

Presentation to Regional Planning Advisory Committee on July 20, 2012

# **Sustainable Rainwater Management: Mimic the Water Balance and Protect Stream Health!**

Kim A Stephens, M.Eng., P.Eng., Executive Director



the partnership  
for water sustainability in bc

Metro Vancouver and majority of member municipalities are charter members of the Partnership for Water Sustainability, a not-for-profit society

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Tim Pringle, President  
November 2010

“The Partnership is helping the Province implement the *Living Water Smart* and *Green Communities* initiatives.

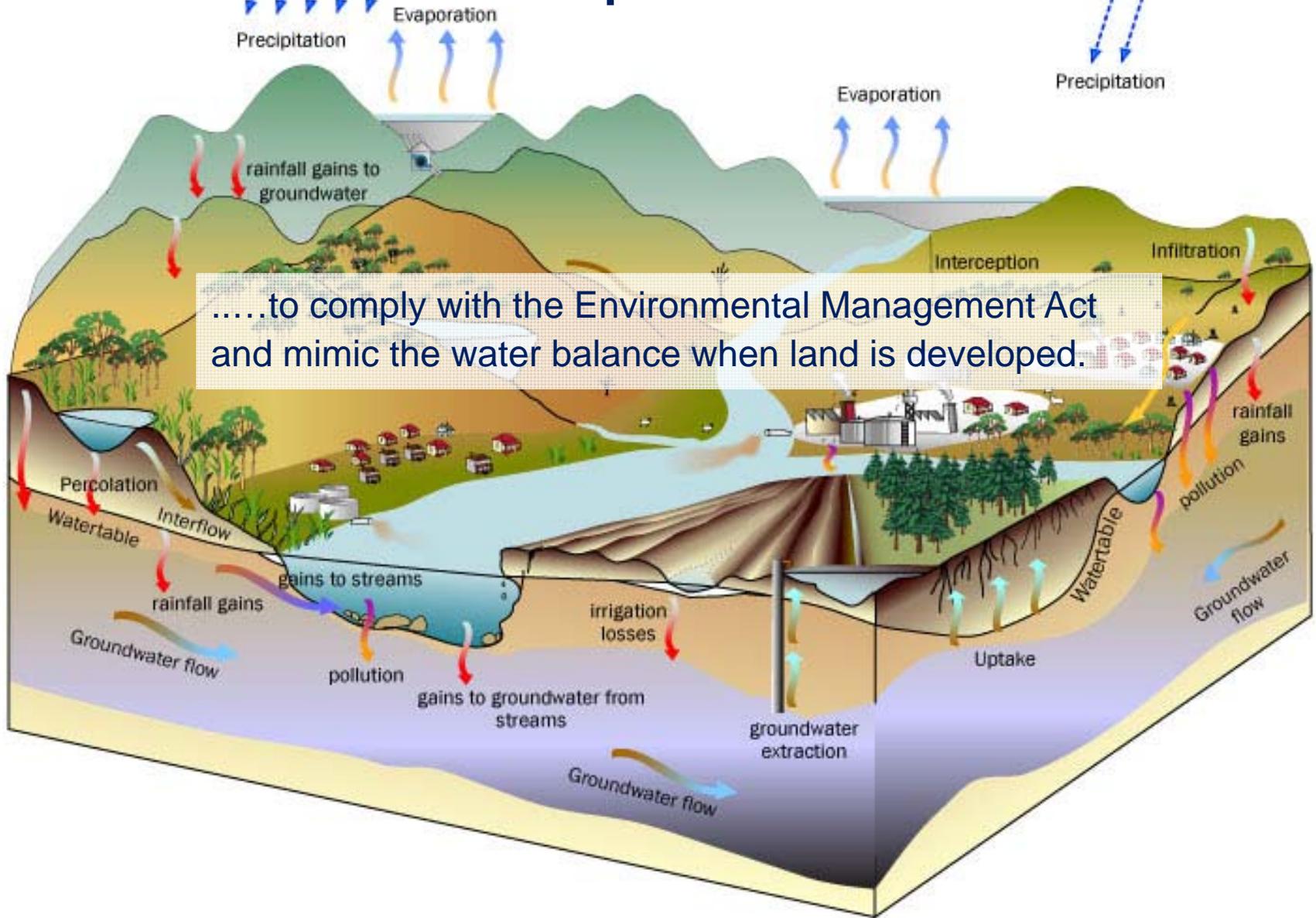
This is being done through a shared responsibility in delivering the *Water Sustainability Action Plan for BC.*”

