

#6

COMPLETE

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Page 1: I. Program Overview and Update

**Q1**

I.1. Department(s) Reviewed:

Center for Water Studies

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**Q2**

I.2. Lead Author:

Joe Young

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**Q3**

Respondent skipped this question

I.3. Collaborator(s) - List any person that participated in the preparation of this report:

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**Q4**

1.4. Dean/Manager:

Larry McLemore

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**Q5**

Initial Collaboration Date with Dean:

Enter the initial date you met **08/16/2021**  
with your dean to discuss  
your program review using  
this format: MM/DD/YYYY

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Page 2: II. Program Reflection and Description

**Q6**

II.1. Provide your program's mission statement:

The Cuyamaca College CENTER for WATER STUDIES Program will offer quality educational courses providing students with the technical training necessary to prepare them for entry-level jobs in the water and wastewater industry, to pass industry recognized and/or required certifications, and to enhance career advancement opportunities for industry employees already working in the industry. These goals will be accomplished through quality academic programs, industry and community networking, and internships and cooperative work experience opportunities. We work closely with our Industry Advisory Committee to ensure that the program stays current with emerging technologies and industry best-practices, and all full and part-time program instructors either currently work in, or are recently retired from, local water & wastewater agencies.

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**Q7**

II.2. How is this program advancing the college mission, vision and values?

The Center for Water Studies program has been very successful over a long number of years in two critical areas: providing its students with the knowledge necessary to successfully pass state mandated State Water Resources Control Board (SWRCB) certifications required for industry employment, and in CWS students achieving success in gaining full-time employment with a water or wastewater agency. Feedback from students indicates an anecdotal success rate on the order of about 80% in passing SWRCB exams for Treatment and Distribution Operator certification. The program also knows of approximately 100 students over the last two to three years that have been successful in gaining full-time employment in the industry (the figure may well be higher, but we only have information on students that have stayed in touch with the program). This supports the college mission and goals by achieving student success in gaining required certifications, employment in the waterworks industry, and pursuing rewarding careers in their chosen fields of endeavor.

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**Q8**

II.3. How does your program support the college's strategic goal of implementing guided pathways?

The Center has developed new stackable certificates that facilitate the student's comprehension of the appropriate classes and the proper progression of classes that promotes success in the students chosen discipline. Each of the three levels of stackable certificates satisfies the pre-requisites necessary to apply for the State Water Resources Control Board (SWRCB) certification exams at three progressive levels in the students chosen discipline. SWRCB certification is a necessary step towards achieving employment in the water industry. The stackable certificates provide a clear path for the students to follow to reach their educational and career goals. In addition, CWS has developed degree maps to guide students toward achieving their degrees in the shortest possible time and the most efficient manner to promote success.

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**Q9**

**Yes**

II.4. Is the program description in the current college catalog up to date and accurate?

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Page 3: III. Course Curriculum, Assessment and Student Success

**Q10**

**Yes**

III.1. Access the Five Year Curriculum Review Cycle (requires GCCCD login). Have all of your active courses outlines been reviewed within the last five years?

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**Q11**

III.2. Please list any planned changes from the current semester forward for curriculum (courses, degrees, and/or certificates) and the rationale for those changes (e.g., labor market data, advisory committee recommendations, transfer institution changes, industry trends, statewide transfer model curriculum).

The CWS program will develop two new courses, Advanced Water Treatment I and Advanced Water Treatment II, and develop a new degree program titled Advanced Water Treatment. The latest technology and trend in the water industry involves taking wastewater, purifying it through a series of advanced processes, and re-introducing it into the drinking water supply. The City of San Diego is currently under construction with a 33 million gallon per day (mgd) treatment plant employing these new processes and technologies. Padre Dam MWD is also constructing a 12 mgd advanced water purification project. Both projects will be operational within the next two years. There are about a dozen other advanced water purification projects in various stages of development throughout the state of California. A new certification has been developed (Advanced Water Treatment, or AWT) that is now required for employment in a facility utilizing these new advanced treatment processes and technologies. It is of critical importance to the CWS program to develop coursework and a degree program that focuses on the processes and technologies utilized in Advanced Water Treatment. This is the wave of the future for the water and wastewater industry, and our CWS students will be well served to have this instruction and preparation for the AWT certification available to them to take advantage of these new opportunities for waterworks employment.

