



SACRAMENTO
STATE

Annual **Report**

2014-2015



WATER PROGRAMS
SACRAMENTO STATE

Who We Are

Mission | The Office of Water Programs (OWP) delivers cost-effective solutions for protecting and enhancing water resources, public health, and the environment through training, scientific research, and public education.

Training | As a leader in the delivery of drinking water and wastewater operator training both nationally and internationally, our correspondence and online instructional delivery methods provide critical resources for water industry professionals. Operators, managers, and administrators rely on OWP for accredited opportunities to prepare for certification and to earn academic credit, continuing education units, and contact hours. OWP has consistently been a reputable and dedicated provider for more than 40 years, and is focused on continuing to lead the industry by actively responding to the changing ways students access educational material.

Applied Research | Providing a unique combination of applied research services under contract to various government agencies and other organizations focused on water, our group of professionals continues to deliver research-based, quality projects. The success and growing reputation of the group is based, in part, on its varied research and real-world application experience, including stormwater program management, watershed planning, water and wastewater treatment, soil and groundwater investigations, and field/pilot studies for various stormwater source control practices and treatment technologies.

People | Our dedicated staff of more than 35 employees serves students and clients under the direction of Dr. Ramzi Mahmood.

The background of the page is a grayscale photograph of a desk. On the desk, there are several papers, some of which are open and show text and tables. A pen is visible on the right side of the desk. The papers have various labels and headings, such as 'AWT (9)', 'STIC-2 (7)', 'STIC-2 (8)', and 'IMPORTANT DIRECTIONS'. The overall scene is a professional office environment.

The organizational values that shape our commitment to providing sought-after training and research services include:

People First—We believe the potential of our organization has no limit and is driven by our employees, our respect for each other, and our commitment to providing the best service and products in the industry.

Ethical Approach to Business—We believe in the values of honesty and integrity and apply these values to all of our business practices.

Quality—We take pride in everything we do. From our products and services to our relationships with customers, clients, and employees—quality is our signature.

Education—We believe in and support life-long learning for our employees, our clients, our students, and our community.

Public Health and the Environment—We believe that our practices should always focus on protecting public health and the environment.

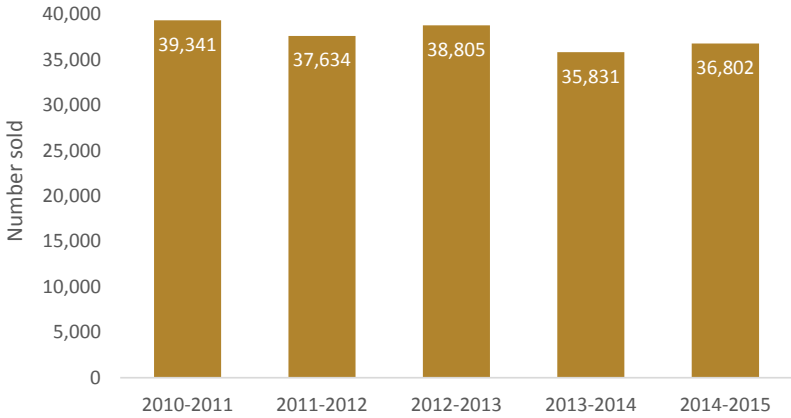
Training Services

OWP provides nearly 50 distance learning courses via print, video, and online delivery to nearly 19,500 students per year, 60 percent of whom reside outside California. The use of our popular online exam tool, introduced in May 2014, surpassed paper-based exam usage in 2015. Maintaining and updating our printed training manuals, along with developing new titles and methods of delivery, remains a high priority. One of our best-selling manuals received a new edition this year: *Water Treatment Plant Operation, Volume II, Sixth Edition*.

