

## CAVI – Convening for Action on Vancouver Island Leadership in Water Sustainability



**Development and Watershed Protection  
are Compatible? *Since When?***

**Kim Stephens, MEng, PEng**  
Program Coordinator  
CAVI Leadership Team

# Building a Vision & Creating a Legacy

- **Issue:** How We Manage Population Growth
- **Impact:** Growth Resulting in Urban Densification  
(Land Constraints; Smaller Lots)
- **Sustainability:** *Means Design with Nature*
- **Built Environment:** We Can Improve It
- **Natural Environment:** We Can Protect It
- **Cumulative Benefits:** Accrue Over Time
- **Outcome:** Sustain Community Livability





## Returning Users

Username   
Password

Log In!

Forgotten Your Password?

Help

### 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



# Integrating the Site with the Watershed and the Stream...

integrate good land use planning  
and innovative engineering designs

CANADA

User Guide

1. Getting Started

2. Background Science



7:36 AM

# **The New Business As Usual**



- ☑ **Part One – Where We Have Come From:**  
Provincial Context
- ☐ **Part Two – Where We Are Going:**  
Vancouver Island & CAVI





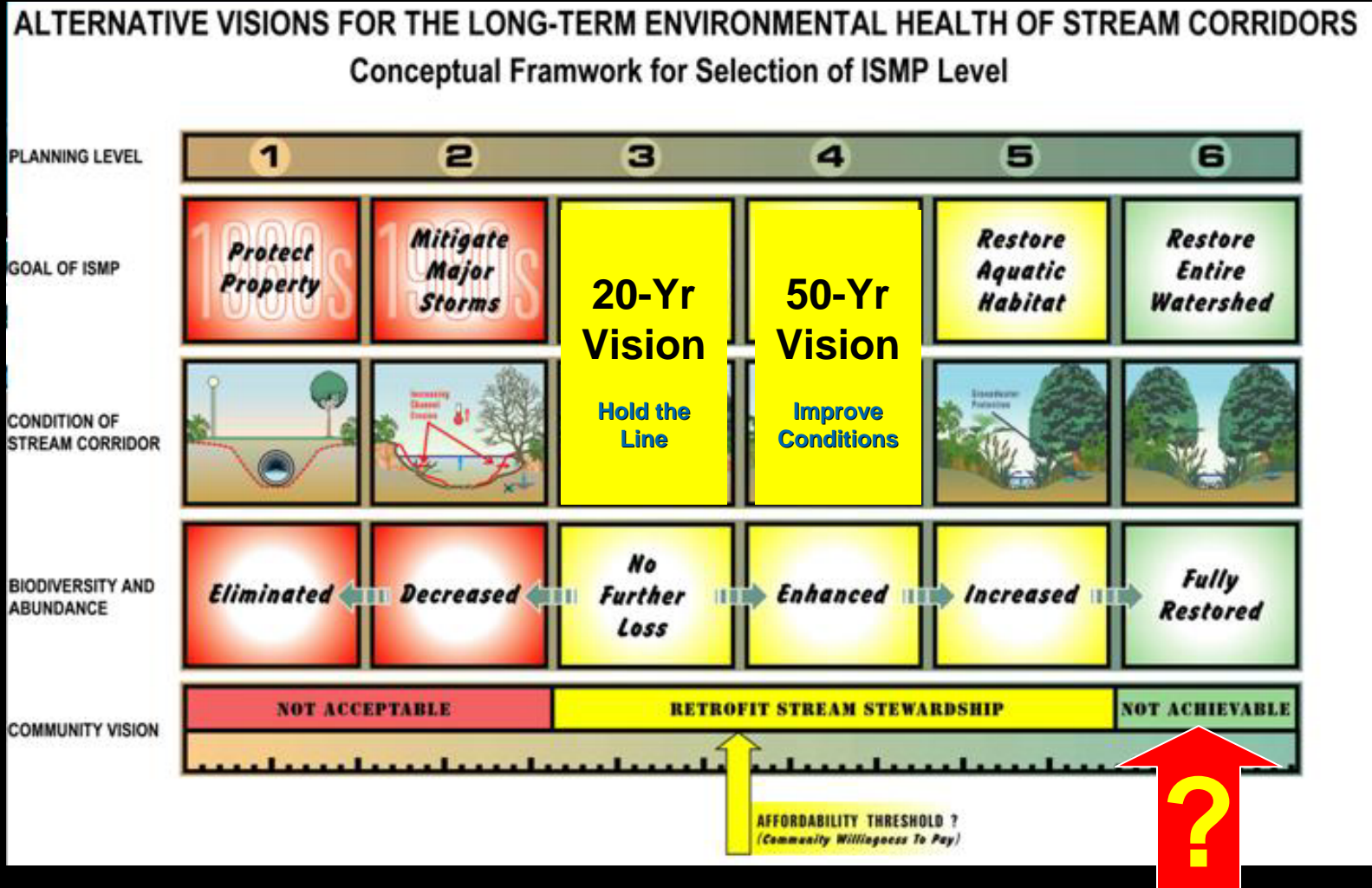
# The New Business As Usual:

