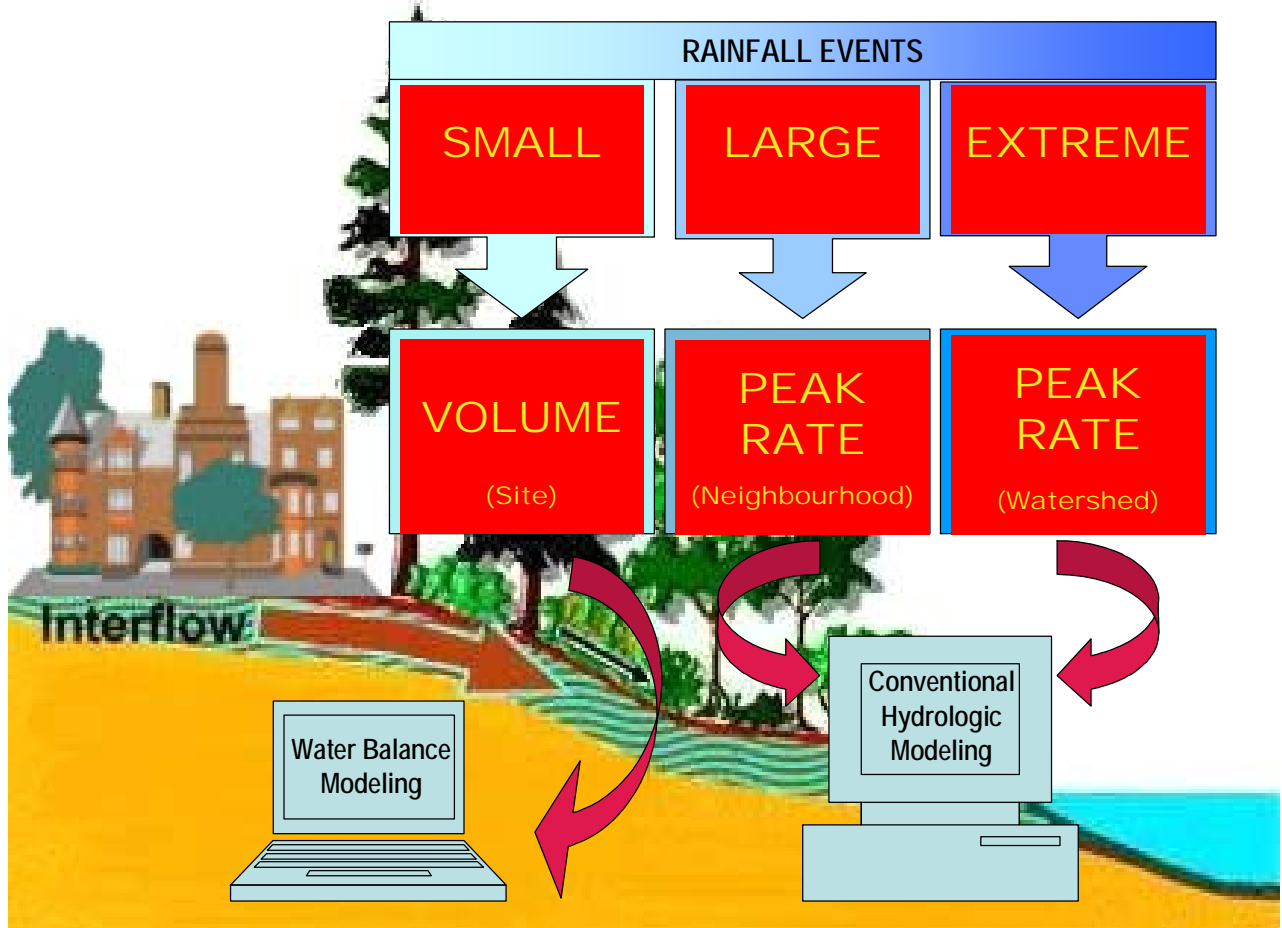




# Designing with Nature:

## Celebrating the Chilliwack Experience in Implementing Sustainable Community Design



Outreach and Continuing Education Program  
Chilliwack Water Balance Model Forum – February 18<sup>th</sup> 2004



**The Inter-Governmental Partnership (IGP)** comprises federal and provincial agencies, and local governments representing the Greater Vancouver, Fraser Valley, Okanagan and Vancouver Island regions.

