



## Water Balance Model Partners Forum will showcase vision for 'WBM Express for Homeowner'

First in a series about 'convening for action' to green the urban landscape and protect watershed health

**Convening for Action in BC:**  
Visualize What We Want Our Regions to Look Like in 50 years

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Settlement Change in Balance with Ecology**

1. *Influence choices by individuals and organizations*
2. *Use the term "sustainability" as a lens for considering approaches that influence choices*

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## Preface

Periodically, the Water Balance Model Partnership holds a WBM Partners Forum. These gatherings typically serve two purposes:

- provide an opportunity for local governments to reflect on what has been accomplished through alignment and collaboration; and
- enable the leadership team to foreshadow where the inter-governmental initiative will lead next.

On April 7, Metro Vancouver will host the 2011 Water Balance Model Partners Forum. It will be conducted as an interactive sharing, learning and consultation session. This event will:

- commence the rollout of a new web platform and four new modules (stream erosion, water re-use, climate change, and tree canopy interception);
- showcase the vision for a homeowner version, namely the 'WBM Express'; and
- elaborate on how the WBM, a scenario comparison and decision support tool, supports watershed-based planning.

This article is the first in a series that will be released during the period leading up to the 2011 WBM Partners Forum. It provides historical context and introduces the vision for the 'WBM Express'.

The purpose of these articles is to foreshadow the information-transfer that will take place at the Forum. The series and the Forum are part of the continuing rollout of 'Beyond the Guidebook 2010: Implementing a New Culture for Urban Watershed Protection and Restoration in British Columbia'.

Kim A. Stephens, MEng, PEng, Executive Director  
Partnership for Water Sustainability in British Columbia  
March 2011

**WATER BALANCE MODEL** Powered By: QUALHYMO

**Returning Users**

Username

Password

Log In

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Is this your first visit to the model?  
You will have to register in order to create model scenarios. There is only one option during our public beta testing period:

1. Register a (free) "trial" account. As a trial account registrant you are free to access all model features, however your account and any scenarios you've created will be deleted 7 days from the time you register.

Following the end of the beta period, scenarios created by subscribers or members of subscribing groups will remain in the database permanently.

[Create a New Account](#)

[www.waterbalance.ca](http://www.waterbalance.ca)

Other Tools: 1. Getting Started 2. Background Science

Canada

We are incorporating all the lessons we have learned to date...

The Water Balance Model integrates the Site with the Watershed and the Stream...

To evaluate performance targets for 'greening' the urban landscape and protecting watershed health

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## An Historical Perspective

In October 1997, the Union of British Columbia Municipalities (UBCM) brought together a group of change agents who shared a vision for a 'design with nature' approach to urban watershed protection. Looking back, and in terms of green infrastructure and rainwater management, much of what has subsequently unfolded in British Columbia can be traced back to who was in the room that day.

## UBCM Endorsement

By 2003, the shared vision had led to development of the Water Balance Model (WBM). Launched with high-level political endorsement at the 2003 UBCM Urban Forum, the WBM differs from other drainage modelling tools in three fundamental ways:

- it is web-based;
- development is driven by the community of users; and
- it can help create a vision of the future watershed.

"All three are powerful in their own rights. There is no other comparable web-based tool. Also, the needs and wants of the user community establish priorities for model evolution. This is the main reason why many of the enhancements that we are implementing are capabilities not currently available in commercial software," explains Dr. Charles Rowney, WBM Scientific Authority.



He developed the QUALHYMO calculation engine in the 1980s with funding from the Ontario Ministry of Environment.

## Premier's Award

In February 2009, the WBM received a Premier's Award for Innovation and Excellence because it bridges engineering and planning, links development sites to the stream and watershed, and enables science-based runoff performance targets to be established.

## The Plan for the Future

In November 2009, the Inter-Governmental Partnership released *Water Balance Model for Canada – The Plan for the Future*. This presents a road map for greatly increasing both the computational capabilities of the WBM and its usability in visioning future alternatives for use of water and land.

"WBM evolution offers more than a useful and responsive environment for calculations and knowledge sharing: it constitutes an evolution that will reduce costs for regulators and proponents of change alike; and it will significantly increase the uniformity, reliability and robustness of the conclusions and the results that are created using this system," emphasizes Ted van der Gulik, Chair of the Inter-Governmental Partnership that developed the Water Balance Model.



Under a federal/provincial agreement with British Columbia, the Regional Adaptation Collaboration (RAC) program made a 3-year funding commitment to expand the capabilities of the WBM. This financial support has enabled the platform conversion and addition of four modules.

In February 2010, the District of Central Saanich adopted its *Surface Water Management Bylaw*. Because the bylaw encourages homeowners to use the WBM to make decisions that achieve a lighter 'hydrologic footprint', the bylaw became the catalyst for action by the Inter-Governmental Partnership (IGP) to develop a homeowner version of the WBM. By July 2010, the bylaw had provided the impetus to bring together a local government focus group in a planning session hosted by Metro Vancouver.

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## WBM Express for Homeowners

The focus group represents a spectrum of local governments within the Georgia Basin. The City of Surrey, District of North Vancouver, Cowichan Valley Regional District and Central Saanich have volunteered to demonstrate application of the 'WBM Express for Homeowners'.



### WBM Express

- Derivative from multiple partners in their pursuit of local goals
  - > Central Saanich Bylaw
  - > City of Surrey (Diversity of Need)
  - > Cowichan Valley (new development)
  - > Metro Vancouver ( ILWRMP & RGS)
  - > DNV (watershed retrofit & ISMP)
- Provides a tool to fill the needs of all the partners and their own unique needs

## Watershed Context

"The 'WBM Express for Homeowners' is a bottom-up initiative; and is geared to achieving the on-property rainwater management and performance target objectives of local governments in a watershed context in order to protect stream health," states Richard Boase, IGP Co-Chair. He represents the District of North Vancouver.



