



Reconnecting the
Great Lakes Water Cycle

A Municipal Guide to Organizing an Inter-Departmental Workshop on Integrated Water Management

Breaking Down the Silos and Building a One Water Approach

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Figure 1 Source: Center for Sustainable Infrastructure at the Evergreen State College, Olympia, Washington

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This publication was authored by Rebecca Pearson, Great Lakes Commission, and edited by John Jackson, Greater Lakes project manager and Victoria Pebbles, Great Lakes Commission. Special thanks to the Greater Lakes project team and advisors for providing guidance:

- Jim Ridgway, Environmental Consulting & Technology, Inc.
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Preface

The Greater Lakes: Reconnecting the Great Lakes Water Cycle project explores and tests environmental and financial drivers for municipalities to adopt water conservation/efficiency and green infrastructure measures. Led by the Great Lakes Commission between 2013 and 2015 with funding support from the Great Lakes Protection Fund, this project identified several important lessons for improving how we manage and treat our water.

This guide, a product of the *Greater Lakes* project, outlines the steps in designing a workshop that will help begin breaking down municipal departmental silos – an important first step in integrating water supply, wastewater and stormwater as “one water.”

Introduction

A key lesson learned from the 2013-2015 *Greater Lakes* project is that **multiple municipal departments are involved in water supply, wastewater and stormwater management processes, and too often they are siloed.**

Each municipal department (and at times sections within municipal departments) has its own mission and mandate, which may be working at cross purposes with one another as they relate to the sustainable management of water. Silos within municipal government may include the following departments or divisions within departments: water, wastewater, stormwater, utilities, parks and recreation, land use planning, finance, transportation.

An example of the siloed effect within a municipality is the traditional division of responsibility for stormwater treatment between transportation and water departments. Stormwater is considered a liability by the transportation department and must be directed off the roads as quickly as possible. For water and wastewater departments, stormwater is also a liability as it is a major source of contamination to drinking water sources through sanitary back-ups and combined sewer overflows. However, that same water falling on the roads, if properly treated, can be considered an asset by the water supply department to recharge local drinking water sources. Because of a siloed approach, the opportunity to recharge groundwater sources - by using materials and technology that allows water to filter slowly back into the land through road construction and reconstruction projects - is often missed.

To become more economically efficient and environmentally sustainable, municipalities need to adopt an integrated approach to water. All departments that touch water operations should be communicating and planning together regularly so that efforts to upgrade or build new infrastructure for one element of water management (e.g., stormwater, wastewater, or

drinking water supply) have a positive impact on all parts of the water system.

Purpose

However, breaking down silos is not easy. The departmentalized structure of municipal government can make it hard for civil servants to break out of their daily responsibilities to consider the greater impact of their individual department's operations and policies.

The purpose of this guide, *Breaking Down the Silos and Building a One Water Approach*, is 1) to inspire municipalities to start a conversation about an integrated approach to water management and 2) offer specific steps for organizing a workshop where that conversation can occur.

Many different kinds of efforts will be required for a municipality to incorporate integrated water management (IWM) into its operations and policies. A workshop is an important beginning point and will help raise the level of awareness of both the silos and the missed opportunities caused by departmentalization.

Based on the successful experience of the *Greater Lakes* project holding such a workshop in Guelph, Ontario, this guide presents the concept of IWM, and then takes you through the steps of designing a workshop that helps begin the breakdown of the municipal silos.

For more information about the Guelph workshop, including photos and presentations, visit the Knowledge-Transfer Events page from the *Greater Lakes* project website at

<http://glc.org/projects/water-resources/greater-lakes/greater-lakes-knowledge-transfer/>

The Value of Integrated Water Management

Traditional approaches to managing water supply, wastewater and stormwater have fractured the natural water system through a focus on using pipes that quickly move water from one place to another where it would not naturally flow. An IWM approach considers all water management operations (water supply, stormwater and wastewater) as part of one system and recognizes that stormwater, wastewater and drinking water are all connected through the water cycle. This approach seeks to break down the fragmentation that comes from managing these as separate systems. Instead, IWM embraces managing water holistically so that management actions in any one part of the cycle do not compromise, but instead improve overall water conditions. In this way, IWM helps restore the natural water cycle and more sustainably manage our freshwater resources.

