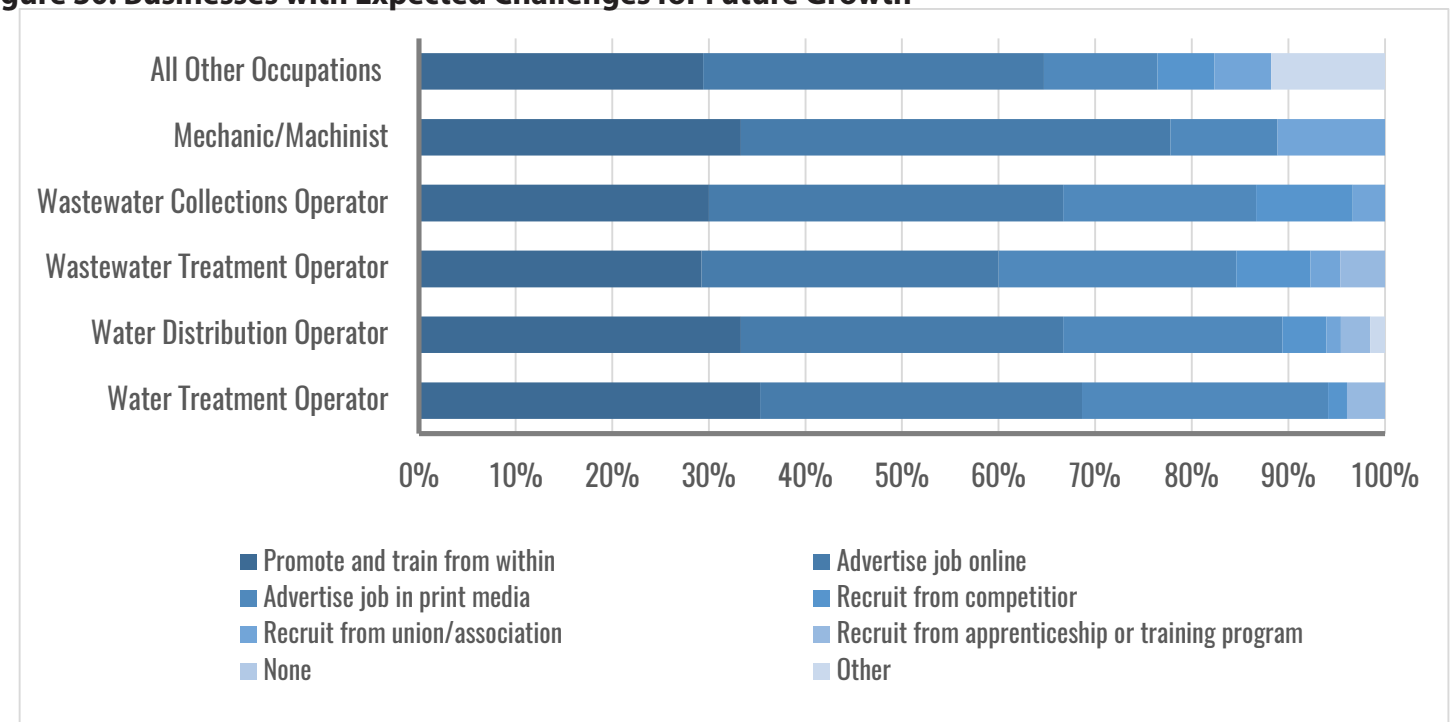
For this position, what kinds of recruitment practices do you employ typically? [Select all that apply.]

Table 14 and Figure 30 below show the methods used by employers to recruit for the positions they have available. The most-used method overall is posting advertisements online (80 respondents; 34 percent), closely followed by promotions and training from within the company (76 responses; 32 percent). Less popular options included recruiting from competitors (13 responses, 5.5 percent), apprenticeships or training programs (7 responses, 3 percent), and recruiting from unions or industry associations (6 responses, 2.5 percent). Note that all respondents had the option to select up to three occupations and describe multiple or varying recruitment practices for each selected occupation.

Table 14: Businesses with Expected Challenges for Future Growth

Occupation	Promote and train from within	Advertise job online	Advertise job in print media	Recruit from competitior	Recruit from union/association	Recruit from apprenticeship or training program	None	Other
Water Treatment Operator	18	17	13	1	0	2	0	0
Water Distribution Operator	22	22	15	3	1	2	0	1
Wastewater Treatment Operator	19	20	16	5	2	3	0	0
Wastewater Collections Operator	9	11	6	3	1	0	0	0
Mechanic/Machinist	3	4	1	0	1	0	0	0
All Other Occupations	5	6	2	1	1	0	0	2
Total	76	80	53	13	6	7	0	3

Figure 30: Businesses with Expected Challenges for Future Growth

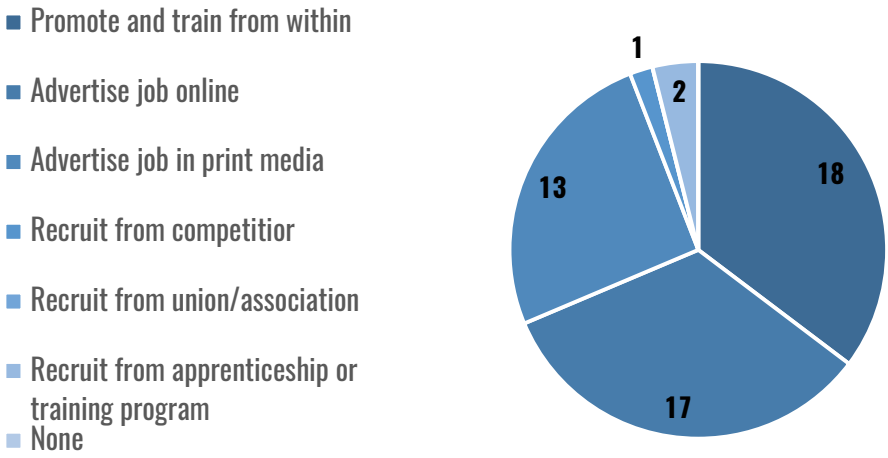


Occupation: Water Treatment Operator

For this position, what kinds of recruitment practices do you employ typically? [Select all that apply.]

Figure 31 shows that the most commonly used method of recruitment used by employers of water treatment operators was promoting and training employees from within (18 responses, 35 percent), closely followed by advertising jobs online (17 responses, 33 percent).

Figure 31: Recruitment Practices: Wastewater Treatment Operator

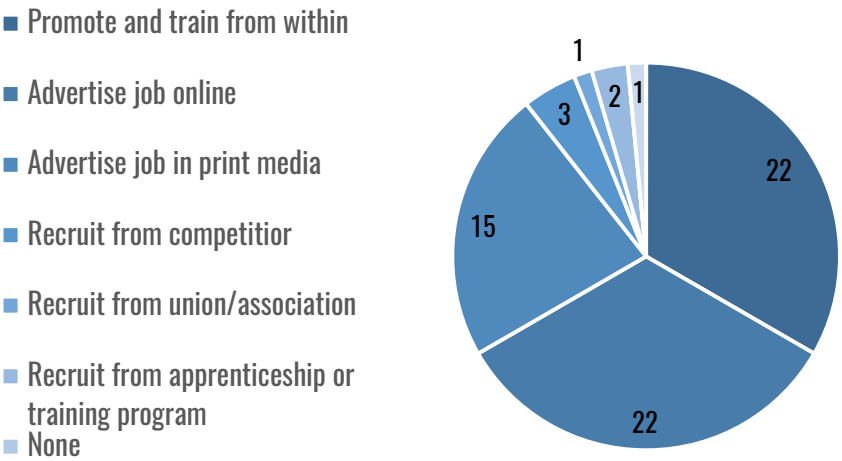


Occupation: Water Distribution Operator

For this position, what kinds of recruitment practices do you employ typically? [Select all that apply.]

Figure 32 shows that the most commonly used methods of recruitment used by employers of water distribution operators were promoting and training employees from within (22 responses, 33 percent), tied with advertising jobs online. Fifteen responses (23 percent) advertised for jobs in print media.

Figure 32: Recruitment Practices: Water Distribution Operator

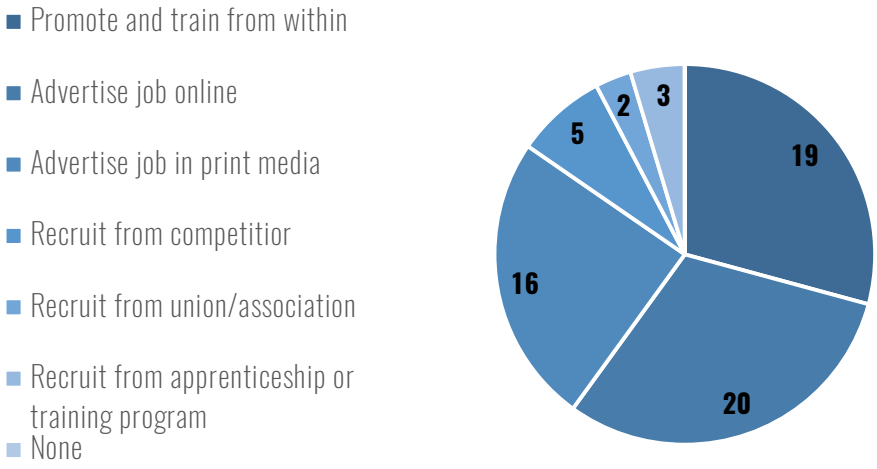


Occupation: Wastewater Treatment Operator

For this position, what kinds of recruitment practices do you employ typically? [Select all that apply.]