"A framework for developing integrated and holistic plans is consolidated in a single table (scroll down to bottom) in Beyond the Guidebook 2010.

Originally released in 2008, Table 2 was developed in conjunction with the consultation process for Metro Vancouver's Integrated Liquid Waste & Resource Management Plan. It lays out the cascading logic for establishing, evaluating and implementing watershed-specific runoff targets that will protect stream health."

## Project Vision

The analytical process for 'lightening the hydrologic footprint' is summarized as follows:

- What is there now on the property?
- What is the planned change?
- What can be done to mitigate the increase in runoff volume?

"When homeowners go to a 'rainwater management link' on the host local government website, we envision that they will be able to: type in their address; access a version of the WBM that has pre-set values (for climate, land use); apply source controls; run scenarios; and print a report," continues Richard Boase.

"Actually, the ultimate target audience goes well beyond homeowners. We see the WBM Express as a vehicle to connect with builders, developers, consultants, real estate agents and students/educators," adds Carrie Baron, Manager of Drainage and Environment with the City of Surrey.



"The WBM Express will open the door to all kinds of educational opportunities. It will be a resource for developers and others to help the public understand the effect of their choices and decisions on the natural environment. It could be incorporated into the curricula for high school and post-secondary institutions."



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## Project Timeline

"Our vision for building the WBM Express is influenced by two existing web-based tools: Surrey's Sustainability in My Back Yard and North Vancouver's Geoweb- Community Solar Application. The Surrey tool provides a picture and the North Van tool demonstrates the capabilities. Our goal is to build the platform in 2011 and connect to local government web delivery systems in 2012," concludes Richard Boase.



### WBM Express

Desired Outcome requires shift in focus to the ways & methods that land processes rain & water

- The express version will help the land owner understand the relation between land, rain and water
- The express version will show the land owner how to make changes to the way the land processes rain & water

## About Beyond the Guidebook 2010

"The Province has put in place a 'design with nature' policy framework that enables local governments to build and/or rebuild communities in balance with ecology. Beyond the Guidebook 2010 provides 'how to' guidance for developing outcome-oriented urban watershed plans, with emphasis on a necessary course correction for Integrated Stormwater Management Plans (ISMPs)," states Kim Stephens, Executive Director for the Partnership for Water Sustainability in British Columbia.



"As the rollout of Beyond the Guidebook 2010 continues, we are highlighting the application of 'Table 2'. It is pivotal because it presents a conceptual framework for setting watershed-specific performance targets and then implementing them at the development scale."

"There must be clear linkages between the targets and development approval processes. Financial and legal tools must also be in place to ensure implementation of outcome-oriented strategies."

Convening for Action in British Columbia

**Beyond the Guidebook 2010:**  
Implementing a New Culture for Urban Watershed Protection and Restoration In British Columbia

June 2010

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real estate foundation  
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Canada  
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Table 2 (brought forward from Chapter 7 in 'Beyond the Guidebook 2010')

### Developing Outcome-Oriented Watershed Plans: Framework for Moving from Planning to Action

Action	Level of Commitment
Complete and implement integrated rainwater/stormwater management plans that are <b>affordable and effective</b> in protecting or restoring Watershed Health	<ul style="list-style-type: none"> <li>▪ Local governments, in collaboration with senior governments, develop Integrated Plans that enable implementation of integrated strategies for greening the built environment; and include establishing watershed-specific runoff targets (for managing the complete rainfall spectrum) that make sense, meet multiple objectives, are affordable, and result in net environmental benefits at a watershed scale.  <i>(Note: To date, "integrated drainage plans" have typically been called "ISMPs" pursuant to the nomenclature established in Chapter 9 of the 2002 Guidebook. The time has come to describe truly integrated plans as "IRMPs" to reflect the paradigm-shift from pipe-and-convey 'stormwater' to landscape-based 'RAINwater')</i></li> </ul>
	<ul style="list-style-type: none"> <li>▪ Local governments, in collaboration with senior governments, establish watershed targets that are characteristic of actual conditions in watersheds, recognizing that there will be different strategies for already developed versus partially developed watersheds.</li> </ul>
	<ul style="list-style-type: none"> <li>▪ Local governments, in collaboration with senior governments, evaluate the acceptability of watershed-specific runoff targets on the basis of an evaluation framed by these three questions:               <ol style="list-style-type: none"> <li>1. What target will achieve the watershed health objective?</li> <li>2. What needs to be done to make the target achievable?</li> <li>3. Do the solutions meet the test of affordability and multiple objectives?</li> </ol> </li> </ul>
	<ul style="list-style-type: none"> <li>▪ Local governments, in collaboration with senior governments, implement green infrastructure solutions that result in effective rainfall management at the site, catchment and watershed scales.</li> </ul>
Embed "IRMP" landscape-based strategies in neighbourhood concept plans	<ul style="list-style-type: none"> <li>▪ Local governments develop rainwater/stormwater and land use plans through an inter-departmental process that is collaborative and integrated.</li> <li>▪ Local governments provide guidance as to how watershed-specific targets can be met at the development scale.</li> </ul>

**Source:** **Commentary on Effective Municipal Rainwater/Stormwater Management and Green Infrastructure to Achieve Watershed Health**, April 2008

Released jointly by the Green Infrastructure Partnership and the Inter-Governmental Partnership in conjunction with the consultation process for Metro Vancouver's *Integrated Liquid Waste & Resource Management Plan*

The Commentary is accompanied by a paper titled *Beyond the Guidebook: Establish Watershed-Specific Runoff Capture Performance Targets*, released at the 2008 Water Balance Model Partners Forum.