

# Key Findings, 2009

## Water & Wastewater Occupations in the Bay Region



Centers of Excellence  
Economic and Workforce Development  
California Community Colleges

The Centers of Excellence, in partnership with business and industry, deliver regional workforce research customized for community college program decision making and resource development.

The Water and Wastewater Occupations study is a joint project of the Bay Region COEs and BAYWORK. For additional information, go to:

[www.coecc.net/water](http://www.coecc.net/water)

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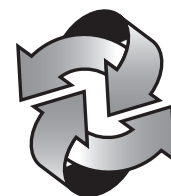
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**BAYWORK**

bay area water/wastewater  
workforce development  
collaborative

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**ECONOMIC &  
WORKFORCE  
DEVELOPMENT**  
through the  
CALIFORNIA  
COMMUNITY  
COLLEGES

## Research Objectives

In 2009, the Bay Region Centers of Excellence (COE) and the Bay Area Water/Wastewater Workforce Development Collaborative (BAYWORK), conducted a study of the water and wastewater utilities and agencies across six Bay Area counties. The partnership focused on gathering both quantitative and qualitative employment data through a workforce survey in order to better understand the workforce challenges faced by employers. Key findings from the survey are summarized in this report. A more in-depth environmental scan report will be released in December 2009.

In the first research activity, the COE-BAYWORK workforce survey gathered information on:

- Current number and size of water/wastewater divisions within agencies/utilities in the targeted six counties
- Future job growth and the need to replace workers who will soon be eligible to retire in seven “mission critical” occupations relevant to community colleges
- Level of difficulty in hiring for each of these positions
- Current salary ranges for these key occupations
- Industry interest in accessing community college education and training programs

The second research activity includes a survey of Bay Area community college programs related directly to water and wastewater operations as well as those that prepare individuals for support occupations such as mechanic, electrician and electronic maintenance technician. The community college program survey will identify existing and planned courses and programs and can be used to inform program development, expansion and/or adaptation in the region.



## Water & Wastewater Utilities and Agencies

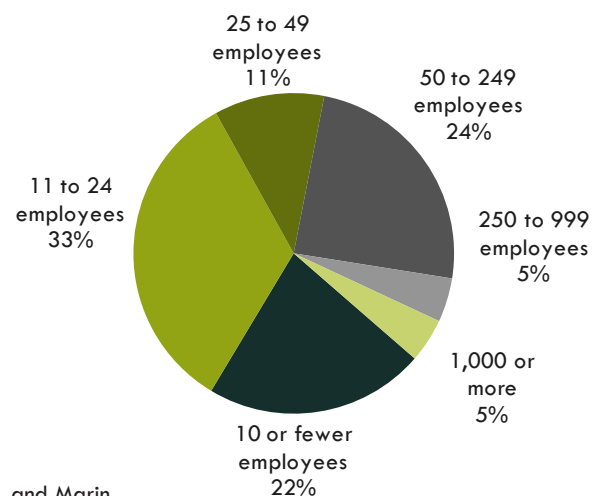
Utilizing a preliminary assessment of water and wastewater utilities and agencies, BAYWORK identified seven mission critical occupations that face significant workforce challenges in the near future.

- Seventy-seven water and wastewater utilities and agencies from six Bay Area counties were asked to participate in the workforce survey.<sup>1</sup>
- Of these, 45 utilities and agencies completed the survey. The data in this document represents the information submitted by this group of employers.
- The findings of this study will be used by Bay Area community colleges to help assess the nature of the support they can provide the water/wastewater industry, so that qualified candidates are available to fill vacant positions.

## Size of Firm

Water and wastewater utilities and agencies were asked how many full-time permanent employees work in their water and/or wastewater department or section.

The data compiled on the size of overall employment reveals that most of the departments or sections are small, with a majority (55%) reporting fewer than 25 employees. This data is reflected in the pie chart on the right.



<sup>1</sup> The six counties are San Francisco, San Mateo, Santa Clara, Contra Costa, Alameda, and Marin.

## Occupational Employment

The following table contains the sample data collected for the seven mission critical occupations in the Water and Wastewater Occupations study. Employers were asked to detail their current employment, project future growth (new jobs), and estimate retirement eligibility (replacement jobs).<sup>2</sup> For each occupation, the following job levels were included: apprentice or trainee, journey-level, and supervisory.

- The 45 water and wastewater utilities and agencies that responded to the workforce survey collectively employ almost 1,600 workers in the target occupations. In five years, there may be as many as 677 new and replacement jobs for these positions.<sup>3</sup>
- Wastewater treatment operator is the largest occupation surveyed, with more than 430 jobs in 2009. Retirement eligibility for wastewater treatment operators may be as high as 45% over the next five years and the demand for workers could exceed 210 jobs (new and replacement jobs).
- Water treatment operator is the second largest occupation of the group, with close to 240 workers currently employed. With replacement rates of 45%, Bay Area employers may need workers to fill as many as 106 positions within five years.