The decision to pursue this new AWT Major was informed by the direction the water industry has taken, out of necessity, in recent years to implement water re-use. After decades of drought, climate change, population growth, and the resulting scarcity of imported water supplies, the trend towards converting wastewater into drinking water and reusing it was inevitable. This need was the driving force behind developing new technologies and processes utilized in purifying wastewater, which include membrane technology, ozonation, reverse osmosis, ultraviolet disinfection, and advanced oxidation. It is imperative that the CWS program offer instruction in these new technologies so that our students can prepare themselves for AWT certification and the numerous job opportunities that this new water treatment certification will provide.

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**Q12**

III.3. How is your program meeting the needs of students, and/or articulation with four-year institutions?

The focus of the CWS program is to prepare students to gain employment in entry-level water and wastewater job opportunities, and to build a rewarding and satisfying career in the industry. The water industry includes a broad spectrum of opportunity, with varied career paths that include treatment, collection, distribution, cross-connection control, and water resources management. The CWS program includes degrees and certificates in six areas of specialization, and 28 courses that cover the full range of water industry disciplines. Employment in the water industry requires a variety of certifications, mandated by law and administered by the California State Water Resources Control Board (SWRCB), in order to work in the industry. The CWS program includes numerous classes that qualify students to sit for the full range of SWRCB certification exams, and these classes are centered around teaching students the knowledge necessary to qualify for and pass the required exams.

All of the instructors in the CWS program are long-term water industry veterans with deep roots and connections within the water and wastewater industry, and they provide our students with outstanding career guidance and direction to assist students in finding their path to water industry employment. In addition to knowledge-based and technical instruction, the guidance we offer includes advice on navigating the competitive hiring process, filling out applications, resume writing, and interview skills that are key to successfully landing their first water industry job.

The CWS program has a long history of success in students passing the necessary SWRCB certifications and gaining water industry employment. Former CWS students that have established careers in the industry return to our program to work towards higher level certifications to become eligible for promotions and career advancement.

The CWS program recently established a 4-year bachelor's degree program in partnership with National University to assist program graduates and water industry employees in gaining eligibility for upper-level management positions in water agencies that require applicants to have a bachelor's degree to qualify for those positions. The Center for Water Studies Associates Degree in any CWS discipline will qualify the student to enroll in the bachelor's degree program through National University.

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**Q13**

III.4. Please upload the most recent version of your program's course SLO assessment plan. [Click here for an Assessment Plan Template](#)

**CWS SLO Assessment Plan Fall '19 through Spring '23.pdf (151.9KB)**

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**Q14**

III.5. Please provide a high-level analysis of your SLO findings over the past year and discuss what changes, if any, were made as a result. Include any student learning-related successes and challenges that SLO results have revealed for your department.

The most recent SLO assessment included all courses offered in Fall '19 and some courses offered in the Spring '20 semesters. 14 CWS courses were assessed in Fall 19, which included 61 SLO's with an average success rate of 82%. 3 CWS courses were assessed in Spring '20, which included 13 SLO's with an average success rate of 83%.