IWM holds that it is both more economically efficient and environmentally friendly when municipal drinking water, wastewater, and stormwater departments work together to implement programs that are mutually beneficial. For example, consider the benefits of a program that provides homeowners with an incentive to install rain barrels. These rain barrels capture rain

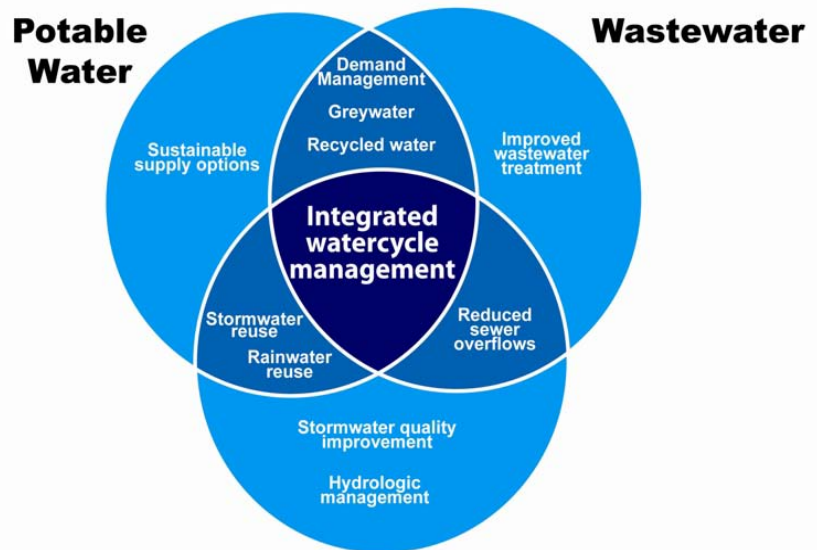


Figure 2 Source: Australian Environmental Wastewater Solutions

running off roofs which can then be used to water lawns and gardens. From the drinking water supply perspective, the rain barrel program helps save money by alleviating peak summer outdoor water use demands. From the wastewater and stormwater perspective, rain barrels reduce pressure on storm sewer systems and the associated risk of sewer overflows. Thus, this single program both helps to save municipalities money and improve the environmental quality of the local streams. Clearly, thinking in an integrated and holistic way can help municipalities accomplish multiple goals.

How can I learn more about IWM? Visit the *Greater Lakes* project website to learn more about IWM at <http://glc.org/projects/water-resources/greater-lakes/> and watch video on fractured water at <https://vimeo.com/131694028>

Steps in Designing a Silo-Breaking Workshop

Step 1: Form a Workshop Planning Committee by Identifying Champions

It is crucial to begin by identifying champions of IWM from within the current departments in your municipality. Champions are those who understand and value IWM and would like to advance its practices. You are one of those champions, but you need allies. Begin with the water or utility department, but look to others related departments such as roads, planning and parks and recreation. Together you should form a small group to plan the workshop as well as to continue the dialogue afterwards.

Step 2: Who to Invite

More than forty people participated in the Guelph workshop, representing diverse parts of the municipality. To achieve the purpose of breaking down the municipal silos, you need to invite representatives from each silo to the workshops. Depending on how the municipality is structured, departments may include finance, roads, water supply, stormwater management, wastewater management, parks and recreation, utilities and land use planning. It is also important to invite sections within one department since silos may exist within the department. In addition to the representatives from these departments, you should consider inviting brownfield/urban redevelopment, soil/erosion and drain commissioners if your municipality is structured in that way.

It is imperative to have a financial department representative at the workshop. The staff of the finance department needs to understand the importance of IWM since they pull together municipal operating and capital budgets. With this in mind, you should make

sure that the workshop presentations speak to the financial implications of IWM.