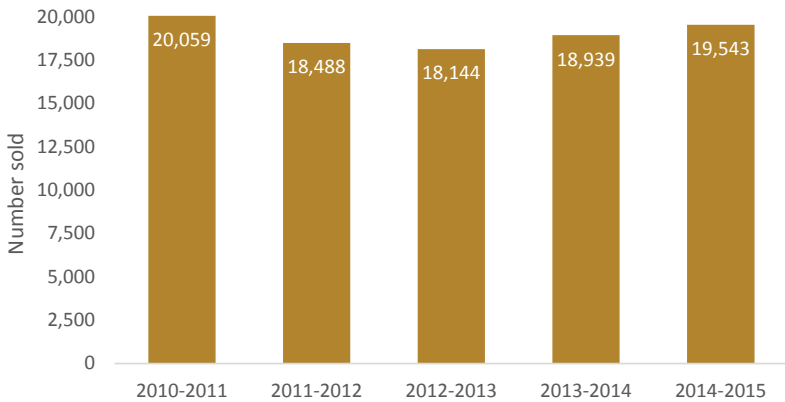
2014-2015 Highlights

- Over 36,800 manuals sold
- Almost 19,500 course enrollments purchased
- More than 2,000 pages of text edited
- Donated overstock of drinking water training materials to two organizations focused on the unique concerns of rural water and wastewater systems: the California Rural Water Association (CRWA) and Rural Community Assistance Corporation (RCAC).

Training Manual Sales

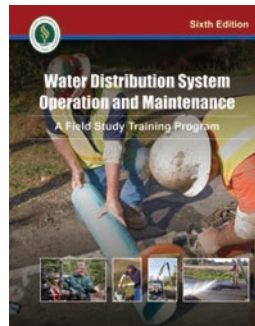
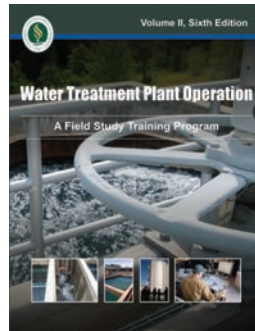
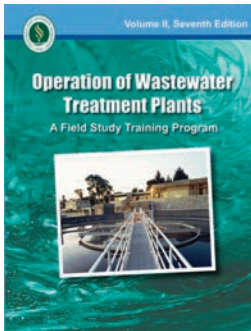
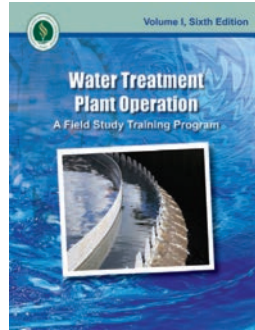
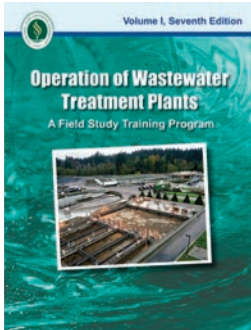


Course Enrollment Sales



Titles & Products

Best-Selling Titles



Selected Training Products

Advanced Waste Treatment (print, course enrollment)

Basic Small Water System Operations (print)

Collection Systems: Methods for Evaluating and Improving Performance
(print, course enrollment)

Industrial Waste Treatment, 2 volumes (print, course enrollment)

Manage for Success (print, course enrollment)

Membrane Bioreactors (print, course enrollment)

Operation and Maintenance of Wastewater Collection Systems, 2 volumes
(print, DVD, course enrollment)

Operation of Wastewater Treatment Plants, 2 volumes
(print, CD, course enrollment, five online courses)

Pretreatment Facility Inspection (print, DVD, course enrollment)

Small Wastewater System Operation and Maintenance, 2 volumes (print, course enrollment)

Small Water System Operation and Maintenance
(print, DVD, course enrollment, 5 online courses)

Treatment of Metal Wastestreams (print, course enrollment)

Utility Management (print, course enrollment)

Water Distribution System Operation and Maintenance
(print, course enrollment, five online courses)

Water Systems Operation and Maintenance Video Training Series
(print, DVD, course enrollment)

Water Treatment Plant Operation, 2 volumes (print, course enrollment)

Spotlight

\$3.4M Campus Low Impact Development (LID) Implementation Project

The Office of Water Programs identified an opportunity and developed a grant proposal in collaboration with the City of Sacramento and Sacramento State Facilities Management to design and build up to 25 LID best management practices (BMPs) stormwater treatment devices on the Sacramento State campus. The \$3.4M grant was funded by the State Water Resources Control Board (Water Board) and awarded to the City of Sacramento. OWP engineers and other research staff are supervising and coordinating all elements of the project's implementation.