The results of the 17 assessed courses were discussed at the CWS department (Zoom) meeting held in August 2020. The CWS SLO's that indicated improvement was needed are all related to mathematical calculations regarding water & wastewater treatment, pipe flow, flow velocity, pumping calculations, time and volume transfer relationships of moving water, blending and solution strength, and similar mathematical calculations. It has been shown in past assessments that the math component is generally the most challenging for the students to comprehend, and yet is critical to student success in passing SWRCB water industry certifications necessary for employment. The following recommendations were agreed upon by the program instructors:

1. Adjust lesson plans to focus more aggressively on the math components of the class.
2. Review homework assignments to assure that math is sufficiently included to give students more practice working problems.
3. Include frequent short quizzes to provide students more ongoing feedback on their math skills.
4. Develop and post additional practice math problems for those students who desire some extra work developing their math skills.
5. Promote the use of the tutoring center to students who are having difficulty in performing mathematical computations.

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Page 4: IV. Degree and Certificate Programs

**Q15**

Yes

IV.1. Does your program offer any degree/certificate programs?

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Page 5: IV. Degree and Certificate Programs

**Q16**

IV.2. For each degree and certificate, indicate how many awards were conferred in the past 5-years.

**Degrees & Certificates.pdf (117KB)**

**Q17**

IV.3. Please indicate when each degree and certificate was last reviewed and updated (semester):

During the 2018-19 fiscal school year

**Q18**

IV.4. Can students complete the degree/certificate requirements within a 2-year period? \*\*Requirement of Title 5, California Code of Regulations and Accreditation Standard II.A.

No, please explain::

When the program transitioned from the "Water & Wastewater Technology Program" to the new "Center for Water Studies Program" in the 2018-19 school year, a certain level of rigor was added to achieving the degrees and certificates within the program. Generally, the degrees and certificates now require 36 units of study instead of the 30 units previously required. It is technically feasible to attain the required units within the two-year period, but it takes a little more effort and determination by the student to do so, particularly when adding the general education requirements to earn the AS degree.

**Q19**

IV.5. How are you currently assessing your PLOs? \*Note: The college requires assessment of PLOs within a 4-year cycle

PLO Assessment for CWS was last performed in 2018-19, utilizing the results of the SLO assessment data. All Program PLO's for all six of the program's majors were assessed. First, the mapping of CWS SLO's to the CWS PLO's was reviewed at the Department meeting by all CWS instructors. The mapping was considered appropriate by consensus of the instructors, and no changes were made. The SLO success percentage is inserted into the SLO/PLO mapping grid and the PLO success percentage is calculated accordingly. The aggregate success rate of the six CWS program majors for the PLO Assessment conducted 2018-19 is summarized in the following table:

Major	Aggregate Score
Water Resources Management	86.1%
Water Treatment Plant Operator	79.3%
Water Distribution System Operator	86.0%
Wastewater Collection Systems	90.9%
Wastewater Treatment Operator	82.6%
Backflow & Cross-Connection Control	74.0%
Center for Water Studies Program Aggregate	82.7%

**Q20**

Yes

IV.6. Are the PLOs in the catalog an accurate reflection of the department or discipline's current learning objectives?

Page 6: IV. Degrees and Certificate Programs continued

**Q21**

Yes

IV.7. Are the PLOs mapped to the course SLOs?

Page 7: IV. Degree and Certificate Programs continued

**Q22**

IV.8. The College has set a 2024 goal of reaching a 77% course success rate (students passing with a grade A, B, C or P out of those enrolled at census) for the College as a whole. What is your department or discipline's 4-year (2024-25) goal for success rate across all courses in the department or discipline and how has the department or discipline's success rate across all courses changes within the past 4-years?

The Center for Water Studies 4-year goal for success rate is to achieve or better the Colleges success rate goal of 77%. Over the past 5 years, the CWS success rate has averaged 83.2%, and has steadily improved over the five-year period. The rate of improvement has been 0.82% per year, rising from 80% in Fall '16 to 90% in Spring '21 across all courses.

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**Q23**

IV.9. What other qualitative or quantitative data (from any source) is the program using to inform its planning for this comprehensive program review? Please reference additional internal or external data, such as retention and enrollment, student survey results, focus groups, student throughput, or other data, if there are any notable trends.