Figure 33 shows that the most commonly used method of recruitment used by employers of wastewater treatment operators was advertising jobs online (20 responses, 31 percent), followed by promoting and training employees from within (19 responses, 30 percent).

Figure 33: Recruitment Practices: Wastewater Treatment Operator

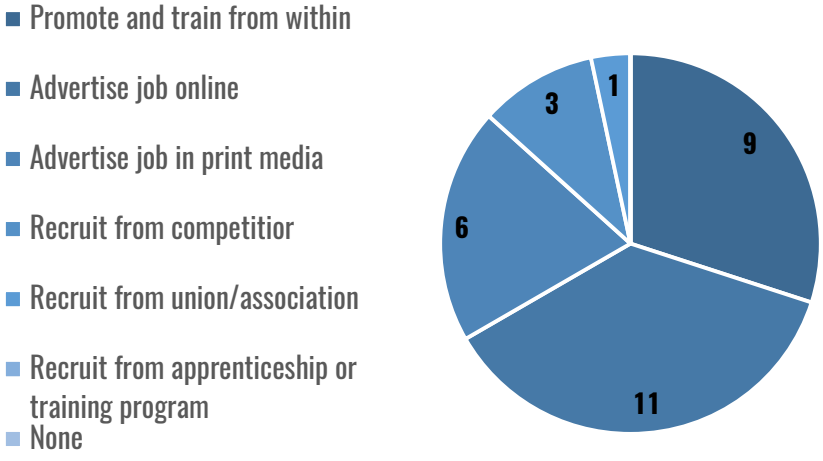


Occupation: Wastewater Collections Operator

For this position, what kinds of recruitment practices do you employ typically? [Select all that apply.]

Figure 34 shows that the most commonly used method of recruitment used by employers of wastewater collections operators was advertising jobs online (11 responses, 37 percent), followed by promoting and training from within (9 responses, 30 percent)

Figure 34: Recruitment Practices: Water Distribution Operator

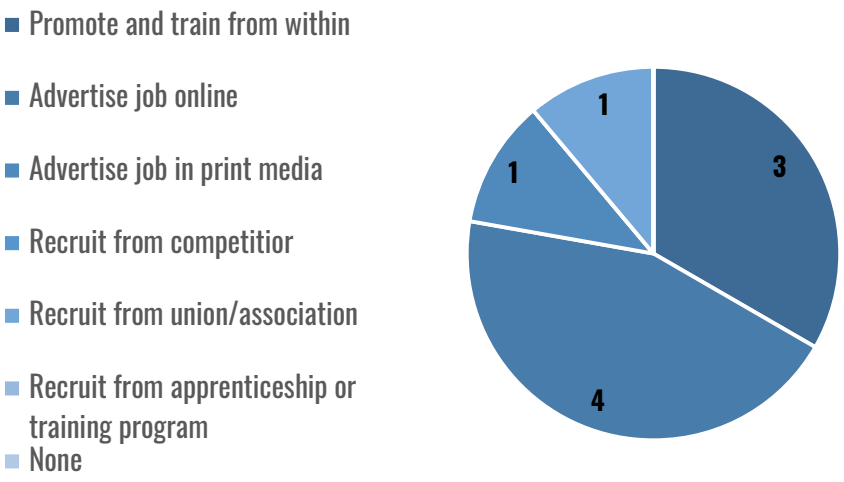


Occupation: Mechanic/Machinist

For this position, what kinds of recruitment practices do you employ typically? [Select all that apply.]

Figure 35 shows that the most commonly used method of recruitment used by employers of mechanics or machinists was advertising jobs online (4 responses, 44 percent) followed by promoting and training from within (3 responses, 33 percent).

Figure 35: Recruitment Practices: Mechanic/Machinist

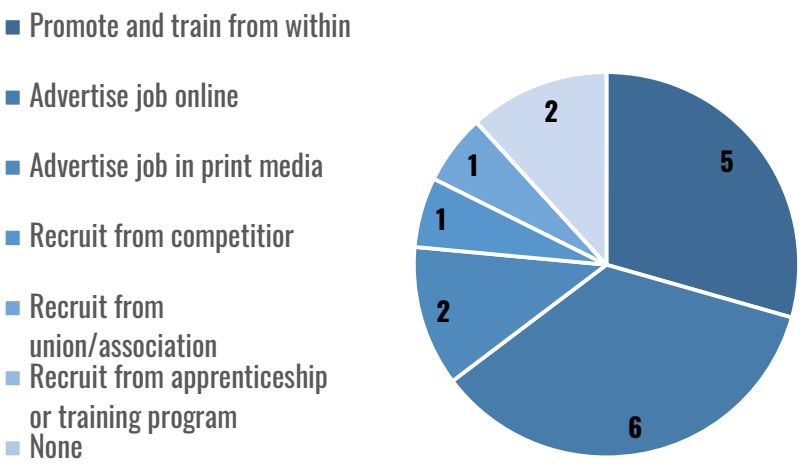


Occupation: All Other Occupations

For this position, what kinds of recruitment practices do you employ typically? [Select all that apply.]

Figure 36 shows that the most commonly used method of recruitment used by employers of "all other occupations" was advertising jobs online (6 responses, 35 percent), followed by promoting and training employees from within the agency or utility (5 responses, 29 percent).

Figure 36: Recruitment Practices: All Other Occupations



WAGES BY OCCUPATION

Apprentice or Trainee Typical Annual Salary

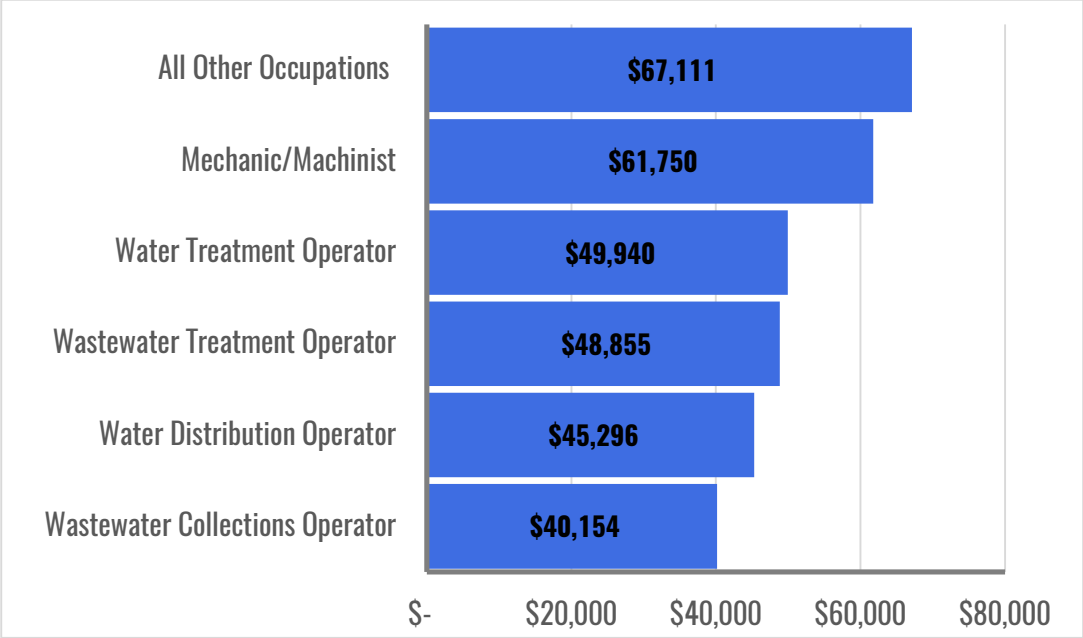
What is the typical annual pay for full-time, apprentice or trainee-level [OCCUPATION TITLE]? Entry-level is less than 3 years of experience. Please do not include benefits in the estimate.

Table 15 and Figure 37 below show typical annual salaries for each reported occupation at the apprentice or trainee level, excluding benefits. The average salary for all occupations at the apprentice or trainee-level was $52,184, with the highest typical salaries found in "all other occupations" at $67,111 followed by mechanics/machinists at an average typical salary of $61,750. The lowest typical salary was found among wastewater collections operators at $40,154, followed by water distribution operators at $45,296.