## ROAD MAP FOR PRESENTATION:

Two initiatives that will help municipalities better deliver on regulatory commitments:

- ❑ Rainwater Management in a Watershed Sustainability Context: An Inter-Regional Education Initiative
- ❑ Capture Rain Where It Falls: Water Balance Model Express for Landowners

# Every municipality has to manage the raindrops that fall on it .....



When the land surface is hardened and  
below-ground flowpaths to streams are eliminated:

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**TOO MUCH WATER:**  
*stream erosion and instability*

**TOO LITTLE WATER:**  
*fish will not survive*

**KEY MESSAGE:** *Both conditions have financial implications  
as well as liability and sustainability consequences over time*

*Integrated Liquid Waste & Resource Management Plan*  
is a regulatory instrument that commits the members to action

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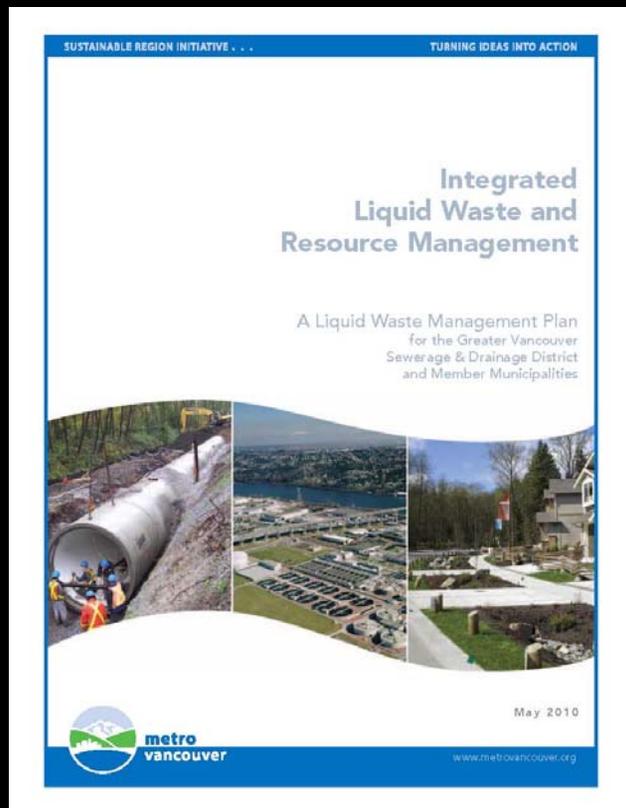


Terry Lake  
Minister of Environment  
May 2011

“Metro Vancouver and member municipalities are encouraged to consider how the degree, type and location of land development within a drainage can affect the long-term health of the watershed.”

**Actions for on-site rainwater management are spelled out in the ILWRMP. Municipalities will:**

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1.1.20 - Update bylaws

1.1.21 - Update neighbourhood design guidelines

3.4.7 - Develop & implement ISMPs ("Watershed Blueprints")

3.5.9 - Report out annually to MOE

# The Province is going down a pathway that will integrate regulatory compliance and collaboration

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“Regulatory requirements provide a driver for local governments to protect and/or restore watershed health over time. We also recognize that solutions will be achieved through partnerships, collaboration and regional alignment of efforts.”