The last five years productivity data will be primarily used to inform planning for CWS. The pandemic has had a significant detrimental effect on our program. Enrollment is down 45% over the last 5 years. Fill Rate is down 34% over the same period. WSCH/FTEF and FTES/FTEF are similarly trending down. As a result, outreach and recruitment will be the number one priority of the Center for Water Studies going forward. This plan aligns with our goals set in the last annual report. (see Goals)

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**Q24**

IV.10. Please review the college-wide and program data sets, which have identified equity gaps based on the following criteria: 3% n=10 students/enrollments. Which groups are experiencing equity gaps in your program? Please discuss all equity gaps identified in the data.

In reviewing the five years of data for the CWS program, what stands out is the high degree of success across the majority of ethnic groups. All ethnic groups exceeded the college goal of 77% success rate except African American/Black (68% success) and Middle Eastern (71% success). Additionally, all ethnic groups trended positive improvement over the five year period except Asian (-0.24% per year, however, the Asian group had an average success rate of 88% over the same period).

There were three ethnic groups with significant equity gaps: African American/Black (average gap 17.1%), Hispanic/Latino (average gap 3.9%), and Multiple Race (average gap 6.8%).

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**Q25**

IV.11. What department/discipline (or institutional) factors may be contributing to these lower rates of success for these groups of students?

Many students, of all ethnicities, come into our program unprepared for the college learning experience. There are many factors that contribute to their lack of success. They may not possess certain personal traits that promote success: strong work ethic, self-motivation, self-development skills, ability to meet deadlines, taking responsibility, etc. They may not have had the technical STEM education and background that would benefit them in our program coursework: basic math skills, science education, analytical skills, problem solving skills, etc. The strengths and weaknesses that students bring with them into the classroom are established long before we have an opportunity to work with the student.

That being said, it is important to understand that all of the CWS faculty are committed to working with each and every student to facilitate and promote student success. All students are treated with respect, receive the same training and instruction, and are given the same opportunity to succeed in our program. We utilize every college support mechanism available to assist students that are falling behind: counseling, tutoring, help desk, financial aid, Canvas support, etc. Instructors offer one-on-one tutoring before and after class to students who appear to be struggling. It is ultimately up to the student to take advantage of the offer of assistance, they cannot be forced to accept it.

In our program, the bottom line is for students to qualify for, and pass, State mandated water industry certifications necessary to gain employment in the waterworks industry. Our coursework is aligned with the knowledge, skills, and abilities required to acquire State Water Resources Control Board certifications that students must have to gain employment in the industry. To teach anything less than preparation for these water industry certifications would not be serving our students best interests.

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**Q26**

IV.12. What action will the department or discipline take to address these equity gaps in the short-term (next year) and long-term (next four years)? Consider the specific steps your department will take to address equity gaps and discuss any plans for diversifying department faculty in alignment with the GCCCD Board Resolution 20-015.

I honestly don't know what can be done to address the equity gaps in the success rates. I don't believe the CWS curriculum contains any systemic institutional and structural barriers that would prevent minority students from achieving success. However, I'm open to any ideas and/or suggestions that could improve the outcomes.

Regarding diversification of the CWS faculty, understand that these individuals are waterworks industry professionals that hold high-level supervisory and management level positions. They don't pursue this work because they need the money. They are enthusiastic about the waterworks industry, their work and careers, and they only teach in our program because they want to share their knowledge and give something back to the industry where they found a very rewarding career. They want to help others find a path to a rewarding waterworks career like the one they found. There isn't a large pool of qualified people seeking this type of work, and I am fortunate to have this dedicated group working in our program. If a qualified minority applicant makes an inquiry regarding an available position, they would receive every consideration and I would be pleased to accommodate them. Currently, the CWS program is not in need of additional instructors.

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**Q27**

IV.13. What did your program learn from the transition to remote teaching and operations over the past year? How can this be used to improve the student experience in the future?