Among the forty Guelph workshop participants were representatives of the planning, roads, engineering, finance, water, wastewater and parks departments. In addition to the municipal departments, representatives from the Grand River Conservation Authority and several neighboring communities within the Grand River watershed (in which the city of Guelph is located) also attended the workshop. These neighbors added value to the discussions by providing a watershed perspective and shared their own experiences in implementing an IWM approach to their operations. The range of participants who worked within the municipality and within neighboring municipalities or government-based watershed organizations helped ensure a dialogue that addressed the two primary elements of the IWM approach: a) water supply, waste and stormwater should be treated as one system, and b) IWM should be applied at the watershed scale.

Once your list of invitees is complete, you need to send the invitations out. Use the municipal champions identified in Step 1 to disseminate the invitations because they are likely to be known and respected by people receiving the invitation. This increases the likelihood that they will attend the workshop. Be sure to include on the invitation that lunch will be provided. Lunch is a nice incentive and a great time for informal interactions among attendees from different silos. As you get closer to the time of the workshop, contact those among your invitees who have not yet replied to encourage them to attend. Instead of just sending them an e-mail reminder, it often works best to give them a call.

A few days before the workshop be sure and send out a reminder with the final agenda, logistics, and list of expected attendees.

Tip: A municipal organizational chart can be useful in brainstorming who should be invited to the table.

Step 3: Set the Agenda

Together with your small group of champions, formulate a vision and objectives for the workshop. In order to do that, you should identify the current water management issues for the community. Examples of issues might include a water supply threatened by increasing demand or contamination, flooded basements and roads, or aging water infrastructure.

Another example is water pressure problems during the summer when water use is high. Water pressure problems will impact the operations of the fire department and may lead to safety concerns for the community. If this is a problem for your municipality, invite the fire department to the workshop. As the workshop program is developed, refer back to your vision and objections to make sure that they are being addressed.

Consider the following when designing the workshop program:

1. State the Purpose of the Workshop

One of the local government champions on the organizing committee for the workshop should kick off the workshop with a brief description of why they organized the workshop and highlight the local water problems that could be better addressed through IWM and working across the departments. This context for the workshop should be kept to a maximum of 15 minutes because it is important to explore the case studies.

2. Present Case Studies on IWM

Real-life case studies in implementing an integrated approach to water management will provide the context necessary to stimulate meaningful discussions at the workshop. In choosing the case studies for your workshop, look for ones that will address the water problems in your municipality that were outlined in the workshop introduction.

At the Guelph workshop, two case studies were used that came from a neighboring watershed. One presentation showcased a few case studies within the integrated stormwater management program at the Credit Valley Conservation Authority. The presenter was the senior manager for the protection and restoration program at the

authority. These case studies highlighted financial implications, successes, failures and characteristics that were critical to achieving success. A green infrastructure project on Elm Drive in Mississauga, Ontario (Figure 3) was one of the case studies. This project was designed to: a) detain 5 mm of rainfall at minimum; b) for sites with a stormwater management pond, detain a 25 mm storm event for 48 hours; and c) to recharge at least 3 mm of groundwater per storm event. This project actually exceeded all performance criteria. This case study and other tools and resources

are available on the Credit Valley Conservation Authority website at: [http://www.creditvalleyca.ca/low-](http://www.creditvalleyca.ca/low-impact-development/)

[impact-development/](http://www.creditvalleyca.ca/low-impact-development/)

The second presentation detailed the nuts and bolts considerations in planning, installing and maintaining a rain garden in Central Parkway, Mississauga, Ontario. It was presented by a municipal water resources engineer from Mississauga. See the two presentations at <http://glc.org/projects/water-resources/greater-lakes/greater-lakes-knowledge-transfer/>.