**Avtar Sundher**

Government and Compliance Section Head  
Environmental Protection Division, South Coast  
Ministry of Environment

October 2011

**CONNECT THE DOTS:**  
**Reduce Risk, Improve Watershed Health and**  
**Comply with Regulatory Requirements**

**Water Balance Methodology integrates**  
**Sites with the Watershed and the Stream**



## So, what does this mean for RPAC?

- The right land use decisions are essential if municipalities are to comply with environmental regulations.
- It is too costly and too difficult to try to fix things afterwards.
- Planners have the most control / influence over the success of ISMPs (Watershed Blueprints)

# 'Inter-Regional Education Initiative'

Is about alignment and a consistent approach to  
'Rainwater Management in a Watershed Sustainability Context'.

## Georgia Basin Initiatives:

- 1 Comox Valley: *An Integrated Watershed Approach to Settlement*
- 2 Nanaimo Region: *Drinking Water & Watershed Protection Plan*
- 3 Cowichan Valley: *Cowichan Basin Water Management Plan*
- 4 Capital Region: *Integrated Watershed Management Implementation*
- 5 Metro Vancouver: *Integrated Liquid Waste & Resource Management Plan*



Inter-regional collaboration  
will help everyone go farther,  
more efficiently and effectively, when:

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- Align workloads
- Share tools and experience
- Leverage resources (*people & money*)

INITIATIVE DRAWS ATTENTION TO SUCCESS STORIES:

**Capital Region's Bowker Creek Blueprint -  
a truly integrated plan to  
restore watershed function over 100 years**

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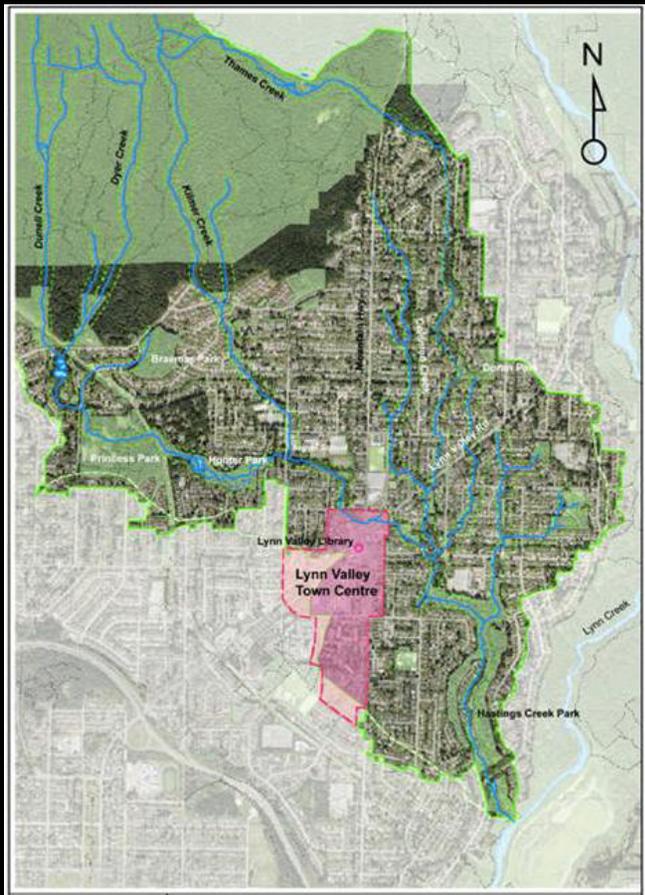


“Agree on the vision. Set the targets.  
Provide the planners with the detail  
necessary to guide site level  
decisions as opportunities arise.  
Then implement.”

Jody Watson, Chair  
Bowker Creek Initiative  
Capital Regional District  
October 2011

**NEXT: North Vancouver 's Hastings Creek builds on what was successful for Bowker; and is a demonstration application of HOW to integrate the site with the watershed and stream**

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### **THE GOAL:**

After redevelopment, each site will function as it did before, or better!