Visualize What We Want Vancouver Island to Look Like in 50 years


***“What the cell is to the body,  
the site is to the region”***

Patrick Condon, 1998  
University of British Columbia

# What we believed to be 'unachievable' in 1998 may in fact now be within our grasp



Now achievable?

The background of the slide is a photograph of a field with tall, dry grass. In the lower-left corner, a portion of a compass is visible, showing its face and a white strap.

# Where and how land is developed determines....

## ■ How water is used

→ *sustainability of supply*

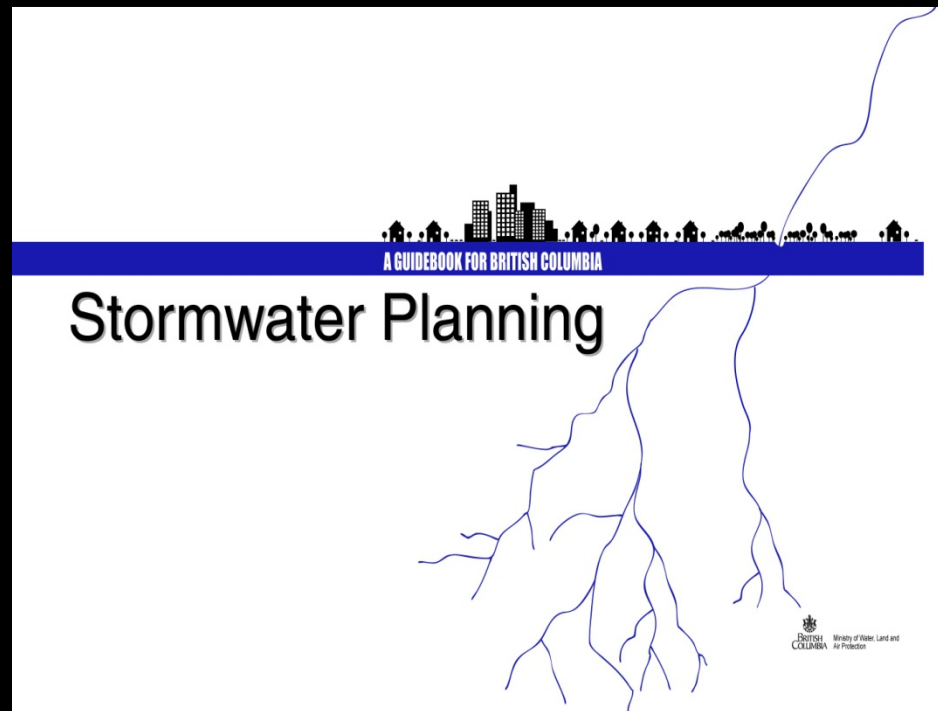
## ■ How water runs off the land

→ *sustainability of terrestrial  
and aquatic habitat*

...so, mimic the natural environment !



