

Project Summary

The Wayne County Department of the Environment (DOE) serves 44 communities extending over 623 square miles, including the City of Detroit. Wayne County is the most populous county in the State of Michigan at 2.1 million, and the 11th most populous county in the United States. The Facilities Management Division of DOE operates a major 55 MGD WWTF, 8 CSO Facilities and 15 Pump Stations.

The Downriver WWTF (DWWTF) is operated under contract with 13 customer communities who were demanding improvements in “competitiveness.” In addition, Wayne County had to implement a \$150 million dollar court-ordered improvement project, increase rates, and face the real threat of privatization. Moreover, staff issues were numerous: retirements, union constraints, and a general lack of training all resulted in limited flexibility for the DOE.

Together, the DOE and its customers collaborated on the Comprehensive Assessment and Master Planning Project (CAMPP). The purpose of CAMPP is to ensure public safety, customer satisfaction, sound business practices, as well as to provide a team of skilled and competent employees working within a clean environment at the Downriver Wastewater Treatment Facility (DWWTF) and CSO Pump Stations.

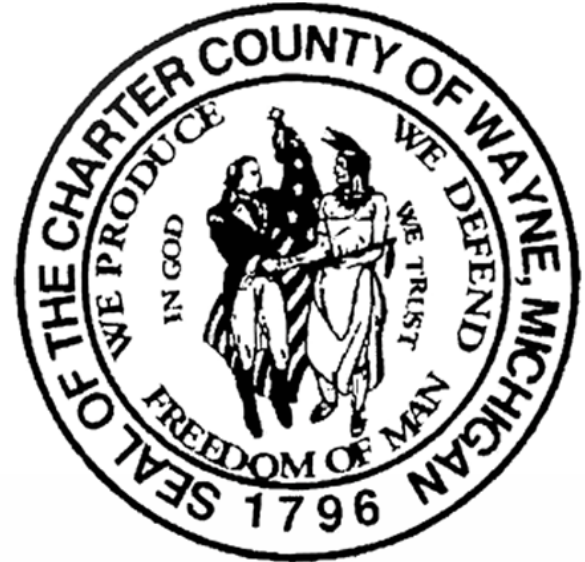
CAMPP produced several key strategies for success:

- Self managed teams
- Training and cross-training
- Total productive operations
- Technology to support best practices
- Program-driven maintenance
- More efficient support services.

The CAMPP process challenged the DWWTF staff to “think and act more like a business.” Specifically, this meant adopting work practices that support the core business and improve productivity and efficiency.

The DOE developed an annual business plan to cover service levels, financial matters, technology, organizational matters, customer relationship management, and comprehensive asset management. The DWWTF staff learned that program-driven scheduled maintenance is better than reactive maintenance. Cross-trained staff are now able to perform both operations and maintenance tasks and are now more versatile and productive employees.

Using online training technology provided by 360water, the DOE staff can access customized operations and maintenance training on demand at any time.



“Wayne County is gaining more flexible, better trained employees, more accountability and ownership, lower rate increases, and happier customers.”

**By Firooz Fath-Azam, Superintendent,
Facilities Management Division,
Wayne County Dept of Environment**

**Taken from: Critical Knowledge Management for
Utility Managers. The Knowledge Management
“Picture” – Identifying Workforce Knowledge, Skills
and Experience—WEFTEC 2007 Workshop**

Client | Wayne County, MI

Project | Comprehension Training Project

Challenges

The DOE faced 2 challenges: (1) how to train the DWWTF staff to implement the CAMPP strategies and (2) more senior staff were leaving DWWTF and their institutional knowledge needed to be recorded and preserved for the next generation of DWWTF staff.

Solution

The DOE hired 360water to work with the DWWTF staff and create customized online operations and maintenance courses. 360water started with the manufacturer O&M manuals to form the basis of each online course. 360water interviewed DWWTF staff about the plant specific duties and tasks. 360water combined the O&M manual data with the staff interviews to create customized courses. DWWTF staff reviewed each course, so that the course materials accurately reflected the equipment, processes, duties, tasks, tools, and worker behaviors necessary to do the job. Seasoned and experienced staff contributed important perspectives on O&M practices. Finally, onsite photos and other graphic media were created for the courses.

In addition to contributing to O&M course content, the DWWTF staff also contributed to the course quizzes and tests. Each online O&M course contains intermittent quizzes. During the online training, a user will take short quizzes that increase learning comprehension. At the end of every online course, the user will take a test in order to pass the course. The test program provides immediate feedback to the user, so that if the user submits an incorrect answer, then he can review the relevant course material and try again. The user must answer every test question correctly before he can pass the online training course.

All training is tracked and recorded with an online administrative tool. DWWTF managers can run training reports at anytime and measure the training progress of all staff. Training without measuring the transfer of knowledge is a waste of DOE resources.

In addition to 360water's online training, CAMPP also provided the DOE staff with on-the-job training (mentoring / shadowing) by skilled staff, and classroom training. The combination of DWWTF staff input and 360water's online training technology created useful and accurate courseware for the plant's current and future training needs.

Project Outcome

Improved Performance with Less Staff

Since 2004, total staff has been reduced from 133 to 79. At the same time, plant performance has improved because the staff is cross-trained and better skilled to meet their job duties. During this period, significant savings of over \$3 million have also been realized.

360water created 31 customized O&M courses, 5 safety courses, and 24 general courses for the DWWTF staff. All of these courses are approved for CEC credit by the Michigan Department of Environmental Quality.

Online Training Technology Benefits the Facility

1. Adult Education is more effective when it is self-paced.
2. Face-to-Face training is more effective when a training primer is offered.
3. Training is misunderstood when keywords and phrases are not explained to the students.
4. Documentation and record keeping are essential in today's world.
5. Online training delivers state approved, consistent, uniform training 24/7. The online component increases access to training and reduces the overall cost of training.
6. Administration costs are minimized with automatic data storage.
7. Institutional knowledge can be captured and transferred to new employees.