

The GRCA continues to progress the watershed-wide wastewater optimization program by engaging the community of practice, provide training opportunities through Comprehensive Performance Evaluations (CPEs) and working with partners to improve wastewater treatment plant performance. This bulletin provides a description of past and upcoming optimization activities, successes and challenges within the WWOP, and data on enhanced reporting metrics.

Information Sharing

A half-day Wastewater Managers meeting was held on November 27th, 2014, bringing together approximately 13 members of the watershed wastewater community, including representatives from both First Nations. This meeting provided the group with an overview of the WWOP, plant performance reporting, and an opportunity to share information and experiences on inflow & infiltration.

Additionally, an Optimization Leadership Team meeting was held on November 17th, 2014 with participants providing report-outs on their optimization activities. It also included an activity update from the MOECC.

The WWOP has the support of an advisory group consisting of US EPA staff and contractors who are experts in developing and delivering area-wide optimization programs. Several teleconferences were held with the Advisory Group in 2014 to share information, experiences and strategies on implementing area-wide optimization programs like the WWOP.



Comprehensive Performance Evaluations

Two CPEs were recently conducted at watershed wastewater facilities: the Arthur WWTP (October, 2014) and the Mapleton WPCP (December, 2014), with team members from the GRCA, MOECC, and CPO Inc. These evaluations served as a valuable training opportunity for team members. They also provided valuable information on factors impacting the plant performance or capacity for plant owners and operators.



One of the strengths of the WWOP approach is being able to develop and demonstrate techniques that can be applied across the watershed. The Mapleton WPCP provided such an opportunity. The CPE approach, which was developed for mechanical treatment plants, was adapted and applied to the Mapleton lagoon system. Similarly, an abbreviated adaptation of the CPE approach was conducted at the St. George WPCP (October, 2014) as a data collection trial to feed into the Status Component.

Outreach

A marketing/communications plan was prepared in September, 2014. It was designed to promote participation in the WWOP, engage watershed stakeholders and share lessons learned. A component of this plan was an information poster highlighting the WWOP. This poster was displayed during the final meeting of the Water Management Plan Steering

Committee on September 18th, 2014, and was also publically displayed during the Doors Open Waterloo Region event held at the GRCA Head Office on September 20th, 2014.

A technical paper was presented at the 43rd Annual WEAO Technical Symposium on April 7th, 2014 highlighting the environmental benefits of optimization. An overview of the WWOP was also presented to Ministry of the Environment Engineers Professional Development Day in May, 2014.

An abstract, highlighting key activities of the WWOP, was accepted for the 50th Central Canadian Association on Water Quality (CAWQ) symposium. An overview of the WWOP was presented at the symposium on February 18th, 2015.

The Watershed-Wide Wastewater Optimization Program (WWOP)

Promoting Excellence in Wastewater Treatment Plant Performance

The Grand River watershed has a population of about 965,000 (2014) that is expected to reach 1.53 million by 2051. There are 30 wastewater treatment plants that discharge treated effluent into rivers in the watershed. Population growth will result in more wastewater being discharged into those rivers.

Wastewater effluent must be high quality to ensure river health continues to improve and watershed communities continue to prosper. High quality, economical wastewater effluent can be achieved through optimization.

What is Optimization?

Optimization is a continuous improvement process that invests in people – operators, managers and administrators – to manage wastewater treatment processes more effectively.

Wastewater optimization is identified as a key action item in the Grand River Watershed Water Management Plan and is considered a best management practice.

Optimization of wastewater treatment in the Grand River watershed has huge potential for improving water quality.

What is WWOP?

The Watershed-wide Wastewater Optimization Program (WWOP) is a voluntary program that encourages optimization of wastewater treatment plant performance. It aims to provide managers and operators at every treatment plant in the watershed with the tools and approaches to improve effluent quality.

This program demonstrates how performance-based management of wastewater plants can offset capital costs while improving effluent quality. In addition, the program demonstrates good asset management to tap the full potential of existing wastewater infrastructure.

The WWOP uses the Composite Correction Program approach. The CCP involves two steps to evaluate and address performance-limiting factors impacting the plant. The first step is the Comprehensive Performance Evaluation and the second step, if applicable, is a Comprehensive Technical Assistance program.

Benefits of WWOP

The WWOP is a cost effective approach to improving effluent quality and offers multiple benefits:

- Enhanced operator skills and knowledge, creating "Communities of Practice";
- Local capacity to conduct more Comprehensive Performance Evaluations in the watershed;
- Voluntary interim and final targets for total phosphorus and ammonia;
- Watershed reporting process for compiling performance measures;

OPTIMIZATION - before and after

AMMONIA LEVELS AT GUELPH WWTP

Before optimization, effluent was reaching this concentration in river

2.5 mg/L

After optimization, concentrations are below compliance level

0.25 mg/L

Fostering a Culture of Collaboration

The WWOP is a collaborative effort funded by financial and in-kind contributions from various partners including the Ontario Ministry of the Environment and Climate Change, watershed municipalities and the GRCA. For information call: Mark Anderson, Water Quality Engineer, GRCA 1-800-980-4722 ext. 2236.

