

Water Efficiency Management Occupations Labor Market Information Report

Prepared by the San Francisco Bay Center of Excellence
for Labor Market Research
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Recommendation

For this proposed new certificate program, Laney College has indicated that “the target audience is current water district employees who are developing or enhancing their skills and abilities to become qualified candidates for promotional or supervisory opportunities.” Because incumbent workers are the target audience, the current employment for the cluster of occupations selected, which is a total of 22,545 for the Bay region and about 7,450 for the East Bay sub-region, would be the potential pool of students for this proposed skill upgrade training. There appears to be a significant number of incumbent workers who could potentially enroll in this proposed program. The traditional supply/demand gap analysis is not relevant in this situation due to the incumbent worker training focus of the program.

This report also provides student outcomes data on employment and earnings for programs on TOP 0958.00 - Water and Wastewater Technology in the state and region. It is recommended that this data be reviewed to better understand how outcomes for students taking courses on this TOP code compare to potentially similar programs at colleges in the state and region, as well as to outcomes across all CTE programs at Laney College and in the region.

Introduction

This report profiles Water Efficiency Management Occupations in the 12 county Bay region and in the East Bay sub-region for a proposed new certificate program at Laney College. Laney College has indicated that “the target audience is current water district employees who are developing or enhancing their skills and abilities to become qualified candidates for promotional or supervisory opportunities.” Because incumbent workers are the target audience, the current employment for the cluster of occupations selected, which is a total of 22,545 for the Bay region and about 7,450 for the East Bay sub-region, would be the potential pool of students for this proposed skill upgrade training. Laney College indicates it has worked with industry and the regional water district in identifying the need for the program.

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

Entry-Level Educational Requirement: High school diploma or equivalent

Training Requirement: Long-term on-the-job training

Percentage of Community College Award Holders or Some Postsecondary Coursework: 43%

- **Conservation Scientists (SOC 19-1031):** Manage, improve, and protect natural resources to maximize their use without damaging the environment. May conduct soil surveys and develop plans to eliminate soil erosion or to protect rangelands. May instruct farmers, agricultural production managers, or ranchers in best ways to use crop rotation, contour plowing, or terracing to conserve soil and water; in the number and kind of livestock and forage plants best suited to particular ranges; and in range and farm improvements, such as fencing and reservoirs for stock watering. Excludes “Zoologists and Wildlife Biologists” (19-1023) and “Foresters” (19-1032).

Entry-Level Educational Requirement: Bachelor’s degree

Training Requirement: None

Percentage of Community College Award Holders or Some Postsecondary Coursework: 0%

- Plumbers, Pipefitters, and Steamfitters (SOC 47-2152):** Assemble, install, alter, and repair pipelines or pipe systems that carry water, steam, air, or other liquids or gases. May install heating and cooling equipment and mechanical control systems. Includes sprinklerfitters.
Entry-Level Educational Requirement: High school diploma or equivalent
Training Requirement: Apprenticeship
 Percentage of Community College Award Holders or Some Postsecondary Coursework: 32%
- Natural Sciences Managers (SOC 11-9121):** Plan, direct, or coordinate activities in such fields as life sciences, physical sciences, mathematics, statistics, and research and development in these fields. Excludes "Architecture and Engineering Managers" (11-9041) and "Computer and Information Systems Managers" (11-3021).
Entry-Level Educational Requirement: Bachelor's degree
Training Requirement: None
 Percentage of Community College Award Holders or Some Postsecondary Coursework: 6%
- Environmental Engineers (SOC 17-2081):** Research, design, plan, or perform engineering duties in the prevention, control, and remediation of environmental hazards using various engineering disciplines. Work may include waste treatment, site remediation, or pollution control technology.
Entry-Level Educational Requirement: Bachelor's degree
Training Requirement: None
 Percentage of Community College Award Holders or Some Postsecondary Coursework: 8%

Occupational Demand

Table 1. Employment Outlook for Water Efficiency Management Occupations in Bay Region