Table 15: Typical Annual Salary by Occupation: Apprentice Level

Occupation	Average Wage Of Employees (Apprentice Level)
Wastewater Collections Operator	$ 40,154
Water Distribution Operator	$ 45,296
Wastewater Treatment Operator	$ 48,855
Water Treatment Operator	$ 49,940
Mechanic/Machinist	$ 61,750
All Other Occupations	$ 67,111
Average (All Occupations)	$ 52,184

Figure 37: Typical Annual Salary by Occupation: Apprentice Level



Journey-Level Typical Annual Salary

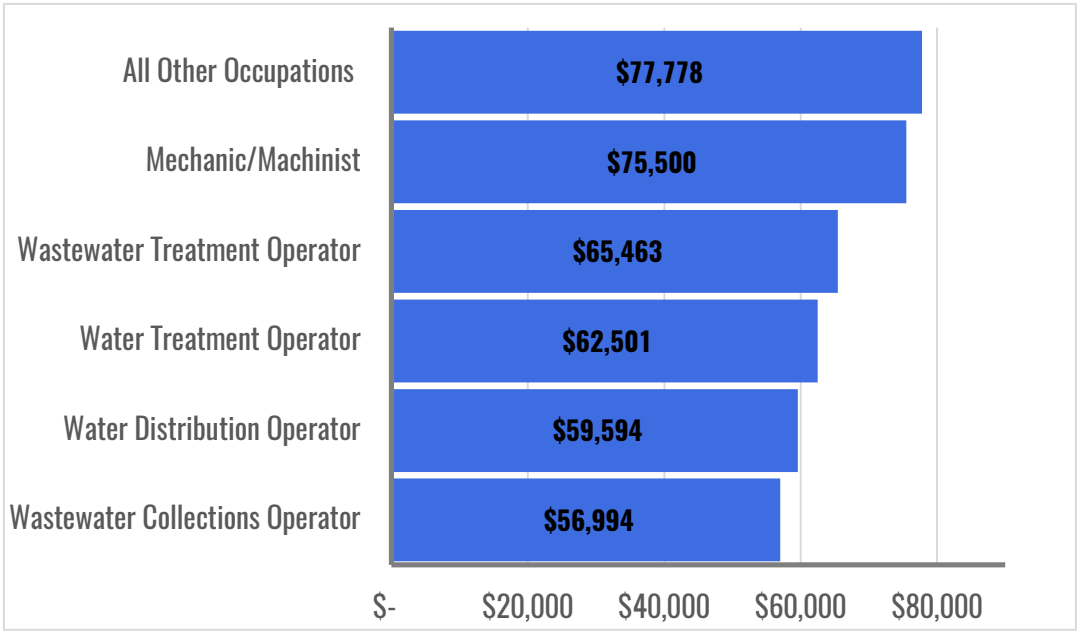
What is the typical annual pay for full-time, journey-level [OCCUPATION TITLE]? Experienced is more than 3 years of experience. Please do not include benefits in the estimate.

Table 16 and Figure 38 below show typical annual salaries for each reported occupation at the journey level, excluding benefits. The average salary across all occupations at this level was $66,305, with the highest typical salaries again found among the 'all other occupations' group at $77,778, followed once more by mechanics/machinists at a typical journey-level salary of $75,500. The lowest-earning occupations were, again, wastewater collections operators at a typical annual salary of $56,994 and water distribution operators at a typical annual salary of $59,594.

Table 16: Typical Annual Salary by Occupation: Journey Level

Occupation	Average Wage Of Employees (Journey Level)
Wastewater Collections Operator	$ 56,994
Water Distribution Operator	$ 59,594
Water Treatment Operator	$ 62,501
Wastewater Treatment Operator	$ 65,463
Mechanic/Machinist	$ 75,500
All Other Occupations	$ 77,778
Average (All Occupations)	$ 66,305

Figure 38: Typical Annual Salary by Occupation: Journey Level



INDUSTRY RESEARCH AND SURVEY SUMMARY

Industry Research

The following industry trend summaries are brief overviews of IBIS World reports which were utilized for research purposes during the analysis process:

Water Supply and Irrigation Industry

The water supply and irrigation industry has experienced a 1.3 percent annual growth rate from the years 2010 to 2015 and is expected to grow at an even faster rate over the next five years. Population growth compounded with persistent drought has increased the demand for technology within this industry. Economic growth has similarly increased the industry's activity by raising the demand for water from retailers and other commercial businesses. Due to long-term drought conditions, water conservation policies may actually decrease per capita water consumption within the next few years. Many public utilities commissions have enacted efforts to decrease consumption for both residential and industrial consumers.

Water Supply and Irrigation Industry: CED's Note on California's Changing Regulatory Landscape

In September 2014, the State of California passed a three-bill package known as the Sustainable Groundwater Management Act (SGMA), which calls on local agencies to develop and manage groundwater sustainability plans for the first time in the state's history. It is unknown at this time how SGMA will ultimately affect the water supply and irrigation industry within the South Central Coast and other California regions. While the regulation may spur additional investments in technology in the short term, it may have a long-term result of reducing the number of new wells permitted within groundwater basins that are regarded to be in a state of overdraft.

Water and Air Quality Testing Services

The Water and Air Quality Testing Services industry has seen an annualized growth rate of two percent over the past five years and an even larger increase of 3.5 percent just in 2015. Economic growth has led to more construction, government regulation and funding, and consumer and business spending. These in turn have created growth for the industry because many of these practices require testing for safety codes and the like. An increase in infrastructure investment will increase industry demand and is predicted to create an annual growth rate of 3.2 percent over the next five years.

As a result of these changes, wages are expected to grow at an average annual rate of 1.3 percent by the year 2020. This is expected to result from the hiring of skilled technicians to conduct these water and air quality tests.

Water and Sewer Line Construction

The Water and Sewer Line Construction industry has experienced a declining annualized revenue rate of 0.3 percent as well as a decline in the number of companies with a 0.9 percent decline over the last five years. Much of this decline was likely due to a reduction in private investment and much smaller government budgets. However, due to the revival of demand for residential construction, industry revenue is expected to increase by 3.5 percent in 2016. Over the next five years, the industry is expected to grow at an average annual rate of 2.1 percent, and the industry is expected to reach $50.1 billion.

Summary of Survey Results

Characteristics of Survey Respondents

The survey targeted water and wastewater agencies and private utilities within the counties of San Luis Obispo, Santa Barbara, Ventura, and nothern portions of Los Angeles County. Organizations within Ventura County contributed the greatest number of responses (14 responses or 42 percent), closely followed by organizations within Santa Barbara county, with that county's 12 responses representing 36 percent of all responses. Four respondents (12 percent) were contributed by organizations in San Luis Obispo County, and three respondents (9 percent) were contributed by organizations in the northern portions of Los Angeles County. The largest class of business to respond (12 responses) were combination water & wastewater departments within multiple function facilities at 36 percent of all responses. The next-largest categories to respond were combination water & wastewater agencies and utilities, and utilities/agencies dealing only with wastewater, at 7 responses (21 percent) each. Six respondents were agencies and utilities dealing only with water, and a single respondent reported their agency as "Other - water/wastewater related."

Community College Partnerships

Out of a total of 33 respondents, 29 (88 percent) indicated one or more partnership opportunity that would be of interest to their agency or utility. The most popular partnership opportunity is community college programs that would provide agencies/utilities with students as part-time interns, apprentices, or work-study positions, with 23 respondents (70 percent) indicating an interest in such an opportunity. This opportunity was closely followed by on or off-site customized training for the agency/utility's current employees, at 21 responses (64 percent of all respondents). Fifteen respondents (45 percent) indicated an interest in having their agency or utility's staff serve in an advisory capacity to a local community college program. Only four respondents (12 percent) did not indicate an interest in any of the listed partnership opportunities.

Retirements and Future Employment Expectations

Respondents to the survey reported 1,708 total current permanent employees and expected to hire a total of 51 new permanent employees over the next three years, indicating a growth rate of 3.7% in new employees.

Respondents also indicated they were expecting 243 retirements within the next three years across all six reported occupations. Of the 94 current water treatment employees sampled, 28 (29.8 percent) are eligible for retirement in three years. For water distribution operators, and wastewater treatment operators, the percentage of the current workforce eligible for retirement within the next three years is even greater: among sampled water distribution operators, 74 of 246 current employees (30.1 percent) are eligible for retirement, and among wastewater treatment operators, 78 of 225 current employees (34.7 percent) are eligible. Wastewater collections operators had an even higher percentage of its current workforce eligible for retirement - 52 of its 138 current employees (37.6 percent).

Minimum Entry-Level Requirements

Post-secondary education did not appear to be extremely important for the majority of respondents to the survey. Across all occupations, the most common minimum entry-level requirement was a high school diploma (62 responses, 72.9 percent), followed closely by some college (13 responses, 15.3 percent). Post-secondary certification had 5 responses at 5.9 percent. A relatively small portion of respondents deemed formal higher education a requirement: there were only 2 responses, (2.4 percent) that indicated a bachelor's degree requirement, 0 respondents require an associate's degree. Note that respondents had the option to select up to 3 occupations and describe the education requirements for each selected occupation. There was a total of 85 responses to this question owing to respondents reporting on multiple occupations.

Recruitment Practices and Challenges

A plurality of respondents across all occupations overall indicated that they experience some or great difficulty in finding employees (42 responses, 49 percent), with certain occupations such as wastewater treatment operators (90 percent) and water treatment operators (74 percent) experiencing greater difficulty in recruiting new employees compared to other employee categories. The most-used recruitment practice overall was posting advertisements online (80 respondents; 34 percent), closely followed by promotions and training from within the company (76 responses; 32 percent). Less popular options included recruiting from competitors (13 responses, 5.5 percent), apprenticeships or training programs (7 responses, 3 percent), and recruiting from unions or industry associations (6 responses, 2.5 percent).