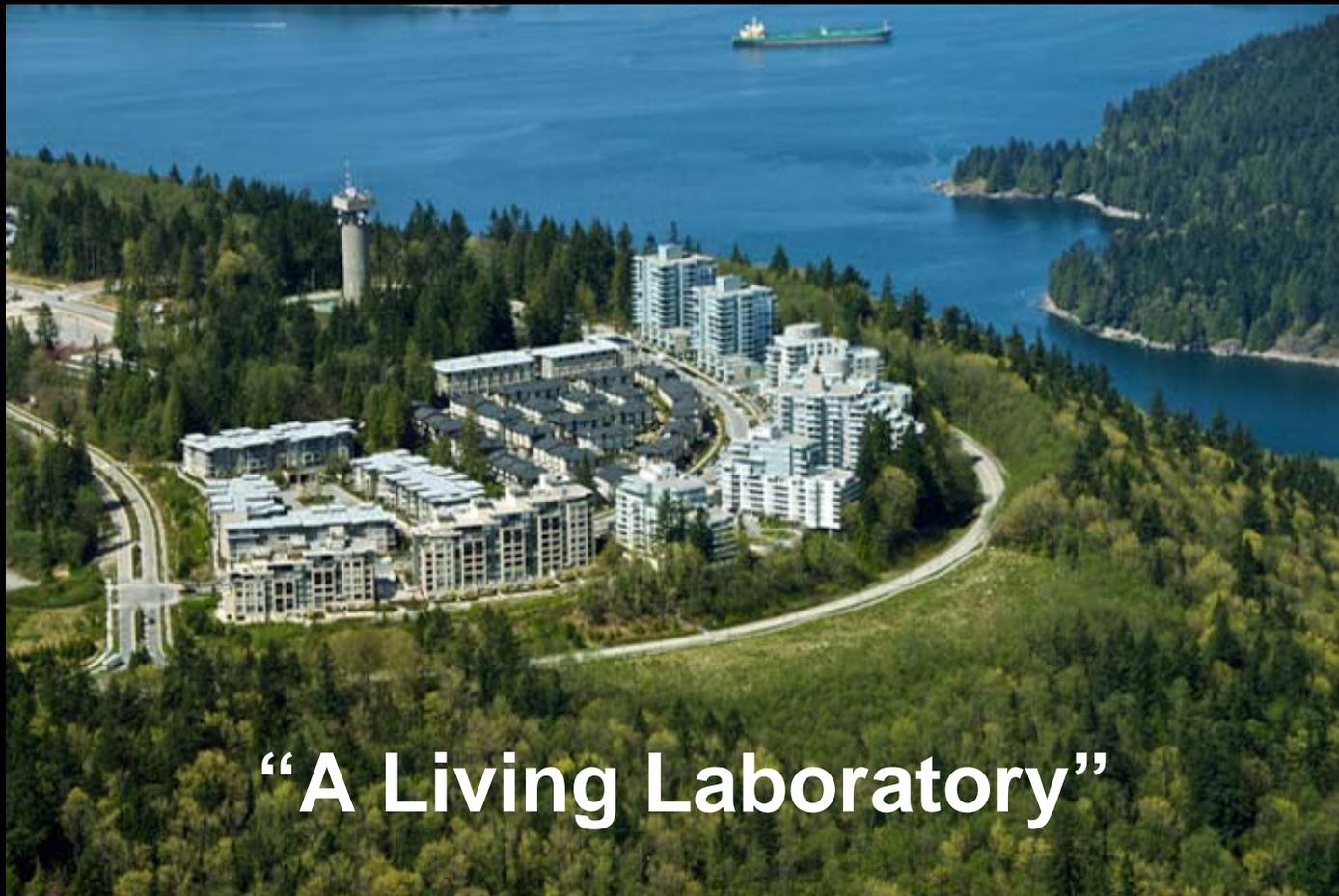
## **‘Water Balance Model Express’**

- a key tool for the region and members to meet your ISMP regulatory commitments!