Occupation	2017 Jobs	2022 Jobs	5-Yr Change	5-Yr % Change	5-Yr Openings	Annual Openings	10% Hourly Wage	Median Hourly Wage
Water and Wastewater Treatment Plant and System Operators	2,377	2,551	174	7%	1,181	236	\$24.81	\$37.86
Conservation Scientists	441	477	36	8%	226	45	\$25.91	\$42.07
Plumbers, Pipefitters, and Steamfitters	13,634	15,187	1,553	11%	9,134	1,827	\$15.44	\$27.29
Natural Sciences Managers	3,809	4,131	322	8%	1,890	378	\$47.03	\$75.60
Environmental Engineers	2,283	2,461	178	8%	935	187	\$30.18	\$50.60
Total	22,545	24,808	2,262	10%	13,365	2,673	\$23.46	\$39.22

Source: EMSI 2018.2

Bay Region includes Alameda, Contra Costa, Marin, Monterey, Napa, San Benito, San Francisco, San Mateo, Santa Clara, Santa Cruz, Solano and Sonoma Counties

Table 2. Employment Outlook for Water Efficiency Management Occupations in East Bay Sub-Region

Occupation	2017 Jobs	2022 Jobs	5-Yr Change	5-Yr % Change	5-Yr Openings	Annual Openings	10% Hourly Wage	Median Hourly Wage
Water and Wastewater Treatment Plant and System Operators	694	720	26	4%	314	63	\$28.36	\$44.32
Conservation Scientists	108	118	10	9%	56	11	\$29.85	\$42.35
Plumbers, Pipefitters, and Steamfitters	4,441	5,212	772	17%	3,247	649	\$15.69	\$28.48
Natural Sciences Managers	1,221	1,299	78	6%	576	115	\$48.43	\$72.58
Environmental Engineers	986	1,026	41	4%	362	72	\$30.76	\$54.22
Total	7,449	8,374	925	12%	4,555	911	\$24.43	\$40.79

Water Efficiency Management Occupations in 12 County Bay Region and in East Bay, 2018

Source: EMSI 2018.2

East Bay Sub-Region includes Alameda and Contra Costa Counties

Job Postings in Bay Region and East Bay Sub-Region

Table 3. Number of Job Postings by Occupation for latest 12 months (Sept 2017 - Aug 2018)

Occupation	Bay Region	East Bay
Plumbers (47-2152.02)	409	149
Water and Wastewater Treatment Plant and System Operators (51-8031.00)	80	33
Water/Wastewater Engineers (17-2081.01)	67	27
Soil and Water Conservationists (19-1031.01)	56	6
Water Resource Specialists (11-9121.02)	24	8
Total	636	223

Source: Burning Glass

Table 4. Top Job Titles for Water Efficiency Management Occupations for latest 12 months (Sept 2017 - Aug 2018)

Common Title	Bay	East Bay	Common Title	Bay	East Bay
Plumber	299	124	Senior Wastewater Project Manager	5	5
Service Technician	37	10	7259 Water & Power Maint Sprv	4	
Plumbing Technician	34	7	Land Use Planner	4	
Water Restoration Technician	13		Resource Conservation Specialist, Energy	4	
Water Resources Engineer	12	4	Wastewater Operator, Information And Technology Industry	4	
Resource Conservation Specialist	11		Engineer	3	
Technician	11	6	Habitat Restoration, At Paddock In Park	3	
Facility Plumber	10		Licensed Masters Mental Hlth Prof	3	1
Plumbing Professional	7	2	Licensed Plumber	3	
Senior Wastewater Treatment Design Engineer	6	6	Natural Resources Specialist	3	
Wastewater Operator	6	3	Operator	3	
Wastewater Treatment Plant Operator	6	2	Operator, Water Treatment	3	3
Water Resources Projects Pm	6	6	Owner/Engineer	3	
Remediation Project Engineer	5	3	Raging Sj - Cash Control I	3	