The consensus of the instructors, and my opinion as well, is that the remote teaching experience was negative. You cannot improve on the personal interaction with the student and the connections you can achieve collaborating together in the classroom face-to-face. My sense was that the students didn't like remote teaching any better. I felt that the students were not sufficiently engaged in the class in the remote environment. Since we transitioned the old Water & Wastewater Technology program into the Center for Water Studies program a couple of years ago, a primary focus of our program has been hands-on learning, learning by doing. That was the purpose behind building the Field Operations Skills Yard and developing the Backflow lab and the Water Quality Analysis lab. Hands-on learning cannot be achieved in a remote learning environment.

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**Q28**

OPTIONAL DOCUMENT UPLOAD 1: Please upload any data-related documents you would like to attach to your program review using the button below. PDF and Word documents may be uploaded.

**Success by Ethnicity Chart.pdf (18KB)**

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**Q29**

OPTIONAL DOCUMENT UPLOAD 2: Please upload any other data-related documents you would like to attach to your program review using the button below. PDF and Word documents may be uploaded.

**Enrollment.pdf (15.6KB)**

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Page 8: IV. Degree and Certificate Programs continued

**Q30**

**No**

Does your program offer courses via distance education excluding emergency remote teaching in 2020-21 (classes that would have been taught in person, if not for the pandemic)?

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Page 9: IV. Degree and Certificates Programs continued

**Q31**

**Respondent skipped this question**

IV.14. Are there differences in success rates for distance education (online) versus in-person sections?

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**Q32**

**Respondent skipped this question**

IV.15. If there are differences in success rates for distance education (online) versus in-person classes, what will the program do to address these disparities?

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**Q33**

Respondent skipped this question

IV.16. What mechanisms are in place to ensure regular effective contact (Guided to Best Practices in Online Teaching) within online courses across the discipline or department?

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**Q34**

Respondent skipped this question

IV.17. What innovative tools and strategies are you using in your online courses to engage students and support student success?

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Page 10: IV. Degree and Certificate Programs continued

**Q35**

Yes

IV.18. Is your program a career education program (e.g., does it prepare student to directly enter the workforce)?

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Page 11: IV. Degree and Certificate Programs continued

**Q36**

IV.19. Please share your observations about the employment rate for your program over the past several years.

There is no formal tracking mechanism to accurately fix employment rates achieved by CWS students and graduates. Feedback from past students suggest an anecdotal rate in the range of 40-50% of students are hired in the waterworks industry. Over a span of 24 years teaching in the CWS program (9 full-time, 15 part-time), I personally know of hundreds of former students working in the industry. The success rate of CWS students in passing the SWRCB certifications is anecdotally on the order of 75%.

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**Q37**

IV.20. What is the institution-set standard for your program's employment rate? The institution set standard is what you would consider the lowest acceptable employment rate for your program (or "floor").

I am unaware of any formal institution-set standard. I think a rate of 60-70% may be achievable.

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**Q38**

IV.21. What would you like your program's employment rate to be, ideally (stretch goal)?

I think the 60-70% rate would be great.

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Page 12: IV. Career Exploration and Program Demand (All Programs)

**Q39**

IV.22. What is your program doing to prepare students for successful transition (e.g. transfer and career readiness)? Please include information on how your program is helping students explore careers in your program area.

In addition to curriculum that focuses on the knowledge, skills, and abilities necessary to pass waterworks industry certifications necessary to gain employment, we developed a new class in 2018 titled Career Pathways in Water & Wastewater (CWS 100). CWS 100 explores the broad range of careers available in the waterworks industry, and additionally prepares students for the rigorous hiring process encountered in the industry. Job searches, filling out applications, developing resumes, and how to present oneself in an interview is covered within the course. Students who are new to the industry, or just aren't sure which career path to pursue, benefit greatly from this class. Student feedback on this course has been exceptionally positive.