Typical Annual Salaries: Apprentice-Level and Journey Level

Respondents also indicated they were expecting 243 retirements within the next three years across all six reported occupations. Of the 94 current water treatment employees sampled, 28 (29.8 percent) are eligible for retirement in three years. For water distribution operators, and wastewater treatment operators, the percentage of the current workforce eligible for retirement within the next three years is even greater: among sampled water distribution operators, 74 of 246 current employees (30.1 percent) are eligible for retirement, and among wastewater treatment operators, 78 of 225 current employees (34.7 percent) are eligible. Wastewater collections operators had an even higher percentage of its current workforce eligible for retirement - 52 of its 138 current employees (37.6 percent). he average salary across all occupations at this level was $66,305, with the highest typical salaries again found among the 'all other occupations' group at $77,778, followed once more by mechanics/machinists at a typical journey-level salary of $75,500. The lowest-earning occupations were again wastewater collections operators at a typical annual salary of $56,994 and water distribution operators at a typical annual salary of $59,594.

Recommendations & Conclusions

Recommendations and Conclusions

This survey highlights a need for a workforce that can meet the challenges and demands of the water/wastewater industry over the next three years. Respondents not only indicated that their workforces overall would grow by 3.7 percent within the next three years, but also indicated a substantial number of current employees who will be eligible for retirement within the next three years – nearly a third of the current workforce in some occupations such as water distribution operators, wastewater treatment operators, and wastewater collections operators.

The amount of agencies and utilities that indicated a willingness to partner with local community colleges is heartening. Out of 33 respondents, only 4 did not indicate an interest in any of the listed partnership opportunities. The most popular opportunity utilities and agencies were willing to partner with community colleges on was community college programs that would provide utilities and agencies with students as part-time interns, apprentices, or work-study positions.

CED encourages local community colleges to prioritize such programs, in addition to the other partnership opportunities listed such as on or off-site customized training for current employees and staff from the surveyed agencies and utilities serving in an advisory capacity to community college programs.

This survey also found that water and wastewater agencies and utilities have been experiencing some difficulty in hiring for their positions – indicating a possible shortage of relevant skills in the local workforce. Wastewater treatment operators, water distribution operators, and water treatment operators were especially difficult to hire for, according to respondents reporting about those categories. The CED recommends that community college partnership programs focus on those three occupations specifically to address the area of greatest need.

Finally, this survey found that many positions within the water and wastewater industry in the South Central Coast region tend to be relatively high-paying despite a lack of advanced degree requirements. Typical annual salaries across all occupations for apprentice-level employees ranged from $40,000 to $67,000, while typical annual salaries for journey-level employees ranged from $57,000 to $77,700. Considering that the median household income in Santa Barbara County was $63,985 as of the 2015 American Community Survey, this indicates that the average employee in the industry can earn at or near regional median household income without the burden of completing a two or four year degree. Community college programs should focus on career and technical education programs that cultivate skills among this workforce without the necessity to earn an advanced degree.

Appendix A: Survey

Water and Wastewater Employer Survey

Field	Question	Answer
Location *(required)*	In what county is this water/wastewater agency/utility located?	a Los Angeles County b Ventura County c Santa Barbara County d Kern County e San Luis Obispo County f Other, Not listed g Not sure
BusinessType *(required)*	How would you classify your business? Please select all that apply.	a Water agency/utility only b Wastewater agency/utility only c Water & Wastewater agency utility d Water department in a multiple function utility e Wastewater department in a multiple function utility f Water & Wastewater department in a multiple function utility g Other-water/wastewater related h Other - non water/wastewater related
B7 *(required)*	Please specify your business.	
WorkforceNeeds *(required)*	Are you familiar with your agency/utility's hiring and workforce needs?	a Yes b No
InfoSection1	Section 1: If your agency/utility is responsible for multiple utilities or municipal functions (such as power in addition to water/wastewater), please limit your responses to the water/wastewater department or section.	
Main Survey		
Main Survey > Employment		
FulltimeEmployees *(required)*	How many permanent full-time employees work in your water/wastewater agency/utility? A permanent full-time employee is someone who works 30 hours a week or more regularly.	
PartTimeEmployees *(required)*	How many permanent part-time employees work at or from your business location? A part-time employee is someone who works less than 30 hours a week?	
Main Survey > Change in Employment		
ChangeinEmployment *(required)*	You mentioned you currently have "[TotalEmployees]" full-time and part-time employees at your location. Do you expect to have more, fewer, or the same number of employees at your location 3 years from now?	1 Fewer 2 More 3 Same number of permanent employees 4 Not sure
MoreEmployees *(required)*	How many more permanent employees do you expect to have at your location 3 years from now?	
Lessemployees *(required)*	How many fewer permanent employees do you expect to have at your location 3 years from now?	
Changeinemploymentmore *(required)*	Just to confirm, you currently have "[TotalEmployees]" permanent employees and you expect to have "[MoreEmployees]" more, for a total of "[NewEmploymentMore]" permanent employees 3 years from now. Is this correct?	a Yes b No
Changeinemploymentless *(required)*	Just to confirm, you currently have "[TotalEmployees]" permanent employees and you expect to have "[Lessemployees]" fewer, for a total of "[NewEmploymentLess]" permanent employees 3 years from now. Is this correct?	a Yes b No
EmployeeRetirement *(required)*	Within the next 3 years, how many of your "[TotalEmployees]" current employees do you estimate will be eligible to retire without penalty?	
Main Survey > Occupational Employment		
Sec2IntoA	The next few questions are about specific occupations within your organization related to your business. The occupational titles we are using may differ from the specific position titles used in your organization. For these questions try to equate your organization's specific position titles with the more general ones we will use here.	

Field	Question	Answer		
				Services is generally where the journey level starts.
			2	Water Distribution Operator: Operates water transmission and distribution systems (e.g., pumps and valves), often using a SCADA control system. Generally does not perform construction, maintenance, or plumbing work. D-3 certification from Department of Health Services is generally where the journey level starts.
			3	Wastewater Treatment Operator: Performs wastewater treatment function. Usually requires Grade 3 certification by Regional Water Quality Board
			4	Wastewater Collections Operator: Performs wastewater collection function. Usually requires Grade 2 certification.
			5	Mechanic/Machinist: Maintains mechanical equipment associated with water and wastewater transmission, distribution, storage, and treatment.
			6	Electrician/Electrician Technician: Maintains, repairs, tests, installs, modifies, calibrates, and trouble-shoots electronic equipment used in the facilities and systems of water and wastewater utilities.
			7	Electronic Maintenance Technician/Instrument Technician: Maintains, repairs, tests, installs, modifies, calibrates, and trouble-shoots electronic, pneumatic, and control equipment associated with the faculties and systems of water and wastewater utilities.
			8	Environmental Compliance Technician/Inspector: Perform laboratory and field tests to monitor the environment and investigate sources of pollution, including those that affect health, under the direction of an environmental scientist, engineer, or other specialist. May collect samples of gases, soil, water, and other materials for testing.
			9	Water Conservation

Field	Question	Answer		
				Technician: Assist in the preparation, development, delivery, implementation and presentation of educational programs, printed brochures, and displays. Assists with implementation of variety conservation rebate and incentive programs. Conduct indoor and outdoor audits to assist in developing water conservation plans for customers.
			10	SCADA Programmer: Works with human-machine interface (HMI) and computer hardware such as setting up computer system hardware, networks, configuring SCADA application software, developing custom reports, and conducting HMI training. Proficient in programmable logic controller (PLC) hardware and programming expertise including the development of real-time process monitoring and control, control system implementation and field testing, and conducting PLC training.
			-99	None of the above
OccupationEmp2	[THIS IS JUST A PLACEHOLDER THAT DOES NOT ACTUALLY APPEAR IN THE SURVEY]		1	Water Treatment Operator
			2	Water Distribution Operator
			3	Wastewater Treatment Operator
			4	Wastewater Collections Operator
			5	Mechanic/Machinist
			6	Electrician/Electrician Technician
			7	Electronic Maintenance Technician/Instrument Technician
			8	Environmental Compliance Technician/Inspector
			9	Water Conservation Technician
			10	SCADA Programmer
repeat_intro	I will now ask some questions about up to three of the occupations that exist in your organization.			
Main Survey > Questions about [OccupationTitle] (1)		(Repeated group)		
repeat_intro2	The next series of questions are about the following occupation: [OccupationTitle]			
Sec2_q4 *(required)*	How many individuals that work at your current business location are currently employed either full-time or part-time in the occupation of [OccupationTitle]? *Please exclude temporary, seasonal, and independent workers from these counts.*			
totalempcheck *(required)*	The total current employees you have entered in all occupations so far is greater than the total number of employees in the company indicated earlier. This is not possible. Please swipe back and either correct the employees per occupation or the total number of employees in the company.			
Sec2_q5a *(required)*	If you currently have [Sec2_q4] employees in the occupation of [OccupationTitle] at your current business location, do you expect to have more, fewer, or the same number of employees in the occupation of [OccupationTitle] at your location 3 years from now? *Please exclude temporary, seasonal, and independent workers from these counts.*		1	Fewer
			2	More
			3	Same number of permanent employees