Source: Burning Glass

Industry Concentration

Table 5. Industries hiring Water Efficiency Management Workers in Bay Region

Industry – 6 Digit NAICS (No. American Industry Classification) Codes	Jobs in Industry (2017)	Jobs in Industry (2022)	% Change (2017-22)	% in Industry (2017)
Plumbing, Heating, and Air-Conditioning Contractors (238220)	9,880	11,278	14%	42.5%
Local Government, Excluding Education and Hospitals (903999)	2,407	2,507	4%	10.4%
Research and Development in the Physical, Engineering, and Life Sciences (except Nanotechnology and Biotechnology) (541715)	1,088	1,134	4%	4.7%
Research and Development in Biotechnology (except Nanobiotechnology) (541714)	669	883	32%	2.9%
Natural Gas Distribution (221210)	660	645	(2%)	2.8%
Engineering Services (541330)	653	708	8%	2.8%

Water Efficiency Management Occupations in 12 County Bay Region and in East Bay, 2018

Commercial and Institutional Building Construction (236220)	514	599	17%	2.2%
Federal Government, Civilian, Excluding Postal Service (901199)	449	454	1%	1.9%
Residential Remodelers (236118)	393	424	8%	1.7%
Pharmaceutical Preparation Manufacturing (325412)	315	349	11%	1.4%
Water Supply and Irrigation Systems (221310)	309	353	14%	1.3%
Electrical Contractors and Other Wiring Installation Contractors (238210)	308	346	12%	1.3%
State Government, Excluding Education and Hospitals (902999)	265	273	3%	1.1%
Administrative Management and General Management Consulting Services (541611)	244	287	18%	1.1%
Water and Sewer Line and Related Structures Construction (237110)	233	259	11%	1.0%
Other Scientific and Technical Consulting Services (541690)	226	225	(0%)	1.0%

Source: EMSI 2018.3

Table 6. Top Employers Posting Water Efficiency Management Occupations in Bay and East Bay (Sept 2017 - Aug 2018)

Employer	Bay	Employer	Bay	Employer	East Bay
American Residential Services	18	Mr Rooter	7	Woodard Curran	12
Bellows Plumbing Incorporated	17	Air	6	American Residential Services	10
Grus Construction	13	Construction Company	6	Philco Building Maintenance	9
Woodard Curran	12	County San Mateo	6	Rooter Hero	8
Ars Rescue Rooter	11	East Bay Municipal Utility District	6	East Bay Municipal Utility District	6
Homeadvisor	10	George Salet Plumbing	6	Homeadvisor	6
Payless Water Heaters & Plumbing Inc	10	Roto Rooter	6	Payless Water Heaters & Plumbing Inc	6
Rooter Hero	10	University Of Carlifornia	6	University Of Carlifornia	6
Dependable Rooter And Plumbing	9	AECOM Technology Corporation	5	AECOM Technology Corporation	5
Philco Building Maintenance	9	Clean Harbors	5	Ars Rescue Rooter	5
Sfmta	9	Golden Gate Audubon Society	5	Clean Harbors	4
Kaiser Permanente	8	US Army	5	US Army	4

Source: Burning Glass

Educational Supply

There are three colleges in the Bay Region issuing 48 awards annually on TOP 0958.00 - Water and Wastewater Technology. There are no community colleges in the East Bay with Water and Wastewater Technology programs.

Table 7. Awards on TOP 0958.00 - Water and Wastewater Technology

College	Sub-Region	CIP Code	Headcount	Associates	Certificates	Total
Gavilan	Silicon Valley	n/a	130	7	7	14
Santa Rosa	North Bay	n/a	79	5	10	15
Solano	North Bay	n/a	109	9	11	19
Total Bay Region			2,929	20	28	48
Total East Bay Sub-Region			0	0	0	0

Source: IPEDS, Data Mart and Launchboard

NOTE: Headcount of students who took one or more courses is for 2016-17. The annual average for awards is 2014-17 unless there are only awards in 2016-17. The annual average for other postsecondary is for 2013-16.

Gap Analysis

The traditional supply/demand gap analysis is not relevant with regard to this proposed new certificate program, due to the incumbent worker training focus of the program.