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**Q40**

IV.23. What do the latest labor market data reveal about the careers (including those for transfer students) for which your program prepares students? Consider what career information you would share with students on a career or transfer pathway in your area. Labor market data may be sourced from the California Employment Development Department. You can also contact the Institutional Effectiveness, Success, and Equity Office to access additional labor market information related to your program.

The labor market data suggest that the pay level in our local area (San Diego-Chula Vista-Carlsbad) is above the national average, but the job openings available are less than the national average. One factor that is not reflected in the labor market data is the accelerated rate of retirements that is occurring now and has been occurring for several years. The average age of higher-level Treatment and Distribution Operators is in the 50+ years range, and many operators of retirement age are now making that decision. Over the last semester alone, I posted about 25 job openings for entry level positions. I am convinced that opportunities in the waterworks industry are plentiful, and will only get better in the years to come.

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**Q41**

OPTIONAL - If your program has labor market data to include in your program review, please use the upload button to attach the file.

**WWTR Labor Statistics.pdf (860.3KB)**

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Page 13: IV. Strengths, Challenges & External Influences

**Q42**

IV.24. Please describe your program's strengths.

- Dedicated full-time instructor teaching 5 core courses in the program.
  - Strong group of adjunct faculty from the water and wastewater industry.
  - Coordination and cooperation with other Water and Wastewater Technology Programs in the state (achieved through our California Water Works grant efforts).
  - Strong cooperation and support from local water & wastewater agencies.
  - A solid and dedicated Industry Advisory Committee.
  - Support from water industry associations including the American Water Works Association (AWWA) and the California Water Environment Association (CWEA).
  - Access to offsite training and tours of working facilities at no cost to the college.
-

**Q43**

VI.25. Please describe your program's challenges.

- Encouraging local water and wastewater agencies to increase the number of internship and cooperative work experience opportunities available to our students.
  - Better preparing our students for the competitive application, screening, and interviewing regimen utilized by local water & wastewater agencies to improve their success in the hiring process.
  - Hiring an additional full-time instructor with a strong wastewater background to anchor the wastewater side of our program, and to assist in developing the proposed Advanced Water Treatment (AWT) courses and degree.
  - Ensuring that our program offerings stay current with the rapidly evolving technology and operational practices employed by the water and wastewater industry, in particular the new AWT technology.
  - Developing outside funding through water industry donations and activities to support the program.
- 

**Q44**

IV.26. Please describe external influences that affect your program (both positively and negatively).

The external influences on the CWS Program are primarily from the Water & Wastewater Industry. The coursework provided by the program must match the specific knowledge, skills, and abilities that the water and wastewater agencies are looking for in new hires. The coursework must also reflect the knowledge necessary to pass state-mandated certification exams required for employment in most positions at a water and/or wastewater agency. Many changes in the industry have occurred over the last decade in response to climate change, supply shortages, growing populations, and increased regulations. Keeping our curriculum aligned with new technologies and operational practices employed in the industry is a constant challenge. Preparing students for the rigorous application, interviewing, and hiring regimen employed by the industry has been challenging as well.

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**Q45**

IV.27. Given these factors, what opportunities exist for the program to advance student success and equity in the next 4 years?

The student success data for the CWS program shows a trend of increasing success over the last five years. I see no reason why that positive, upward trend should not continue. The CWS faculty is committed to work towards improving student success and endeavoring to close the equity gaps that exist. Utilizing the student support programs that are available should improve the outcomes, referring students as appropriate to counseling, tutoring, help desk, financial aid, and Canvas support.

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Page 14: V. Previous Goals

**Q46**

1. Previous Goal 1:

Create new STEM pathways in the CWS program by developing a four-year baccalaureate degree program in water & wastewater management and administration.

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**Q47**

**Guided Student Pathways**

2. Which College Strategic Goal does this department goal most directly support? (Check only one)

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**Q48**

**Completed**

3. Goal Status

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Page 15: V. Previous Goals continued

**Q49**

Please describe the results or explain the reason for the deletion/completion of the goal:

The CWS program, in partnership with National University, has developed four-year baccalaureate degree program in Public Administration with emphasis on water-industry specific topics.