Field	Question	Answer
Sec2_q5b_more *(required)*	How many more permanent employees do you expect to have at your location in the occupation of [OccupationTitle] 3 years from now?	
Sec2_q5b_less *(required)*	How many fewer permanent employees do you expect to have at your location in the occupation of [OccupationTitle] 3 years from now?	
Sec2_5c_more *(required)*	Just to confirm, you currently have [Sec2_q4] permanent employees in the occupation of [OccupationTitle] and you expect to have [Sec2_q5b_more] more, for a total of [Sec2_q5b_more_calc] permanent employees 3 years from now. Is this correct?	a Yes b No
Sec2_5c_less *(required)*	Just to confirm, you currently have [Sec2_q4] permanent employees in the occupation of [OccupationTitle] and you expect to have [Sec2_q5b_less] fewer, for a total of [Sec2_q5b_less_calc] permanent employees 3 years from now. Is this correct?	a Yes b No
Main Survey > Questions about [OccupationTitle] (1) > Section 2, Q6		
Sec2_q6a	How many employees in the position of [OccupationTitle] will be eligible to retire without penalty in the next 3 years? *Please exclude temporary, seasonal, and independent workers from these counts.*	
Sec2_q6b *(required)*	OR	1 None 2 Not sure
Main Survey > Questions about [OccupationTitle] (1) > Education		
Edu *(required)*	What is the minimum education requirement for [OccupationTitle]?	A Less than High School B High School Diploma, or equivalent C Some college, no degree D Post Secondary Certificate E Associate's Degree F Bachelor's Degree G Other H Not sure
Edu_specifyother *(required)*	Please specify other:	
EduCertorDegree *(required)*	What type of educational certificate or degree do you prefer for [OccupationTitle]?	A Industrial Certification B Credential
Sec3_q10 *(required)*	For [OccupationTitle], do you require new hires to already have this certificate or credential prior to employment or is it acceptable for them to complete this within a predetermined time period (such as a probationary period)?	a Already have b Within a predetermined period of time (such as probation period) c Either
Sec3_q11	What types of training and education does your organization currently offer in [OccupationTitle] positions? *If none, leave blank.*	
Sec3_q12 *(required)*	For [OccupationTitle], do you require employees to be licensed by the state of California to work as an electrician?	a Yes b No c Not Sure
Section4_intro	We're interested in learning about some of the challenges facing your industry in finding qualified workers that meet your firm's hiring standards.	
Difficulty *(required)*	Please indicate whether your organization has no difficulty, some difficulty, or great difficulty hiring [OccupationTitle]:	a No difficulty b Some difficulty c Great difficulty
RecruitmentPractices *(required)*	For this position, what kinds of recruitment practices do you typically employ?	a Promote and train from within b Advertise job online c Advertise job in print media d Recruit from competitor e Recruit from union/association f Recruit from apprenticeship or training program g None of these h Other
RecruitmentOther *(required)*	Please specify other:	
Main Survey > Questions about [OccupationTitle] (1) > Section 5 - Wages		
AnnualPayApprentice *(required)*	What is the typical annual pay for full-time, apprentice or trainee-level [OccupationTitle]? Entry level is less than 3 years of experience. Please do not include benefits in the estimate.	
JourneyExperience *(required)*	What is typical annual pay for full-time, journey-level [OccupationTitle]? Experienced is more than 3 years of experience. Please do not include benefits in the estimate.	
Main Survey > Section 7 - Wrap up questions		
Sec-7Intro	There are a few more questions left on the survey. Thank you very much for your time thus far.	

Field	Question	Answer
StaffInGeneral	Thinking about your staff in general, please list any courses that are periodically required by your organization and how they are administered - on-site, online, off-site *If none, leave blank.*	
CollegePartnershipOpportunities *(required)*	Which of the following community college partnership opportunities would you or your organization have an interest in?	a On- or off-site customized training for your current employees b Community college programs that would provide you with students as part-time interns, apprentices, or work study positions c Staff from your organization serving in advisory capacity to a community college program d None of the above
Main Survey > Section 7 - Wrap up questions > ContactInfo		
ContactInfo_note	Since it sometimes becomes necessary for the project manager to call back and confirm responses to certain questions, please provide us with your contact information:	
firstname	First Name:	
lastname	Last Name:	
position	Position:	
phone	Phone number:	
email	Email:	
companyname *(required)*	Company Name:	
companycity	Company City:	
ReceiveReportFindings *(required)*	Would you like to receive a report detailing the findings of this research?	a Yes b No
IfYesReceiveReport	Please enter your email address in the space provided.	
ScreeningFail1	Based on your answers, you are not eligible to be surveyed. Thank you for your time.	
ScreeningFail2	Based on your answers, this agency does not have any of the occupations we are hoping to learn about. Thank you for your time.	
endnote	Great! You have successfully completed and saved the survey. Thank you very much for your time.	

Appendix B: Survey Comments

Write-in Responses:

What types of training and education does your organization currently offer in [Occupation Title] positions?

Tuition Aid
Sacramento State (correspondence courses), CRWA (training, workshops, conferences)
Correspondance
complete training provided to assist with passage of TPO certificates
workshops and training classes
Sends OIT's to 40 hr. class, send them to exam prep CRWA (24-36 hrs)
Provided by local community college
Certification and required annual training
It's up to the individual to study for, we have books, but its up to them to study on their own time.
Hands on
Osha/Safety Training, computer, collections training
CWEA Certification based training, On the job training
on the job training and formal AWWA or Cal Rural training
Job related and one certification higher than current responsibilities
on-the-job
Free online training through Target Solutions and $1,500 annually towards education reimbursement for courses related to their function.
T3
College classes, conferences, job specific
We provide training manuals and send employees to classes, etc.
tuition reimbursement
State required for certification; safety; equipment
On job, CWEA and WEF, and specialty technical training
On the job and various annual trainings
local water courses
tuition reimbursement, industry training classes

For this position, what kinds of recruitment practices do you typically employ? Please specify other:

College of the Canyons Water Program
CSUN EOH Program
union hall

Thinking about your staff in general, please list any courses that are periodically required by your organization and how they are administered – on-site, online, or off-site

Safety (on-site, off-site, on-line), Continuing Education Units (on-site, off-site, on-line)
on-site, off-site and online.
ACWA aspestos handling, driving safety, flagger training OSHA/CALOSHA reqiurements
sexual harassment, safety, in-house Conflict of interest, on-line.
Mostly through professional organizations like AWA or APWA can be on-site, off-site (one day) or on line
Continuing ed requirements who have certifications - Symposium, attend seminars--get certificate. Monthly safety meetings. There's a lot of different opportunities
Off-site
CPA, Fire Safety, Safety training
none
basic courses to keep certification current, online and off-site
Legally required training
The water district requires employees to take all standard safety and occupationally required courses i.e. ladder safety, Sexual harassment, first responder etc. Additionally Water Treatment Staff are required to be 40 Hour Haz-Mat trained. The training is done almost exclusively online through Target Solutions. The chief exception to this is Haz-Mat training that is typically done off-site.
on-site, online, off-stie
"CSU Sacramento Water Program courses, off-site
PACP Collections system training from NASSCO, on-site
Standard safety training, on-site"
traffic control, flagger, forklift , cl2 safety, hazmat, heat stress, storm water, first aid , cpr,
confined space; Cla-Val; drivers safety; trench shoring;
Hazwoper 40 offsite
on-site, online, off-site
just the continuing education required to state licenses and industry certifications. on and off site

Appendix C: Photo Credits

Many of these photos were cropped in the making of this booklet.
We would like to thank the contributors of the photos:

Britta Gustafson	Cover Page
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Doc Searls	Page 3
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SuSanA Secretariat	Page 17
Joe Jungmann	Page 32
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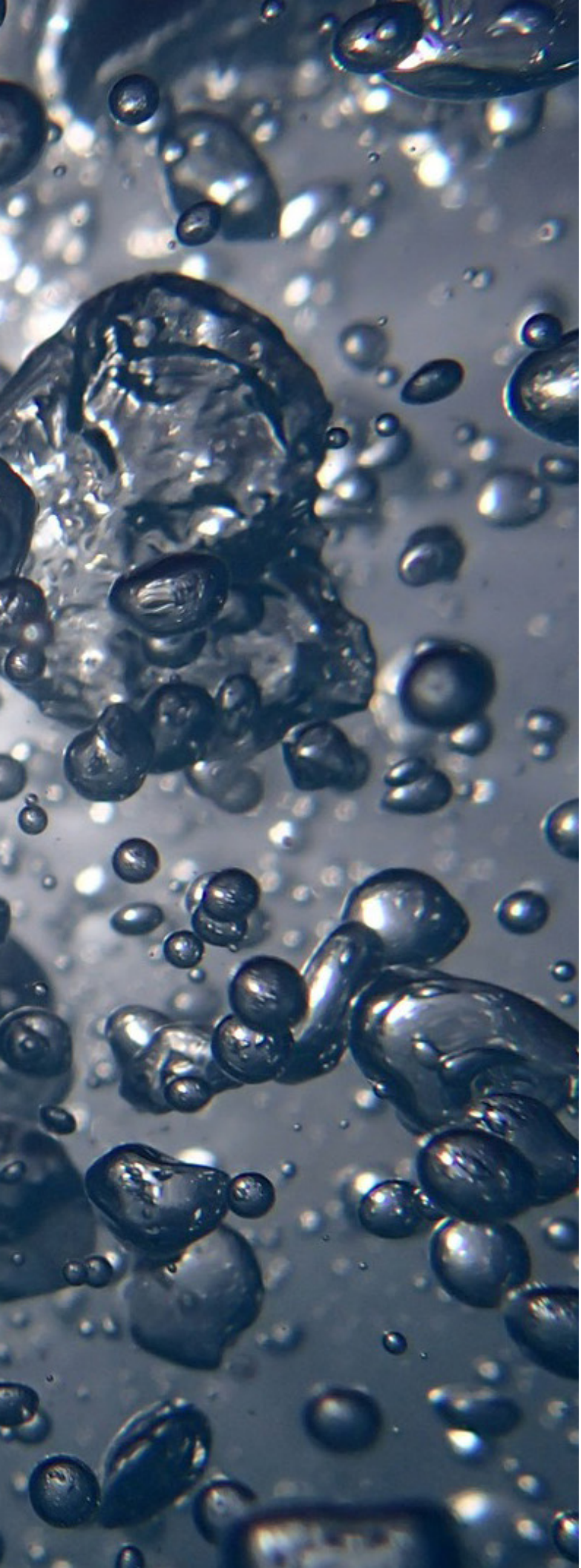