LID BMPs are a sustainable stormwater management practice that addresses runoff close to its source; uses stormwater as a resource; and mimics natural, undeveloped hydrology. The devices selected for installation on the campus were chosen from the LID BMPs strategies featured in the Sacramento region's revised *Stormwater Quality Design Manual*, and are being implemented using the City's design criteria. The devices will be monitored to evaluate and document treatment performance. Sacramento State Facilities Management supervised the design process and is donating in-kind construction services.

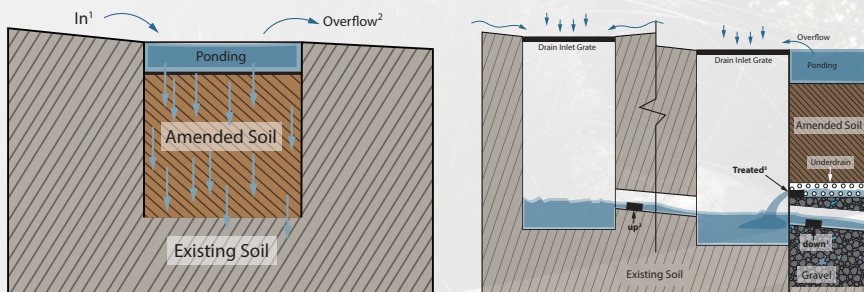
This project is unique in its undertaking:

It's a stormwater treatment project—Currently, stormwater on the Sac State campus flows directly into the American River. This project offers an opportunity to treat some of this stormwater using selected LID BMPs devices and to evaluate their effectiveness.

It's a retrofit project—Implementing standard BMPs in a retrofit environment can be challenging and costly in any situation, so we're documenting the processes used to meet the siting and design challenges and to effectively manage costs—practical and research-based information that will benefit the professional community.

It's an educational project—Installing full-scale examples of LID BMPs that are City-approved provides a real-world environment for builders, municipalities, and the public in the Sacramento region to see how these devices are integrated into typical urban settings such as parking lots and streets. The project will feature a self-guided walking tour that uses a mobile app.

It's a water conservation project—This project will increase Sac State's irrigation water supply by treating stormwater as it infiltrates instead of pumping it directly into the American River.

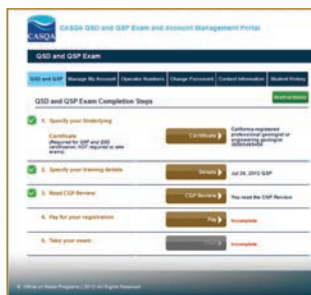


Technical Services

OWP develops and supports specialized software tools and other technical services, including numerical modeling tools and online exam administration. We support clients by providing cost-effective and user-friendly tools that support their organizational goals and needs.

California General Permit QSD/QSP Exam Administration

Working with the California Stormwater Quality Association (CASQA), OWP developed and continues to administer an online testing service for the certification of Stormwater Pollution Prevention Plan (SWPPP) developers and practitioners (QSD/QSP) involved in new construction projects throughout the state. Candidates can purchase, test, and receive grades/certificates from this single source online system. The tool also provides potential employers with free, public access to current lists of qualified practitioners.



LID Sizing Tool

A web-based tool that assists stormwater practitioners in selecting and sizing low impact development (LID) Best Management Practices (BMPs) that meet the sizing requirements in California's National Pollutant



Discharge Elimination System (NPDES) permit for stormwater discharges from small municipal separate storm sewer systems (MS4s).

Basin Sizer

A software program designed to assist users in accurately sizing stormwater basins anywhere in California. Basin Sizer calculates water quality volumes (WQVs) and water quality flows (WQFs) using a variety of methods and data from rainfall stations throughout the state.

Water Quality Planning Tool

Planners access the tool on an easy-to-use website displaying watershed information needed to create and comply with stormwater permits.



Struvite Precipitation Potential Calculation Tool

A convenient tool for struvite control planning helps users model various scenarios by changing parameters that control struvite precipitation.