Your case study presentations should be concise to save time for discussion. The presenters should pull out the basic statistics of the project or program, including environmental impacts and municipal costs, highlight the municipal departments and

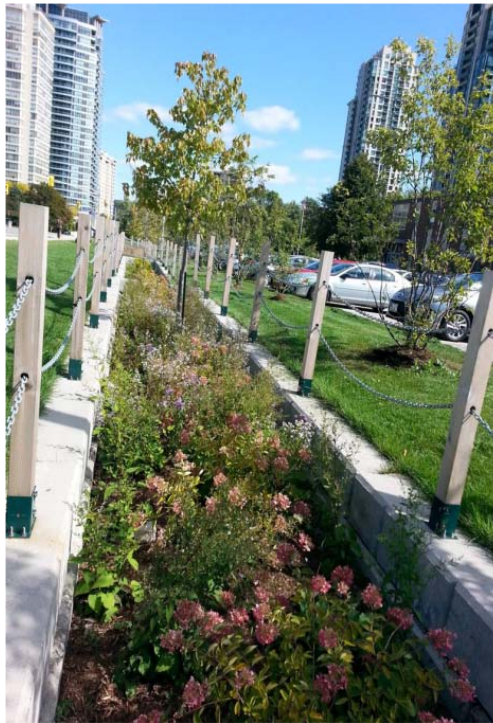


Figure 3 Elm Drive, Mississauga, Ontario
Source: Credit Valley Conservation Authority

other key partners involved, and outline the lessons learned; i.e., the problems encountered and the keys to success.

Consider the following topics for case studies:

- The business case for IWM (including risk mitigation such as insurance from floods)
- Starting the IWM approach at the municipal and watershed levels with stakeholder buy-in
- Sustaining the IWM approach within the municipality
- Environmental and social benefits of the IWM approach
- Implementing and maintaining IWM projects and programs

Looking for case studies and experts in your area?

Contact the Greater Lakes project team.

www.glc.org/projects/water-resources/greater-lake

3. Bring Speakers Experienced in IWM

Speakers should be municipal employees (or watershed government organization such as conservation authorities in Ontario) with real on the ground experience in exploring and implementing IWM practices at the local level. Viewed as peers by the workshop participants, they will give credibility to the discussion topics. The speakers will understand the challenges in taking action at the municipal level and will encourage participants in their efforts to overcome these challenges. They are a great resource because of their own experience in implementing IWM and can effectively answer questions that are raised during discussion.

Once you have found the experts, and they have agreed to participate in the workshop, invite them to some of your workshop planning sessions. Talk about your expectations for them, and help them scope out the objectives and the content of their presentations. Prepare a list of questions related to IWM going into those planning sessions that you want the experts to help answer. Review their draft

presentations in advance of the workshop to ensure the speakers are addressing the right issues. Taking time to prepare the content with the presenters as well as the champions you identified in step 1 before the event will help the workshop stay focused, relevant, and useful for the workshop participants.

4. Include Plenty of Time for Discussion

How many times have you been to a conference or a meeting and the speakers go over time, leaving no time for discussion? Do not let this happen to your workshop.

The key to any good workshop is leaving time for open discussion. Extensive discussion time is especially critical in this workshop because your prime objective is to break down the silos among the attendees from different departments.

Most of the people you invite to this workshop work in various municipal departmental silos. The discussions give them an opportunity to talk with each other about how they make decisions within their department and the factors that are most important in making those decisions. It also gives them an opportunity to explore what they can gain from working together and to understand how their actions may negatively affect the work of people in other departments.

Nearly **eighty percent** of the respondents to the post-Guelph workshop survey thought that an IWM approach was important for his or her municipality to achieve its water objectives.

This workshop will also provide them the space to set aside those daily job concerns and think of the bigger picture of managing the local water resources. Discussion should focus on brainstorming tangible ways we can bring municipal departments together to better manage the local water resources. Participants may come up with concrete projects, activities or policies that can move the

municipality forward in implementing an IWM approach.