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CLEAN/GREEN COMMITTEE 2-YEAR PLAN
Workforce Development Board of Ventura County
2016-2018

Goal

The Clean/Green Committee will develop a pipeline of skilled workers in clean/green occupations to address the workforce needs of employers, working in collaboration with business, economic development, education, labor, government, and community-based organizations. Focus areas:

- Recycling/reuse
- Energy efficiency
- Natural and sustainable product manufacturing
- Renewable energy
- Water conservation
- Infrastructure
- Services
- Education, compliance and awareness

Components of Plan

1. **Engage Leaders** — Engage a core team of Ventura County employers, agencies, education, labor, and other organizations most involved in clean/green workforce development. Develop ways to identify, engage, and communicate effectively with the core team and other clean/green workforce partners

   - Waste Facilities/ Recycling Centers
   - Water/Wastewater
   - Trash Haulers
   - Utilities/Energy
   - Landscapers
   - Architects
   - Contractors
   - Agriculture
   - Automotive
   - California State University, Channel Islands
   - Ventura County Community College District
   - Ventura County Office of Education
   - Adult education
   - Others

2. **Analyze Data** — Conduct annual research to analyze clean/green workforce needs and changes.

3. **Take Inventory** — Inventory current training providers in the region.

   - Industry-recognized certification programs
   - Apprenticeships
   - Pre-apprenticeships
   - Internships
   - Externships
   - High school academies
   - Regional Occupational Program
   - Adult education
   - Community colleges
   - Universities
   - Trade associations
   - Community organizations

4. **Determine** — Determine focus area priorities for clean/green workforce development.

CLEAN/GREEN COMMITTEE 2-YEAR PLAN
Workforce Development Board of Ventura County
2016-2018

Priorities

- Sector workforce readiness
- Career pathways
- Sector certifications
- Stackable credentials
- Pre-apprenticeship programs
- Apprenticeship programs
- Business participation:
  - Curriculum development
  - Job shadowing
  - Internships
  - Externships
  - On-the-job training
  - Career awareness/outreach

5. Identify Gaps

Monitor identified gaps and continue to identify new gaps between education and clean/green workforce development needs.

6. Take Action

Many employers, particularly small businesses, in Ventura County are not aware of the activities of the Workforce Development Board Clean/Green Committee in developing a pipeline of skilled workers for clean/green jobs. As such, we need to:

- **Create awareness** throughout all business communities and the public sector of clean green jobs and certification programs that exist to provide skilled workers.
- **Develop understanding** by employers and managers of the importance clean green practices in their operation (regardless of size) and how hiring skilled clean green workers will improve their organization's performance. Emphasize that virtually every job, in every industry, should incorporate clean green practices.
- **Encourage involvement** by leaders in business and the public sector, in the education of skilled clean green workers through engagement in the classroom, providing internships or job training programs for students or externships for faculty.
- **Complete integration** of clean green practices and workers in all components of the workforce in businesses and the public sector in Ventura County.

7. Monitor Progress

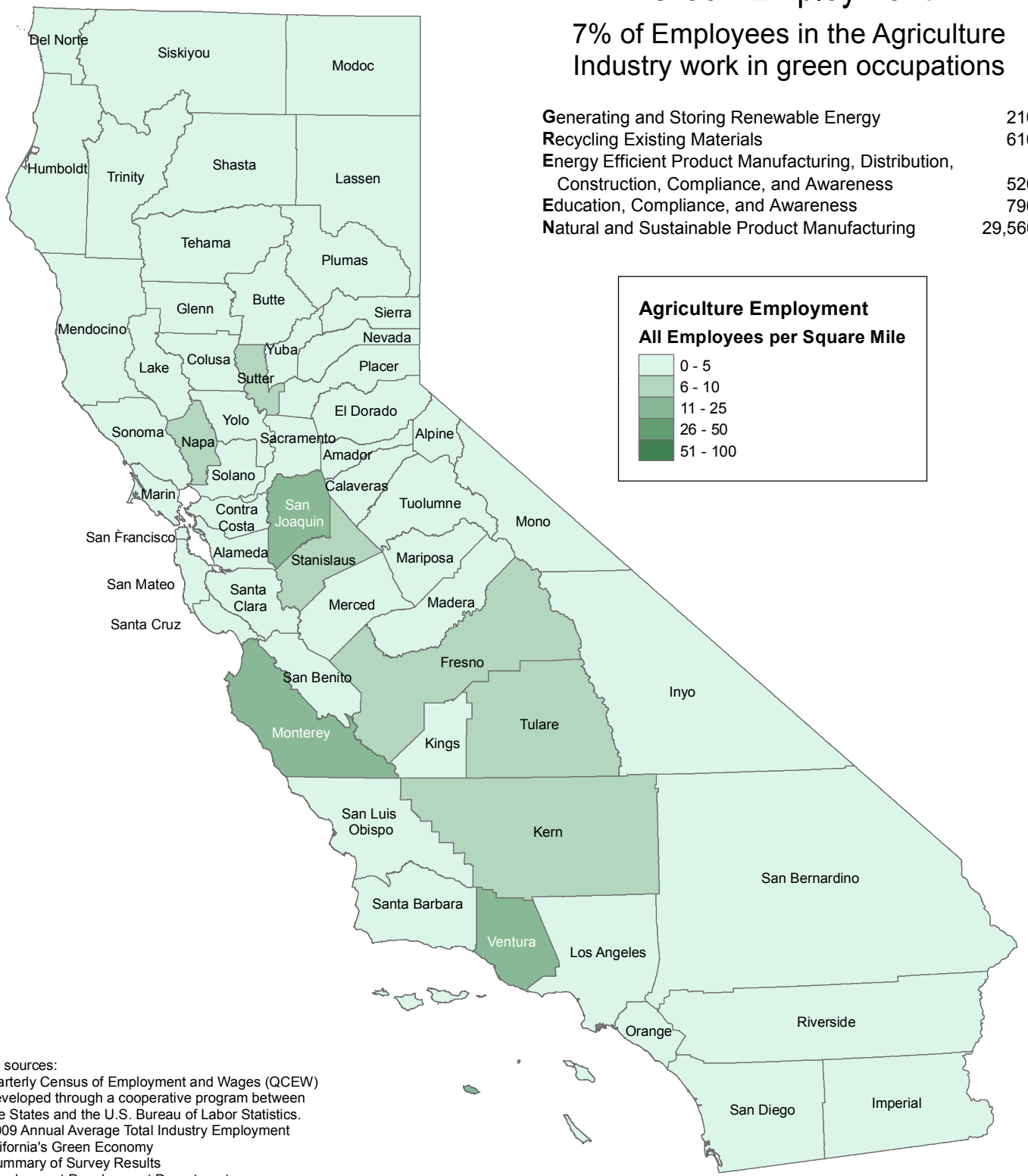
The progress of the Clean/Green Committee is measured by the Workforce Development Board Year-End Review and a review of the Committee's 2-Year Plan.