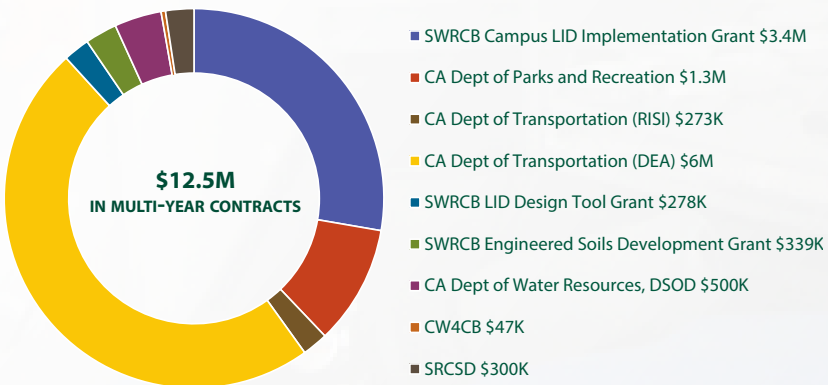
Applied Research Services

Research group engineers and scientists perform and manage research efforts focused on characterizing water quality and water resource issues. For 18 years, our researchers have provided technical advice on water policy issues; assisted in watershed planning; and performed modeling, data analysis, and cost assessments to help both the public and private sectors make informed decisions based on accurate information and good science.

2014-2015 Highlights

- Began \$1.3M technical assistance and outfall inventory effort for the California Department of Parks and Recreation
- With the City of Sacramento, began the \$3.4M low impact development implementation project on the campus of Sacramento State

OWP Grants and Contracts, 2014-2015



Funded Grants & Contracts

Implementation of Low Impact Development Devices on Sacramento State Campus

In collaboration with the City of Sacramento and Sacramento State Facilities Management, OWP was awarded a \$3,453,782 grant (administered by the State Water Resources Control Board) to design and build up to 25 low impact development stormwater treatment devices that will be used to evaluate LID treatment performance and to educate the public.

Phase II Stormwater Permit Compliance (Technical Assistance)

The California Department of Parks and Recreation (DPR) contracted \$1,268,192 with OWP (10/13/14-10/12/16) to provide technical assistance for the DPR Stormwater Program, with a focus on Phase II Permit compliance.

Environmental Impact of Cured-In-Place Pipe (CIPP) Repairs

The California Department of Transportation (Caltrans) Research, Innovation and System Information (RISI) Unit contracted \$273,383 with OWP (05/29/14-12/31/15) to implement field studies to determine the environmental impact of CIPP repairs.

Stormwater Technical Assistance

The California Department of Transportation (Caltrans), Division of Environmental Analysis (DEA) contracted \$6,000,000 with OWP (06/01/13-06/30/16) to provide technical assistance with stormwater research focusing on discharge characterization, source identification and control, and treatment control studies.

Applied Research Services

Development of Low Impact Development Design Tool

The State Water Resources Control Board (Water Board) contracted \$278,948 with OWP (04/01/13-04/01/16) to develop and implement a user-friendly web-based tool to assist designers with low impact development design.

Development of Engineered Soils to Promote Low Impact Development Implementation

The State Water Resources Control Board (Water Board) contracted \$339,084 with OWP (06/01/13-01/01/16) to test the treatment performance and conductivity of different engineered soils in both bench and pilot scale.

Division of Safety of Dams Mapping Project

The California Department of Water Resources (DWR) contracted \$500,000 with OWP (01/01/13-06/30/17) to assist with dam break flood analysis and emergency action plan development.

Clean Watersheds for a Clean Bay (CW4CB) Project BMP Pilot Studies

Two contracts were awarded with prime contractors working in collaboration with Bay Area Stormwater Management Agencies Association (BASMAA) and eight Bay Area cities/counties. Contract 1—EOA, Inc. contracted \$27,000 with OWP (executed on 07/27/12). Contract 2—Geosyntec contracted \$20,000 with OWP (executed on 11/08/12) to assist with stormwater best management practice pilot study design, coordination, and oversight.