During the Guelph workshop, approximately three hours of the six hours were dedicated to facilitated discussion. In addition, the three-quarters of an hour spent at lunch was an important networking opportunity. The following are some discussion points raised during one of the workshop's brainstorming sessions:

- “We need to talk with each other and neighboring communities within the watershed on a regular basis.”
- “Similar workshops for politicians and for the engaged public should be held.”
- “We need to start thinking about the political barriers that inhibit municipalities from using the IWM at the watershed level. More specifically, the political barriers for municipal funds to be shared with neighboring municipalities within the same watershed to implement water resource protection projects that may benefit everyone in the watershed.”

5. Get a Good Facilitator

A good facilitator is key to achieving the workshop objectives. As a neutral party with no stake in the outcomes of the workshop, the facilitator guides or leads the discussion for the group. The facilitator's job is to get others to assume responsibility and take the lead through consensus building, developing recommendations, and identifying next steps.

Pick a person who has facilitation experience and who is comfortable enough with the workshop topic to understand the discussion. The facilitator should not be one of the people you want involved in the discussion. If directly engaged in the discussion, it is too easy for the facilitator to lose focus on how well the workshop is running. In order to ensure an open dialogue, the facilitator should also not be a manager of any of the attendees. For both of these reasons, it is best to not choose a municipal staff

person as the facilitator. Ask organizing committee members of their experience with facilitators. Be sure that someone on your organizing committee has seen the facilitator in action to validate that it is someone who will suit your needs.

The responsibilities of a facilitator include:

- Designing and planning the group process with the workshop planning group, and selecting the tools that best help the group progress towards that outcome.
- Guiding the group process during the workshop to ensure that:
 - There is effective participation.
 - Participants achieve a mutual understanding.
 - Their contributions are considered and included in the ideas, solutions, or decisions that emerge.
 - Participants take shared responsibility for the outcome.
- Employing techniques to guide the group process including:
 - Asking questions to refocus the discussion when needed or to move to topics that have not been discussed.
 - Reading the room and making adjustments that suit the needs and desires of the attendees.
 - Utilizing interactive activities such as writing ideas on post-it notes and sticking them to a wall to get attendees moving and mitigate boredom that tends to set in when the room is static. People really do think better on their feet and with a pen in their hand.
- Ensuring that outcomes, actions and questions are properly recorded and appropriately dealt with afterwards.

In addition to choosing a facilitator, identify a person prior to the workshop to take notes. The facilitator cannot do both the facilitation and the note-taking. The note-taker should have a reasonable understanding of the topics being

discussed so that they can easily follow the discussion and record important points.

6. Wrapping Up

Carve out at least 30 minutes near the end of the meeting to go over the major discussion points and outcomes of the workshop. This agenda item will help set the stage for steps after the workshop. Consider the following options for wrapping up the workshop:

- Use the vision and objectives that were set during the planning phase as guide posts for briefly evaluating progress made during the workshop.
- Get tentative commitments among participants to continue the conversation. One strategy to accomplish this is to ask participants to sign a white board where the final goals and actions were recorded. This will help participants gain a sense of personal investment in the follow-up activities. Some participants may need approval from his/her supervisor before making a firm commitment. At a very minimum, they should agree to share what they learned with their departmental colleagues in a short, internal meeting (e.g., share the Greater Lakes project video on the fractured natural water cycle, available at <https://vimeo.com/131694028>).
- Identify concrete action items and implementation opportunities (e.g., land use planning documents, development guidelines, master plans), and specify who will initiate or follow up on the proposed actions from the workshop.

Step 4: Continue the Momentum

The discussion should not stop at the end of the workshop. Encourage attendees and your group of champions to continue the momentum. Immediately following the workshop, send out a thank you email to those who attended the meeting with a brief synopsis of the workshop and a list of any action items that were decided on at the workshop. Also, shortly after the workshop, talk to your workshop planning committee about their impressions of the workshop, its outcomes and any additional action items. Consider the following

suggestions in maintaining dialogue among the municipal departments:

- Convene bi-monthly, hour-long interdepartmental meetings focusing on water issues and IWM.
- Follow up individually with workshop participants on specific action items.
- Convene another IWM workshop within the next year and invite local decision-makers to the table as described in the preceding section.