Agriculture Industry Employment

Green Employment

7% of Employees in the Agriculture Industry work in green occupations

Generating and Storing Renewable Energy	210
Recycling Existing Materials	610
Energy Efficient Product Manufacturing, Distribution, Construction, Compliance, and Awareness	520
Education, Compliance, and Awareness	790
Natural and Sustainable Product Manufacturing	29,560



Data sources:
Quarterly Census of Employment and Wages (QCEW) developed through a cooperative program between the States and the U.S. Bureau of Labor Statistics.
2009 Annual Average Total Industry Employment
California's Green Economy
Summary of Survey Results
Employment Development Department
October 2010

Analysis and Cartography by:
Labor Market Information Division
Employment Development Department
http://www.labormarketinfo.edd.ca.gov
April 2011

EDD Employment Development Department State of California

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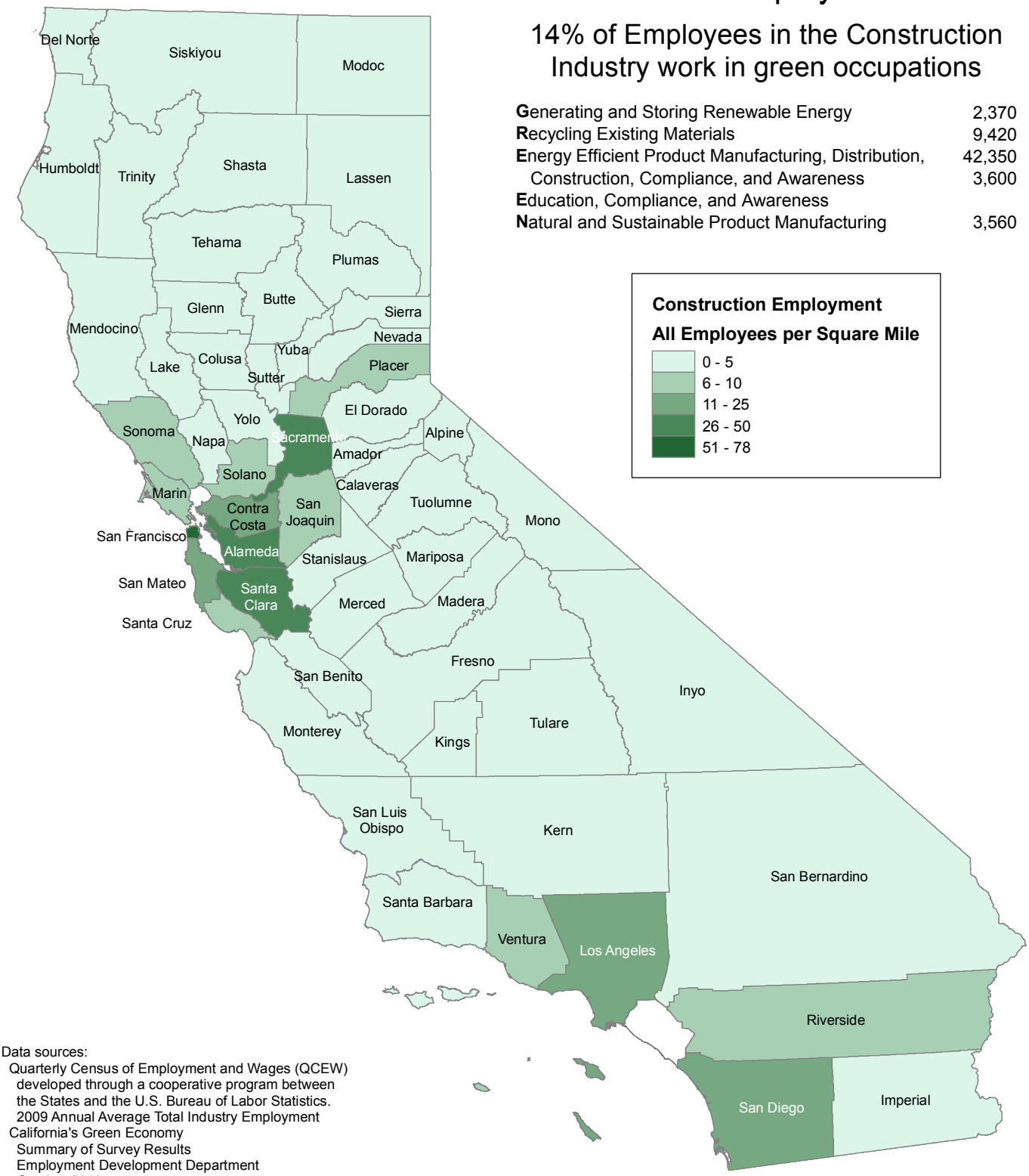
File: M059

Construction Industry Employment

Green Employment

14% of Employees in the Construction Industry work in green occupations

Generating and Storing Renewable Energy	2,370
Recycling Existing Materials	9,420
Energy Efficient Product Manufacturing, Distribution, Construction, Compliance, and Awareness	42,350
Education, Compliance, and Awareness	3,600
Natural and Sustainable Product Manufacturing	3,560



Data sources:
Quarterly Census of Employment and Wages (QCEW) developed through a cooperative program between the States and the U.S. Bureau of Labor Statistics.
2009 Annual Average Total Industry Employment
California's Green Economy
Summary of Survey Results
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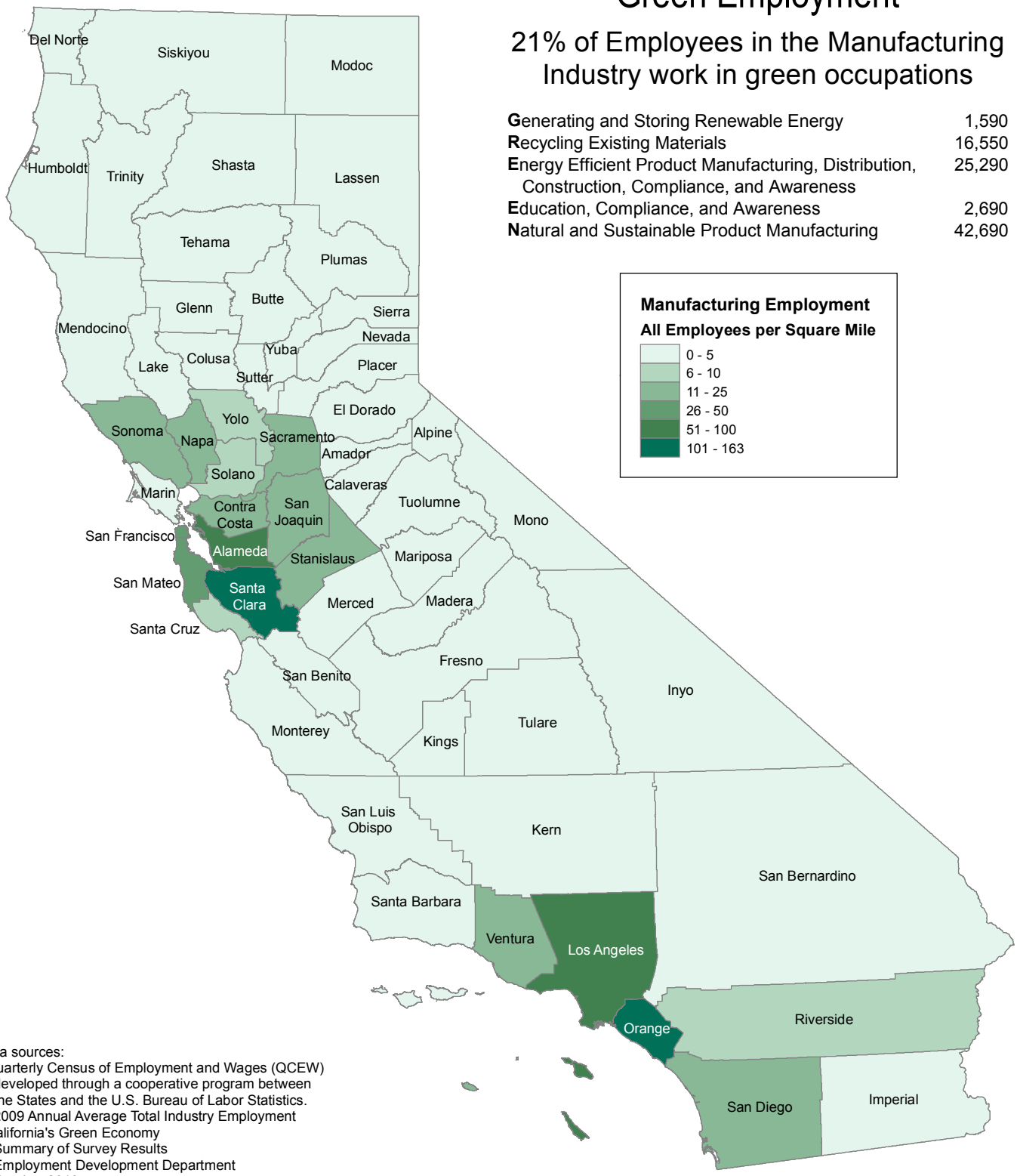
Manufacturing Industry Employment

Green Employment

21% of Employees in the Manufacturing Industry work in green occupations

Generating and Storing Renewable Energy	1,590
Recycling Existing Materials	16,550
Energy Efficient Product Manufacturing, Distribution, Construction, Compliance, and Awareness	25,290
Education, Compliance, and Awareness	2,690
Natural and Sustainable Product Manufacturing	42,690