Wastewater Technical Expertise

The Sacramento Regional County Sanitation District contracted \$300,000 with OWP (06/11/03-06/30/16) to provide technical expertise, with a focus on wastewater characterization and treatment.

California Stormwater Quality Association (CASQA) Qualified SWPPP Developer (QSD) and Qualified SWPPP Practitioner (QSP) Testing and Certification

CASQA contracted with OWP (executed on 01/21/11) to develop and implement an online system to administer/grade tests and issue/renew certifications.

Conferences, Presentations & Committees

OWP contributes to the body of research produced by water professionals by authoring research articles, white papers, and reports as well as by attending and presenting at industry conferences. We share our knowledge and expertise through collaboration with state agencies and non-profit organizations serving water and wastewater professionals and by participating in inter-agency groups and committees.

Conferences

Jun 2014

Environmental & Water Resources Institute (EWRI) Congress, Portland, OR—*Low Impact Development Sizing Tool* (poster)

Whole Water Conference, Monterey, CA—*Low Impact Development Sizing Tool* (presenter)

Jul 2014

Statewide Regional Water Quality Control Board (Water Board) Update, Sacramento, CA—*Low Impact Development Sizing Tool* (presenter)

Aug 2014

Stormcon, Portland, OR—*Low Impact Development Sizing Tool* (presenter)

Sep 2014

California League of Cities, Los Angeles, CA—*How to Budget for Stormwater* (presenter)

California Stormwater Quality Association (CASQA) 2014 Conference, Orange, CA—*Low Impact Development Sizing Tool* (presenter and poster)

California Stormwater Quality Association (CASQA) Phase II Subcommittee—*Low Impact Development Sizing Tool* (webinar)

Statewide Regional Water Quality Control Board (Water Board)—
Low Impact Development Sizing Tool (webinar)

Nov 2014

Training for DROPS Applicants—*Low Impact Development Sizing Tool*
(webinar)

Jan 2015

LID Initiative Training for Central Coast—*Low Impact Development Sizing Tool* (webinar)

Association of Boards Certification (ABC) Conference, San Diego, CA—Two presentations: *Operator Occupation—Profession?* and *State Authorization of Online and Distance Education* (presenter)

Mar 2015

CSU Chancellor's Office, Long Beach, CA—*Sacramento State Campus LID Project* (presenter)

Apr 2015

Water Resources and Policy Initiatives (WRPI) Conference, Fresno, CA—
CSU's Water Resources and Policy Initiatives (participant)

Jun 2015

American Water Works Association (AWWA) Conference, Anaheim, CA—
Wastewater Collection Systems Standards Committee (participant)

National Rural Water Association (NRWA) Conference, Reno, NV—
Training of Operator Professionals—Focusing on Learning (presenter)

Conferences, Presentations & Committees

Conference Exhibitor

Sep 2015

California Water Environment Association (CWEA), Northern Regional Training Conference, Sacramento, CA

Mar 2015

Rural Community Assistance Corporation (RCAC) CalTAP Fair, Sacramento, CA

Apr 2015

California Rural Water Association (CRWA) Conference, Lake Tahoe, CA

May 2015

Rural Community Assistance Corporation (RCAC) Tribal Conference, Sacramento, CA

Committees

California Stormwater Quality Association (CASQA)

- Construction Subcommittee
- Industrial Subcommittee
- Co-Chair, CASQA Training Subcommittee
- Board Seat, Board of Directors
- 2015 Conference Planning Subcommittee
- Policy and Permitting Subcommittee
- Phase II Subcommittee

- BMP Subcommittee
- Impaired Watershed Subcommittee
- Monitoring Subcommittee

Small Systems Inter-Agency Outreach Committee (SSIOC)

State Water Resources Control Board (Water Board)

- Wastewater Advisory Committee
- Industrial General Permit Training Team
- Industrial General Permit Exam and Evaluation Subcommittee
- Construction General Permit Training Team
- Construction General Permit Exam Subcommittee

Transportation Research Board, Hydraulics, Hydrology, and Water Quality Subcommittee

Washington State TAPE External Board of Reviewers

Water Environmental Federation (WEF), Collection Systems Committee



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