- |   |   |
|---|---|
| <ul style="list-style-type: none"><li>▪ Ministry of Agriculture, Food &amp; Fisheries (Chair)</li><li>▪ Greater Vancouver Regional District</li><li>▪ District of North Vancouver</li><li>▪ District of West Vancouver</li><li>▪ City of North Vancouver</li><li>▪ District of Maple Ridge</li><li>▪ City of Courtenay</li><li>▪ Municipality of Delta</li><li>▪ Ministry of Water, Land and Air Protection</li></ul> | <ul style="list-style-type: none"><li>▪ Environment Canada (Co-Chair)</li><li>▪ City of Chilliwack</li><li>▪ City of Surrey</li><li>▪ City of Vancouver</li><li>▪ City of Coquitlam</li><li>▪ City of Abbotsford</li><li>▪ City of Kelowna</li><br/><li>▪ Ministry of Sustainable Resource Management</li></ul> |
|---|---|

**The Water Balance Model for British Columbia** simulates what happens when rain falls on a site. The hydrology engine is built around established soil science principles and simulates the drying and wetting of soil.

The model creates an understanding of how to get stormwater into the ground and keep it out of pipes. The user can quantify the effectiveness of site designs that incorporate absorbent landscaping, infiltration facilities, green roofs and rainwater harvesting. The tool is free, Internet-accessible, and interactive.

**The Mission** of the IGP is to enable local governments and landowners to make informed land development decisions and meet performance targets for stormwater runoff volume reduction - under a variety of land use, soil and climate conditions.

**The IGP Management Framework** is comprised of a Leadership Team, a User Needs Focus Group, and Signatory Partners, all supported by the Project Coordinator. The Chair and Co-Chair form the Leadership Team and function as an Executive Committee. The User Needs Focus Group comprises four of the Signatory Partners, and serves an advisory/steering function.



## 3-Year Vision for WBM Evolution

1. **PURPOSE:** This document describes the planning framework for achieving the short-term and long-term goals of the Inter-Governmental Partnership (IGP) in implementing and evolving the *Water Balance Model for British Columbia* (WBM).
2. **BACKGROUND:** The decision by the IGP to go straight to a web-accessible tool:
  - 2.1 Increases the opportunities to promote its widespread use.
  - 2.2 Results in greater need to provide training in its use.
  - 2.3 Places responsibility on the IGP to provide coordination and oversight
3. **PROJECT VISION:** The over-arching goal of the IGP is to promote changes in land development practices. This will be achieved over time.
  - 3.1 **Short Term Goal** – For application of the WBM to become standard practice for land use decisions, there must be:
    - 3.1.1 Confidence in the science behind the hydrology engine.
    - 3.1.2 The GUI must be easy to understand and simple to use.
  - 3.2 **Long Term Goal** – As use of the WBM becomes standard practice in British Columbia for land development decisions, then the WBM can evolve into a more sophisticated tool at two levels:
    - 3.2.1 Hydrology Engine
    - 3.2.2 Interfacing with Geographic Information Systems (GIS)
4. **PLANNING FRAMEWORK:** The 3-year plan will create the momentum to undertake successive phases as listed below:
  - 4.1.1 Phase 1 – Develop & Implement Graphical User Interface (GUI)
  - 4.1.2 Phase 2 – Build Demonstration Projects to Build Confidence
  - 4.1.3 Phase 3 – Incorporate Technical Enhancements and Linkages
5. **NEXT STEPS:** The IGP will develop a detailed roadmap for getting to Phases 2 and 3, and that addresses how the IGP will:
  - 5.1.1 Generate self-sustaining funding for website maintenance
  - 5.1.2 Decide when and how to incorporate additional modules
  - 5.1.3 Obtain funding for incorporation of additional modules
  - 5.1.4 Track, document and publicize WBM case study applications by Partners
  - 5.1.5 Fulfill an umbrella role for coordination and oversight in sharing WBM results
  - 5.1.6 Incorporate a feedback loop so that case study results can be used to improve the WBM engine
  - 5.1.7 Generate funding for WBM fine-tuning as may be needed once case study results are available for calibration and validation