Step 5: Expand the Momentum

One of the strongest messages from the Guelph workshop was that for IWM to be effectively implemented in a municipality, there needs to be a team of people from various sectors (including politicians, influencers¹, consultants and businesses as well as the municipal civil servants) who understand IWM and agree with it as a solution. The Guelph workshop attendees recommended convening workshops for these other sectors as a priority next step. These sectors need to meet separately first so they can talk frankly with their colleagues. In the individual workshops, it is important to begin with a municipal speaker who can talk about their purpose and the IWM approach. After these workshops are held, a workshop convening all sectors to focus on common issues that were raised in the previous workshops will add value in deepening municipal orientation toward IWM.

In designing a workshop agenda for other sectors, consider the following items:

- Speakers should be peers. For example, politicians who have experience in IWM in another municipality should speak to politicians at a meeting of municipal councilors.
- Presentation content should be meaningful to the particular sector. For example, with politicians, the workshop should focus on

¹ Local influencers are generally citizens who are known and trusted within their community. Many of these influencers closely follow the political process within their community and provide input to key decisions that are being made. They may be active members of interest groups, watershed councils, chambers of commerce or environmental groups.

complaints received, budgetary impacts, the potential for community involvement, and the opportunity for positive feedback. In a workshop for municipal consultants, the consulting firms could talk about the challenges and advantages for them in providing municipalities with an IWM approach.

Silos also exist at the state and provincial levels of government as a result of the departmental divisions that contribute to fractured management of water resources. Municipal silos are reinforced by the way state and provincial governments approve projects and allocate funds to municipalities. Fortunately, there is a new movement among provinces and states to encourage IWM in principle and begin to change provincial and state programs and funding strategies to support elements of the IWM approach at the municipal level. For example, some states and provinces now require that every funding application for infrastructure allocate a certain percentage of the

funding to green infrastructure. To expand the momentum, it would be a good idea for municipalities, perhaps through one of their municipal organizations, to organize a workshop with state and provincial staff to explore ways to break down provincial and state silos and programs that currently work counter to an IWM approach at the municipal and watershed level.

Take the Silo Breaking Challenge

Now that you are inspired and motivated to get the conversation started about IWM in your municipality, remember that this workshop is only the first step. Silo breaking does not happen overnight. It takes many conversations and actions to move people and agencies into adopting IWM approaches in their operations and policies. The challenge is to continue and build on the momentum. Your efforts and the efforts of your colleagues will pay off in the long run. Your municipality will start to see the results of implementing IWM and the economic and institutional inefficiencies and unintended negative environmental impacts that resulted from the silos will gradually disappear.

Post Workshop Debrief - Tell us what worked and didn't work

Silo breaking is not an easy job. We can learn from each other. Please contact Greater Lakes project manager John Jackson at jjackson@web.ca and tell us:

- Was this guide useful?
- What contributed to the successes or challenges of breaking the silos?

IWM References and Resources

Greater Lakes: Reconnecting the Great Lakes Water Cycle project website, <http://glc.org/projects/water-resources/greater-lakes/>

U.S. Water Alliance, <http://uswateralliance.org/>

Water Environment Research Foundation, Institutional Innovation for Integrated 'One' Water Management, <http://www.werf.org/c/KnowledgeAreas/IntegratedInstitutionsinfo.aspx>

Credit Valley Conservation Authority Guidance, Case Studies and Tools to be a Leader in Low Impact Development (LID), <http://bealeader.ca/>

Decentralized Water Resources Collaborative, <http://www.decentralizedwater.org/>

Water Environment Research Foundation. 21st Century Sustainable Water Infrastructure: Clean and Green, February 25, 2015, http://www.werf.org/i/c/KnowledgeAreas/DecentralizedSystems/LatestNews/Smart_Clean_and_Gree.aspx

American Water Resources Association. Case Studies in Integrated Water Resources Management from Local Stewardship to National Vision. November 2012, <http://www.awra.org/committees/AWRA-Case-Studies-IWRM.pdf>