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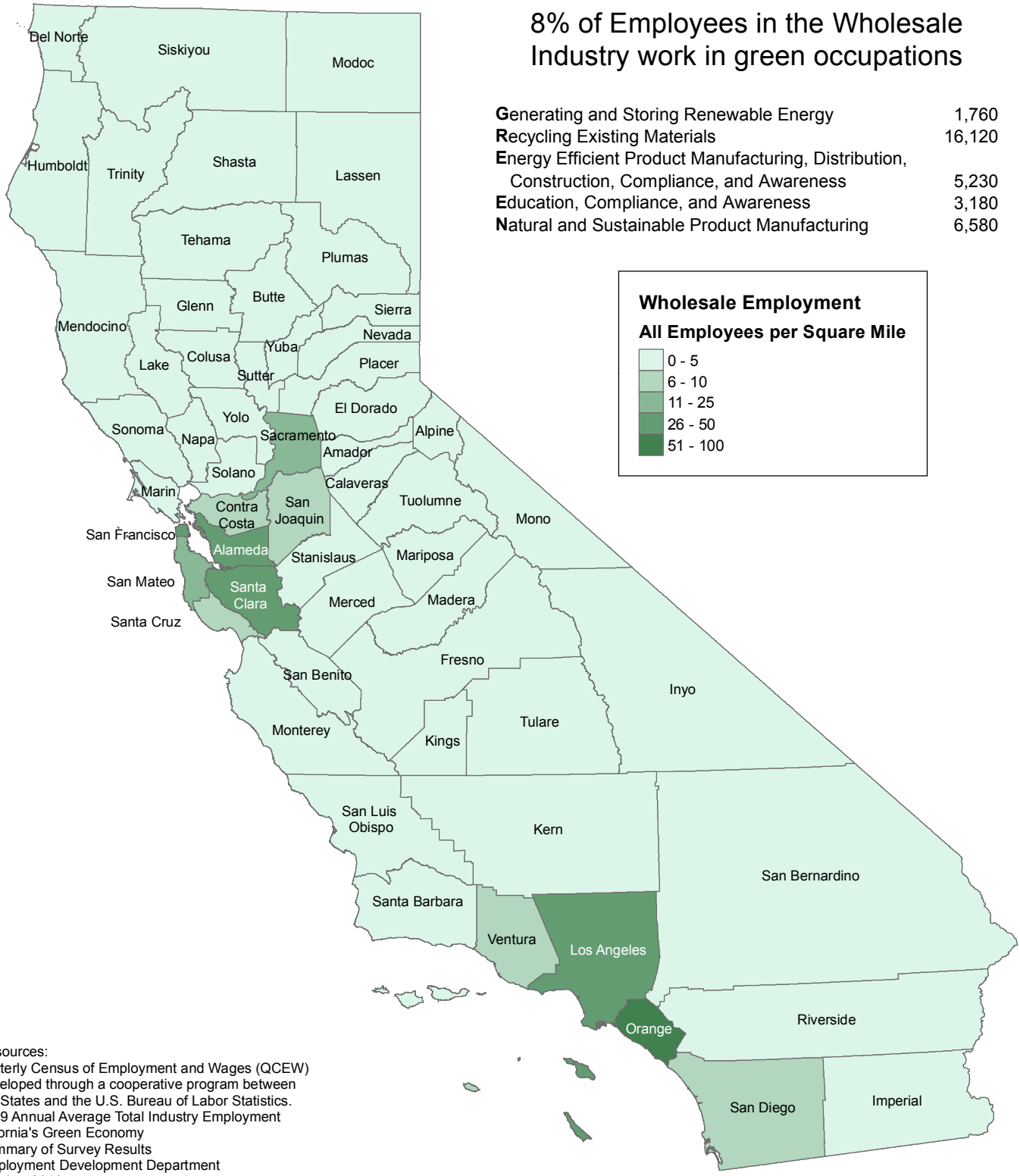
Wholesale Industry Employment

Green Employment

8% of Employees in the Wholesale Industry work in green occupations

Generating and Storing Renewable Energy	1,760
Recycling Existing Materials	16,120
Energy Efficient Product Manufacturing, Distribution, Construction, Compliance, and Awareness	5,230
Education, Compliance, and Awareness	3,180
Natural and Sustainable Product Manufacturing	6,580



Data sources:
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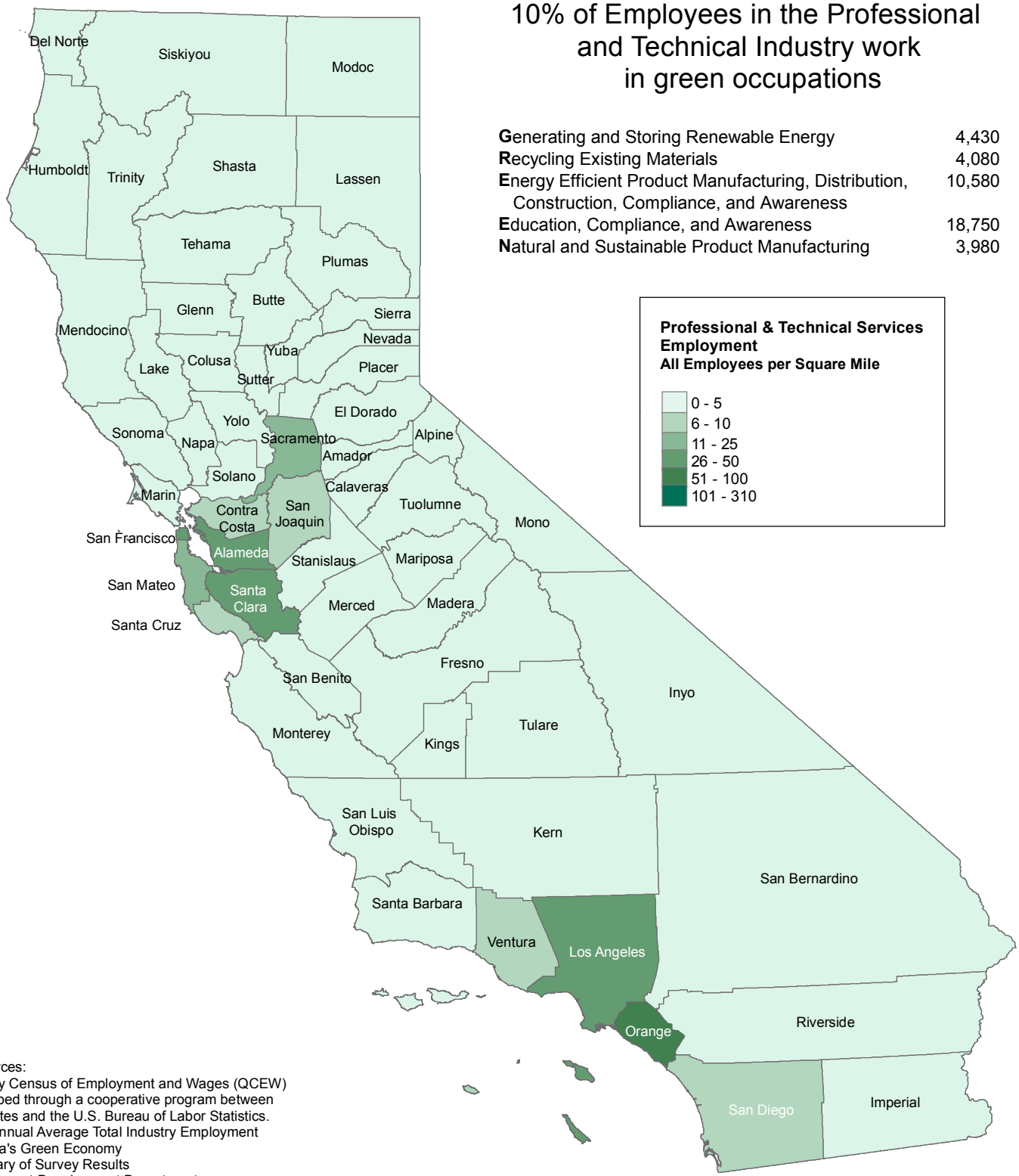
Professional & Technical Industry Employment

Green Employment

10% of Employees in the Professional and Technical Industry work in green occupations

Generating and Storing Renewable Energy	4,430
Recycling Existing Materials	4,080
Energy Efficient Product Manufacturing, Distribution, Construction, Compliance, and Awareness	10,580
Education, Compliance, and Awareness	18,750
Natural and Sustainable Product Manufacturing	3,980



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All maps, data and analysis should be sourced as "State of California, Employment Development Department, 'California's Green Economy, October 2010'".

2016 VENTURA COUNTY COAST PERFORMANCE HIGHLIGHTS

Ventura County Coast
CAMARILLO · OXNARD · VENTURA · PORT HUENEME

Complete **rebrand** with new identity and messaging

- Conducted a **three-day photo / video shoot** to build library of assets

52 leisure ads

34 meeting ads

1 new
20 page website

- Designed all new **trade show** booth materials and experience
- Total Advertising Impressions > **46 M**
- 2016 Web visits > **204 K**

STR Report
YTD 2016

Occupancy = **79.3 %**
RevPar = **$107.90**
ADR = **$136.10**

SOCIAL MEDIA MARKETING

FACEBOOK
21,000 Followers
4,900,000 Reach

TWITTER
200,000 Impressions
5,000 Engaged

INSTAGRAM
7,500 Followers
40,000 Engaged

PUBLIC RELATIONS

Featured in more than **45 articles,**
reaching nearly **11 million people in print**
and **108 million online**

ASSEMBLYMEMBER JACQUI IRWIN and the County of Ventura invite you to the

VENTURA COUNTY AG SUMMIT

STEM (Science, Technology, Engineering & Math) skills will be a necessity for 27% of new agriculture jobs.

Come learn about new innovative jobs and envision your future in agriculture, while discussing legislation on the advancements in STEM education.

FRIDAY, MARCH 31
8 A.M. - 12:30 P.M.

VENTURA COUNTY OFFICE OF EDUCATION
5100 ADOLFO ROAD, CAMARILLO

ADMISSION IS FREE, BUT RESERVATIONS ARE REQUIRED AS SPACE IS LIMITED.

For more information or to RSVP, please call or visit:
(805) 482-1904 • asmdc.org/dw/AgSummit