## Genesis for Water Balance Methodology:

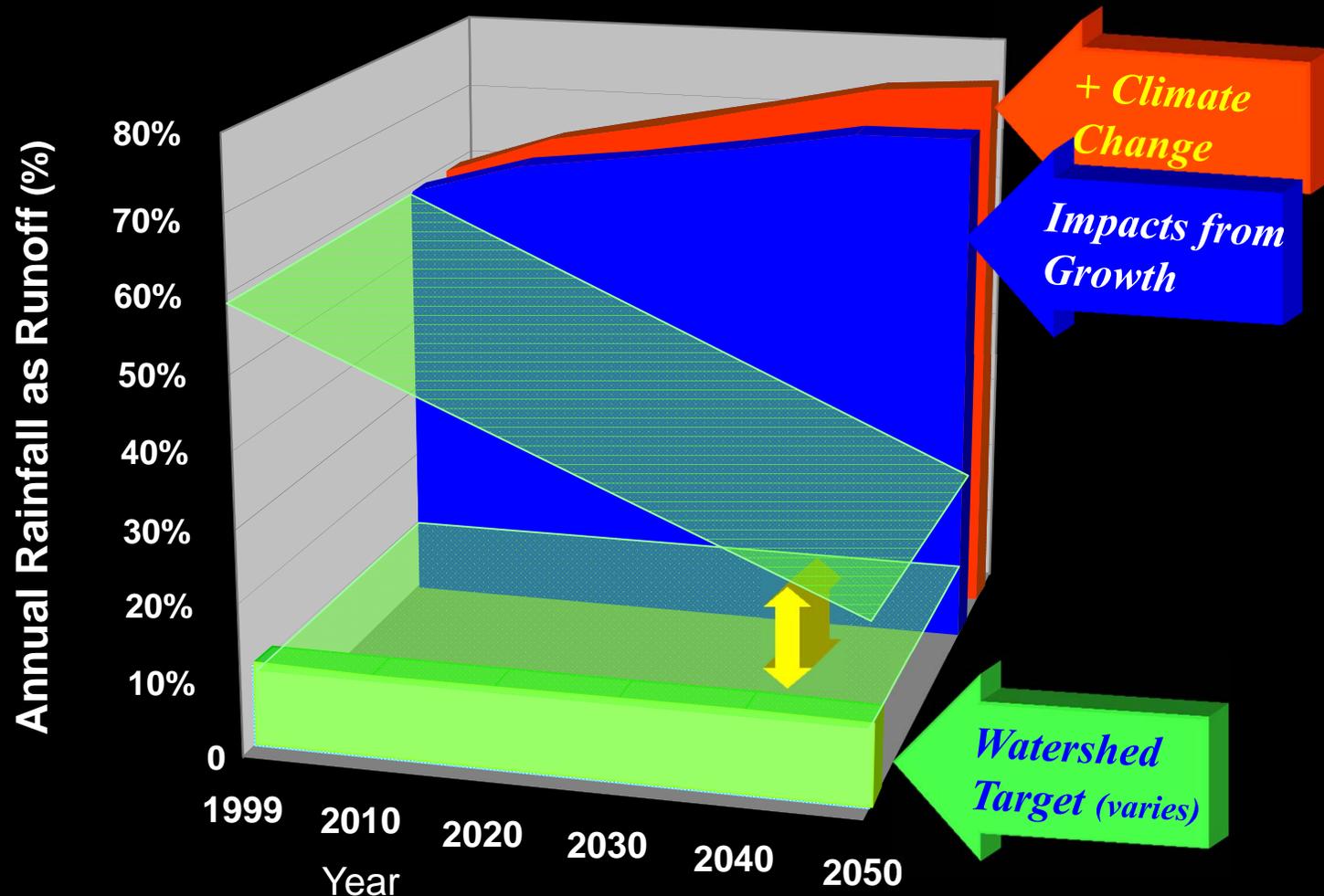
Looking at rainfall differently started with the *UniverCity Sustainable Community* on Burnaby Mountain (2000)