Student Outcomes

Table 8. Four Employment Outcomes Metrics for Students Who Took Courses on TOP 0958.00 - Water and Wastewater Technology

2015-16	Bay (All CTE Programs)	Laney College (All CTE Programs)	State (TOP 0958)	Bay (TOP 0958)	East Bay (TOP 0958)	Laney College (TOP 0958)
% Employed Four Quarters After Exit	75%	68%	83%	87%	n/a	n/a
Median Earnings Two Quarters After Exit	\$13,996	\$9,982	\$12,997	\$16,403	n/a	n/a
Median % Change in Earnings	42%	47%	31%	39%	n/a	n/a
% of Students Earning a Living Wage	63%	61%	78%	81%	n/a	n/a

Source: Launchboard Pipeline (version available on 9/12/18)

Skills, Certifications and Education

Table 9. Top Skills for Water Efficiency Management Occupations in Bay Region (Sept 2017 - Aug 2018)

Skill	Postings	Skill	Postings	Skill	Postings
Plumbing	407	Power Tools	40	Customer Contact	23
Repair	295	Building Codes	39	Lifting Ability	22
Water Heaters	113	Project Management	39	Invoicing	21
Plumbing Repairs	101	Soldering	36	Rehabilitation	21
Plumbing Systems	99	New Construction	34	Water Distribution	20
Drain Cleaning	93	Schematic Diagrams	33	Boilers	19
Customer Service	78	Valve Installation	33	Faucet Repair	19
Water Treatment	60	Residential Plumbing	32	SCADA	19
Pipe Repair	59	Pipe Systems	31	Test Equipment	19
Wastewater Treatment	57	Cost Estimation	30	Carpentry	18
Hand Tools	56	Scheduling	30	Equipment Cleaning	18
Commercial Plumbing	45	Water Quality	29	HVAC	18
Budgeting	44	Calculation	27	Professional Engineer	18
Plumbing Maintenance	44	Welding	27	Environmental Science	17

Source: Burning Glass

Table 10. Certifications for Water Efficiency Management Occupations in the Bay Region (Sept 2017 - Aug 2018)

Note: 79% of records have been excluded because they do not include a certification. As a result, the chart below may not be representative of the full sample.

Certification	Postings	Certification	Postings	Certification	Postings
Driver's License	184	Certified Heavy Equipment Operator	4	Engineer in Training Certification	3
Wastewater Treatment Plant Operator	26	Contractors License	4	First Aid Cpr Aed	3

EPA CFC/HCFC Certification	8	Licensed Clinical Social Worker (LCSW)	4	LEED AP	2
American Institute of Certified Planners	7	Social Work License	4	Lock Out Tag Out	2
Plumbing Certification	6	Back-Flow Prevention Certificate	3	Microsoft Certified Solutions Expert (MCSE)	2
Back-Flow Certification	5	Backflow Prevention Certification	3	Occupational Safety and Health Administration Certification	2
Licensed Professional Engineer	5	CDL Class B	3	Plumbing License	2
Wastewater Treatment Certification	5	CDL Class C	3	Security Clearance	2
American Board for Engineering and Technology (ABET) Accredited	4	Electrician Certification	3	Air Brake Certified	1

Source: Burning Glass

Table 11. Education Requirements for Water Efficiency Management Occupations in Bay Region

Note: 66% of records have been excluded because they do not include a degree level. As a result, the chart below may not be representative of the full sample.

Education (minimum advertised)	Latest 12 Mos. Postings
High school or vocational training	131 (60%)
Associate Degree	14 (7%)
Bachelor's Degree or Higher	70 (33%)

Source: Burning Glass

Methodology

Occupations for this report were identified by use of skills listed in O*Net descriptions and job descriptions in Burning Glass. Labor demand data is sourced from Economic Modeling Specialists International (EMSI) occupation data and Burning Glass job postings data. Educational supply and student outcomes data is retrieved from multiple sources, including CTE Launchboard and CCCCCO Data Mart.

Sources

O*Net Online
 Labor Insight/Jobs (Burning Glass)
 Economic Modeling Specialists International (EMSI)
 CTE LaunchBoard www.calpassplus.org/Launchboard/
 Statewide CTE Outcomes Survey
 Employment Development Department Unemployment Insurance Dataset
 Living Insight Center for Community Economic Development
 Chancellor's Office MIS system

Contacts

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