# Water Balance Model for BC - Tiered Access Protocol

Date of Last Revision: December 9<sup>th</sup> 2003

	Scientific Authority	Project Partner	Paying Subscriber	General User
<b>GENERAL DESCRIPTION</b>	<ul style="list-style-type: none"> <li>Defined as the management of the Inter-Governmental Partnership</li> <li>Responsible for enhancements to GUI and Hydrology Engine</li> <li>Uploads custom climate data and maintains database</li> <li>Manages user profiles</li> </ul>	<ul style="list-style-type: none"> <li>Defined as a local government that has made a one-time \$5000 contribution towards model development</li> <li>Password-protected access</li> <li><b>Total</b> flexibility to customize soils and land use database</li> <li>May assign access on a time-limited basis to consultants and/or others for specific projects</li> </ul>	<ul style="list-style-type: none"> <li>Defined as any municipality, company, group or individual that pays a renewable annual 'fee for service' to have more options than a General User</li> <li>Password-protected access</li> <li><b>Some</b> flexibility to customize values for input parameters</li> <li>Cannot modify municipal land use databases</li> </ul>	<ul style="list-style-type: none"> <li>Defined as anybody in the world with Internet access</li> <li>Includes employees of senior government agencies, unless involved with a specific project or Local Government Partner</li> <li><b>No</b> flexibility to customize values for input parameters</li> <li>Restricted to default values only, including climate data</li> </ul>
Annual Fee	N/A	\$1000 (waived until October 1 <sup>st</sup> 2004)	\$1000 per 12-month period	None
Access Offline	Yes	Yes	No	No
Governance	Complete Authority	Advisory Role	None	None
Post News Items	Yes	No	No	No
Create Projects	Yes	Yes	Yes	Yes
Save Data	Yes	Yes	Yes – but only for subscription period	For 7 days only
Load Climate Data	Yes	Yes – IGP will upload 1 set per yr; QA/QC to be completed by Partner; shared use by all Partners	Yes – IGP will upload 1 set; each additional set for an additional fee; QA/QC to be done by Subscriber	No
Set Targets	Yes	Yes	Yes	No
View Results	Yes	Yes	Yes	Yes
<b>SOILS</b>				
- Add a Soil Type	Yes	Yes	Yes	No
- Save a Soil Type	Yes	Yes, and shared use by all Partners	Yes, but cannot be used by others	No
<b>LAND USE</b>				
- Add a Land Use	Yes	Yes	Yes	No
- Save a Land Use	Yes	Yes, and shared use by all Partners	Yes, but cannot be used by others	No
<b>SURFACE CONDITIONS</b>				
- Add a Surface Condition	Yes	Yes	Yes	No
- Save a Surface Condition	Yes	Yes, and shared use by all Partners	Yes, but cannot be used by others	No
<b>SOURCE CONTROLS</b>				
- Add a Source Control	Yes	No	No	No
- Save a Source Control	Yes	No	No	No



## Introduction to the Presentation Team

**KIM STEPHENS**, Engineer-Planner, is the team leader and has received international recognition for his pioneering efforts. He has been invited to speak on ‘the British Columbia experience’ at forums in Australia and throughout North America. The recently published guidance document titled [Stormwater Planning: A Guidebook for British Columbia](#) is a distillation of his 30 years of experience in water resource management. Kim also created the vision for the [Water Balance Model for British Columbia](#) as an extension of the Guidebook, and is Project Coordinator for the Inter-Governmental Partnership that has funded development of this decision support tool.

**DOUG BACKHOUSE**, Landscape Architect and Website Architect, is a principal of Lanarc Consultants Ltd. He was responsible for creation of the graphical user interface and Internet-accessible platform for the Water Balance Model for BC. Doug has played a leading role in the development of several major Internet websites including the [Stewardship Centre](#) which is growing to include hubs in BC, Ontario, and Saskatchewan. Over the past decade, he has worked with federal and provincial agencies in developing a wide variety of award winning documents as part of the [Stewardship Series](#).

**RICHARD BOASE**, Geoscientist and Integrated Resource Manager, is the Environmental Protection Officer with the District of North Vancouver. Presently he sits on the Greater Vancouver Regional District’s Stormwater Inter-Agency Liaison Group as well as the Working Group on Climate Change. His expertise is in the area of multi-disciplinary resource management and includes, land development, environmental impact assessment, urban stormwater impacts and watershed management and health.

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## Guiding Principles of Stormwater Management

- **A**gree that Stormwater is a Resource
- **D**esign for the Complete Spectrum of Rainfall Events
- **A**ct on a Priority Basis in At-risk Drainage Catchments
- **P**lan at Four Scales – Region, Watershed, Neighbourhood and Site
- **T**est Solutions and Reduce Costs through Adaptive Management