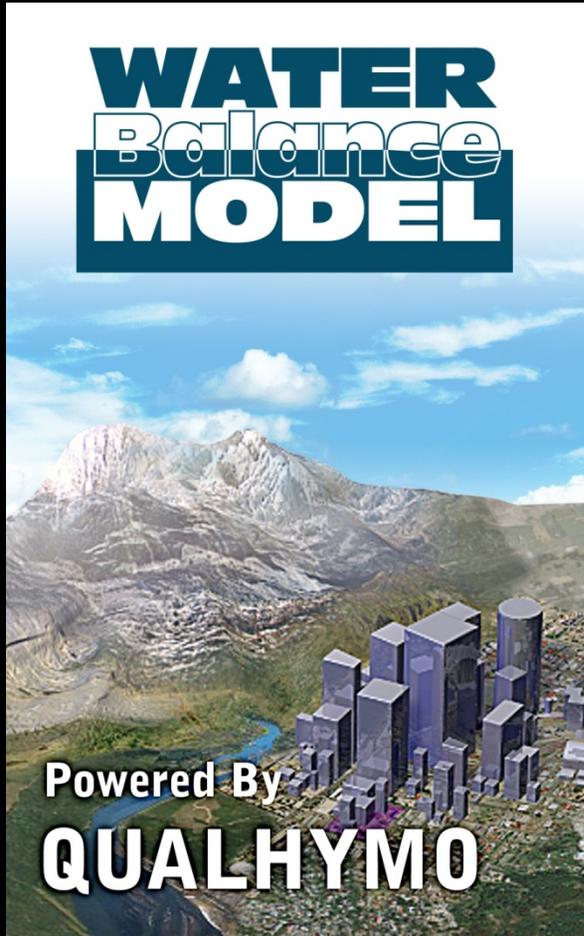
“A Living Laboratory”

# Genesis for Water Balance Model in 2001:

Demonstrate that we could make a difference at a watershed scale, over time, one property at a time



# **WATER Balance MODEL**



**“The \$50,000 grant from Metro Vancouver leveraged ~\$250,000 cash and in-kind”**



**Ted van der Gulik, Chair**  
(Province of British Columbia)  
WBM Partnership

# WBM Express will drive on-site practices that **“Mimic the Water Balance”**



**Impervious Cover: reduced from 28% to 53%**

THE GOAL: After development, the site will function as it did before, or better!

...because stream health depends on ALL properties in a watershed



*If we reduce our 'water footprint', and if we ensure the integrity of groundwater flow, we can then protect stream health*

# Addition of the WBM Express to the toolkit will help front counter staff show landowners how to “Lighten the Water Footprint”

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What is on the property now

What is the planned change

How runoff volume will increase

How the increase will be reduced



Because targets are pre-set, landowners can then concentrate on fitting an effective combination of site enhancements that achieve the targets

The Water Balance Express | Create New

Reference Name:

Municipality:

Location Zone:

Lot Size:  m<sup>2</sup>

Instructional Text  
Instructional Text / error messages  
Lorem ipsum dolor sit amet, consectetur adipiscing elit. Fusce magna feles, elementum in sagittis in, sodales et nisi. Aenean adipiscing pharetra lectus vitae posuere

The Water Balance Express | Property Setup - Start

Instructional Text / error messages  
Lorem ipsum dolor sit amet, consectetur adipiscing elit. Fusce magna feles, elementum in sagittis in, sodales et nisi. Aenean adipiscing pharetra lectus vitae posuere

Click an icon to add to your property

**Click icons to define property**

Cumulative Results @



Property Details @

Property is currently 100% undefined

 To get started you need to define what is on your system will calculate the water run-off foot print!

Select items from the tool bar above to add components to your property

**The landowner's subsequent choices will drive the dial. The dial represents the integrated target.**

Notes:  
Mitigation icons are not available until the appropriate coverage has been added  
The calculator kicks in once the lot coverage is 100% defined

The Water Balance Express | Property Setup - Start

Instructional Text / error messages  
Lorem ipsum dolor sit amet, consectetur adipiscing elit. Fusce magna feles, elementum in sagittis in, sodales et nisi. Aenean adipiscing pharetra lectus vitae posuere

Click an icon to add to your property

Cumulative Results @

Add Building @

Length:  m Width:  m

Area:  m<sup>2</sup>

To mimic the water balance  
and protect stream health....



...we are seeking  
input and support  
from RPAC for an  
educational approach  
that benefits from  
being Georgia Basin in  
scope and scale