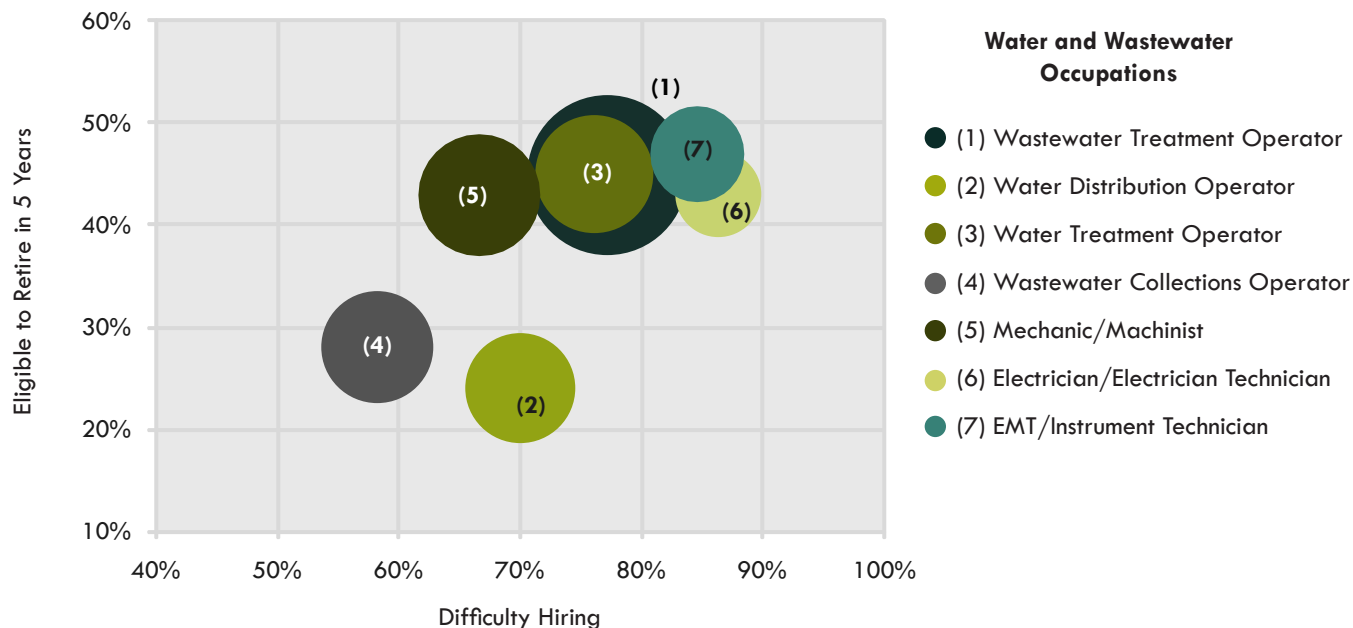
Water and Wastewater Occupations	2009 Employment	5-year Growth Rate (new job growth)	Eligible to Retire in 5 years (replacement rate)	New & Replacement Jobs (in 5 years)
<b>Water Treatment Operator</b> – Performs water treatment function. T-3 certification from Department of Health Services is generally where the journey level starts.	238	1%	45%	106
<b>Water Distribution Operator</b> – 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.	202	1%	24%	49
<b>Wastewater Treatment Operator</b> – Performs wastewater treatment function. Usually requires Grade 3 certification by Regional Water Quality Control Board.	433	6%	45%	214
<b>Wastewater Collections Operator</b> – Performs wastewater collections function. Usually requires Grade 2 certification by California Water Environment Association.	212	15%	28%	90
<b>Mechanic/Machinist</b> – Maintains mechanical equipment associated with water and wastewater transmission, distribution, storage, and treatment.	229	2%	43%	101
<b>Electrician/Electrician Technician</b> – Maintains, repairs, tests, installs, modifies, calibrates, and trouble-shoots electrical equipment used in the facilities and systems of water and wastewater utilities.	126	2%	43%	52
<b>Electronic Maintenance Technician/Instrument Technician</b> – Maintains, repairs, tests, installs, modifies, calibrates, and trouble-shoots electronic, pneumatic, and control equipment associated with the facilities and systems of water and wastewater utilities.	134	4%	47%	65
<b>Total</b>	<b>1,575</b>	<b>5%</b>	<b>40%</b>	<b>677</b>

<sup>2</sup> Data shown here reflects 5-year expectations. The full Water and Wastewater Occupations report will contain survey results in greater detail, including 3-year growth rates and percentage of current workers eligible to retire in 3 years (replacement rate).

<sup>3</sup> New and replacement job totals are calculated from raw survey data. New job growth and replacement rate percentages are rounded to the nearest whole number.

## Workforce Challenges

Employers indicated difficulty in hiring for all seven occupations. The chart below shows the percentage of workers eligible to retire in 5 years (replacement rate) in relationship to the level of difficulty finding qualified applicants for each occupation. The area or size of each bubble represents the size of current employment.



## Education and Training

Employers responded to survey questions about community college education and training options that currently exist or can be developed in the Bay Region.

- Two-thirds of employers surveyed expressed great interest in an Associate degree or certificate program for water and wastewater operators.
- Nine out of 10 employers indicated interest in an internship, apprenticeship, or work-study program through the community colleges.
- More than 70% of employers indicated interest in a certificate program for electronic maintenance technicians or instrument technicians, with 48% expressing great interest.

## For More Information

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This document is available to download at [www.coeccc.net/water](http://www.coeccc.net/water). A more in-depth environmental scan report will be released in December 2009.