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**Q50**

**Yes**

Would you like to submit another previous goal?

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Page 16: V. Previous Goals continued

**Q51**

**Respondent skipped this question**

Would you like to submit another previous goal?

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Page 17: V. Previous Goals continued

**Q52**

1. Previous Goal 2:

Improve workforce development as follows:

- 1) Recruit transitioning military members, women and other underrepresented populations for entry into the water & wastewater industry through nontraditional pathways
  - 2) Create an apprenticeship program for transitioning active-duty military members and veterans
  - 3) Create a resource guide toolkit for recruiting minority and underrepresented students into STEM.
- 

**Q53**

**Guided Student Pathways**

2. Which College Strategic Goal does this department goal most directly support? (Check only one)

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**Q54**

**In Progress - Please describe the goal and action steps in the 4-Year Goals section (Section VI.)**

3. Goal Status

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Page 18: V. Previous Goals continued

**Q55**

Respondent skipped this question

Please describe the results or explain the reason for the deletion/completion of the goal:

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**Q56**

Respondent skipped this question

Would you like to submit another previous goal?

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Page 19: V. Previous Goals continued

**Q57**

No

Would you like to submit another previous goal?

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Page 20: V. Previous Goals continued

**Q58**

Respondent skipped this question

1. Previous Goal 3:

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**Q59**

Respondent skipped this question

2. Which College Strategic Goal does this department goal most directly support? (Check only one)

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**Q60**

Respondent skipped this question

3. Goal Status

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Page 21: V. Previous Goals continued

**Q61**

Respondent skipped this question

Please describe the results or explain the reason for the deletion/completion of the goal:

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**Q62**

Respondent skipped this question

Would you like to submit another previous goal?

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Page 22: V. Previous Goals continued

**Q63**

Respondent skipped this question

Would you like to submit another previous goal?

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Page 23: V. Previous Goals continued

**Q64**

**Respondent skipped this question**

1. Previous Goal 4:

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**Q65**

**Respondent skipped this question**

2. Which College Strategic Goal does this department goal most directly support? (Check only one)

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**Q66**

**Respondent skipped this question**

3. Goal Status

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Page 24: V. Previous Goals continued

**Q67**

**Respondent skipped this question**

Please describe the results or explain the reason for the deletion/completion of the goal:

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Page 25: VI. 4-Year Goals

**Q68**

1. Goal 1:

Improve enrollment and work-force development as follows:

- 1) Recruit transitioning military members, women and other underrepresented populations for entry into the water & wastewater industry.
  - 2) Create an apprenticeship program for transitioning active-duty military members and veterans
  - 3) Create a resource guide toolkit for recruiting minority and underrepresented students into STEM.
- 

**Q69**

**Guided Student Pathways**

2. Which College Strategic Goal does this department goal most directly support? (Check only one)

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**Q70**

3. Please describe how this goal advances the college strategic goal(s) identified above:

This goal will create a pathway for transitioning military members, women and other underrepresented populations detailing the scope and sequence of courses required to complete their technical credential in the CWS program and prepare them to compete for positions in the water & wastewater industry.

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**Q71**

4. Please indicate how this goal was informed by SLO assessment results, PLO assessment results, student achievement data, or other qualitative or quantitative data (from any source):

Based on Water Research Foundation and AWWA estimates, California's 3,000 potable water treatment and delivery systems, and more than 2,500 wastewater treatment plants and wastewater facilities, will be looking for as many as 20,000 new employees to replace retiring workers over the coming decade. Locally, as many as 40% of the present water & wastewater industry professionals will be eligible to retire in four years. This goal is focused on increasing the number of qualified workers to help fill this employment gap.