This information poster was created as part of the marketing/communications plan.

Upcoming Activities

Planning and direction of future WWOP activities will be developed via quarterly Strategic Planning Meetings. A core team to participate in these meetings has been identified, consisting of members from the GRCA, MOECC, CPO Inc. and Haldimand County. Four meetings have been scheduled in 2015; the first one is scheduled for March 11th & 12th. The core team will use the strategic planning process to identify a prioritized list of short-term and long-term action items to help guide development of the WWOP.

Furthermore, an upcoming optimization workshop series is in the works. The next workshop is planned for April 29th, 2015 and will provide an update on WWOP activities, a summary of watershed wastewater treatment plant performance and an open forum to gather feedback from the watershed community of practice. If you are interested in participating in the next workshop, please contact [Mark Anderson](#) or [Kelly Hagan](#).

Another feature of the WWOP is a Recognition Program/Award, which is being developed to encourage participation in the WWOP and will acknowledge municipalities that participate in the WWOP, apply CCP concepts, and achieve voluntary performance targets. The recognition program will be developed by April, 2015 and delivered by March, 2017.

GRCA WWOP staff are planning to attend the National Area-wide Optimization Program meeting in July, 2015 to gain a better understanding of the status and issues of area-wide optimization programs in the US. The staff will apply that knowledge to the on-going development of the WWOP.

Enhanced Performance Reporting

Annual watershed WWTP performance reporting data is being collected for the 2013 year and will be used to update the previous annual report entitled "[Watershed Overview of Wastewater Treatment Plant Performance](#)" (GRCA, 2014). Preliminary data for per capita wastewater flows in 2013 for plants across the watershed is shown in Figure 1 (page 3).

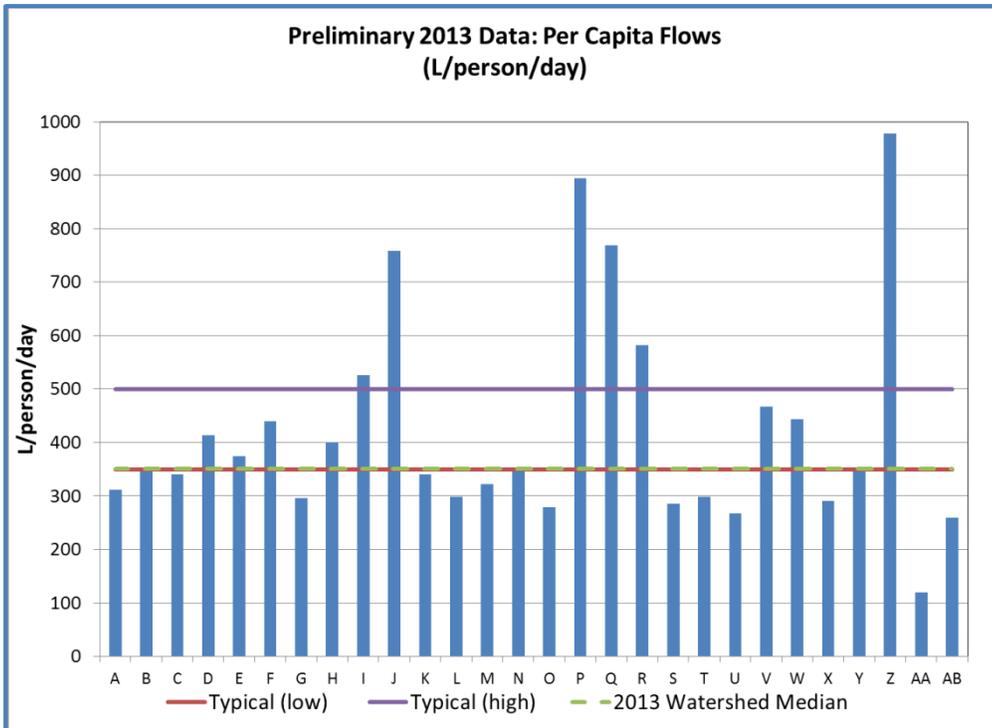


Figure 1
Example of enhanced performance reporting metrics: Per Capita Wastewater Flows to WWTPs across the Grand River Watershed based on preliminary data for 2013.

Successes and Challenges

The optimization program is a voluntary best practice that strives to engage wastewater professionals in the watershed. Work is ongoing to seek active participation from all plants in the watershed (i.e. obtaining enhanced performance reporting from all plants).

The WWOP meetings have provided an opportunity for wastewater professionals to share information and concerns honestly and openly. In addition, the CPE exercise is an excellent hands-on training opportunity for the evaluation team members. It also provides valuable information and recommendations back to the plant owners and operators.

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