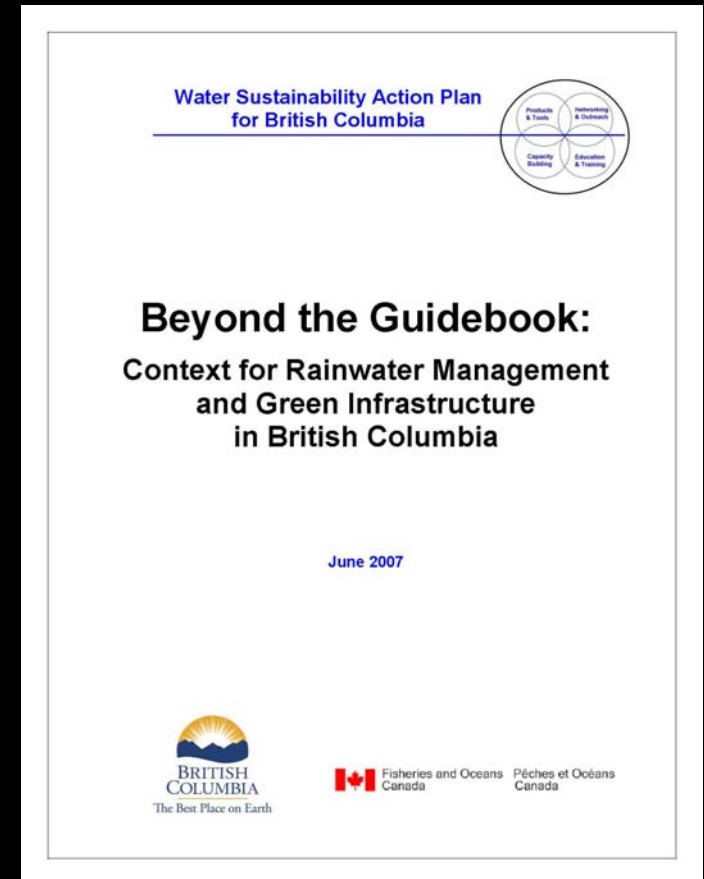
**Published in 2002, the Guidebook is *outcome-oriented*; this sets it apart from *output-oriented* approaches**



**Create livable communities; protect stream health!**



**Released in 2007,  
Beyond the Guidebook  
incorporates lessons  
learned since 2002,  
and picks up where  
others left off previously**



**Create livable communities; protect stream health!**

# The Guidebook Premise - *Land Development and Watershed Protection can be Compatible* – represented a radical shift in thinking in 2002