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**Q72**

5. Action Steps for the Next Year: If you are requesting resources in order to achieve this goal, please list them below as action steps and specify the type of request (e.g., submit technology request for new laptop computers).

- 1) CWS will work with key industry partners like AWWA, CWEA, ACWA, regional water and wastewater agencies, Zero8hundred, Operation Reboot and other groups to develop the apprenticeship program for transitioning military members.
  - 2) CWS will adapt the Women in Water symposium format for use with transitioning members of the military.
  - 3) CWS will expand the Women in Water symposia, targeting additional outreach to women and high-school age students to recruit high-school age women into water and wastewater career pathways.
  - 4) CWS will develop and disseminate a toolkit with market information and an industry survey to identify the trends and new skills required to assist nontraditional populations pursue careers in the water and wastewater industry.
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**Q73**

6. How will this goal be evaluated?

Analyzing student data and demographics in future years will provide evidence of the success of this goal.

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**Q74**

**No**

Would you like to propose a new, 4-year goal?

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Page 26: VI. 4-Year Goals continued

**Q75**

**Respondent skipped this question**

Goal 2:

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**Q76**

**Respondent skipped this question**

2. Which College Strategic Goal does this department goal most directly support? (Check only one)

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**Q77**

**Respondent skipped this question**

3. Please describe how this goal advances the college strategic goal(s) identified above:

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**Q78**

Respondent skipped this question

4. Please indicate how this goal was informed by SLO assessment results, PLO assessment results, student achievement data, or other qualitative or quantitative data (from any source):

---

**Q79**

Respondent skipped this question

5. Action Steps for the Next Year: If you are requesting resources in order to achieve this goal, please list them below as action steps and specify the type of request (e.g., submit technology request for new laptop computers).

---

**Q80**

Respondent skipped this question

6. How will this goal be evaluated?

---

**Q81**

Respondent skipped this question

Would you like to propose a new, 4-year goal?

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Page 27: VI. 4-Year Goals continued

**Q82**

Respondent skipped this question

1. Goal 3:

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**Q83**

Respondent skipped this question

2. Which College Strategic Goal does this department goal most directly support? (Check only one)

---

**Q84**

Respondent skipped this question

3. Please describe how this goal advances the college strategic goal(s) identified above:

---

**Q85**

Respondent skipped this question

4. Please indicate how this goal was informed by SLO assessment results, PLO assessment results, student achievement data, or other qualitative or quantitative data (from any source):

---

**Q86**

Respondent skipped this question

5. Action Steps for the Next Year: If you are requesting resources in order to achieve this goal, please list them below as action steps and specify the type of request (e.g., submit technology request for new laptop computers).

---

**Q87**

Respondent skipped this question

6. How will this goal be evaluated?

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**Q88**

Respondent skipped this question

Would you like to propose a new, 4-year goal?

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Page 28: VI. 4-Year Goals continued

**Q89**

Respondent skipped this question

Goal 4:

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**Q90**

Respondent skipped this question

2. Which College Strategic Goal does this department goal most directly support? (Check only one)

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**Q91**

Respondent skipped this question

3. Please describe how this goal advances the college strategic goal(s) identified above:

---

**Q92**

Respondent skipped this question

4. Please indicate how this goal was informed by SLO assessment results, PLO assessment results, student achievement data, or other qualitative or quantitative data (from any source):

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**Q93**

Respondent skipped this question

5. Action Steps for the Next Year: If you are requesting resources in order to achieve this goal, please list them below as action steps and specify the type of request (e.g., submit technology request for new laptop computers).

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**Q94**

Respondent skipped this question

6. How will this goal be evaluated?

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Page 29: Resources Needed to Fully Achieve Goal(s)

**Q95**

What resources is your program requesting this year to achieve the program's goals? (Check all that apply)

**My program is currently not requesting any resources at this time**

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Page 31: Final Check

**Q96**

Are you ready to submit your program review? If you would like to go back and review a section, select a section and click "Next."

**I am ready to submit my program review**

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