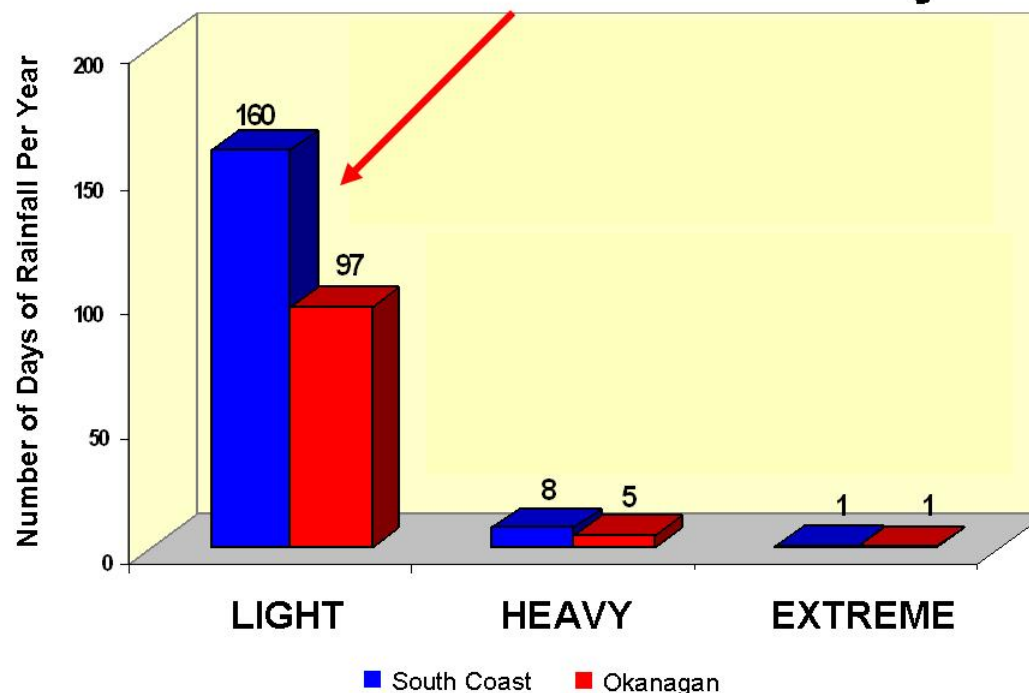
**Policy** Level Development Objectives

**Science-Based Understanding**  
of Development Impacts

**Site Design** Practices that achieve Objectives

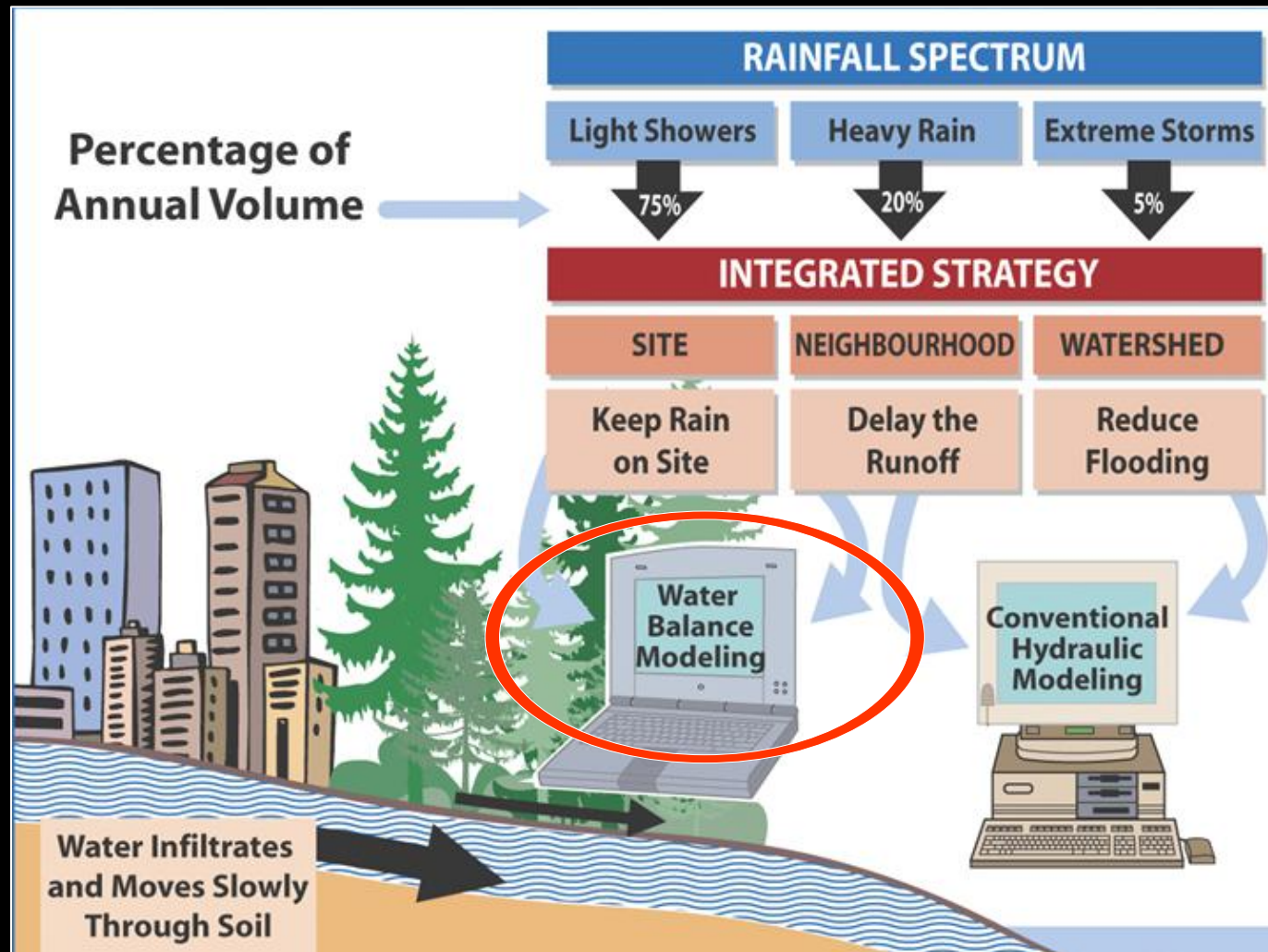
**We went back to basics, and when we developed the concept of a Rainfall Spectrum, this helped overcome fear and doubt....by showing that it is possible to prevent rainwater runoff**

**The 'Light Shower' Category Accounts for Almost All the Rainfall Days**





# The understanding of rainfall patterns resulted in the next decision tool: the Integrated Strategy for Managing Rainfall Spectrum



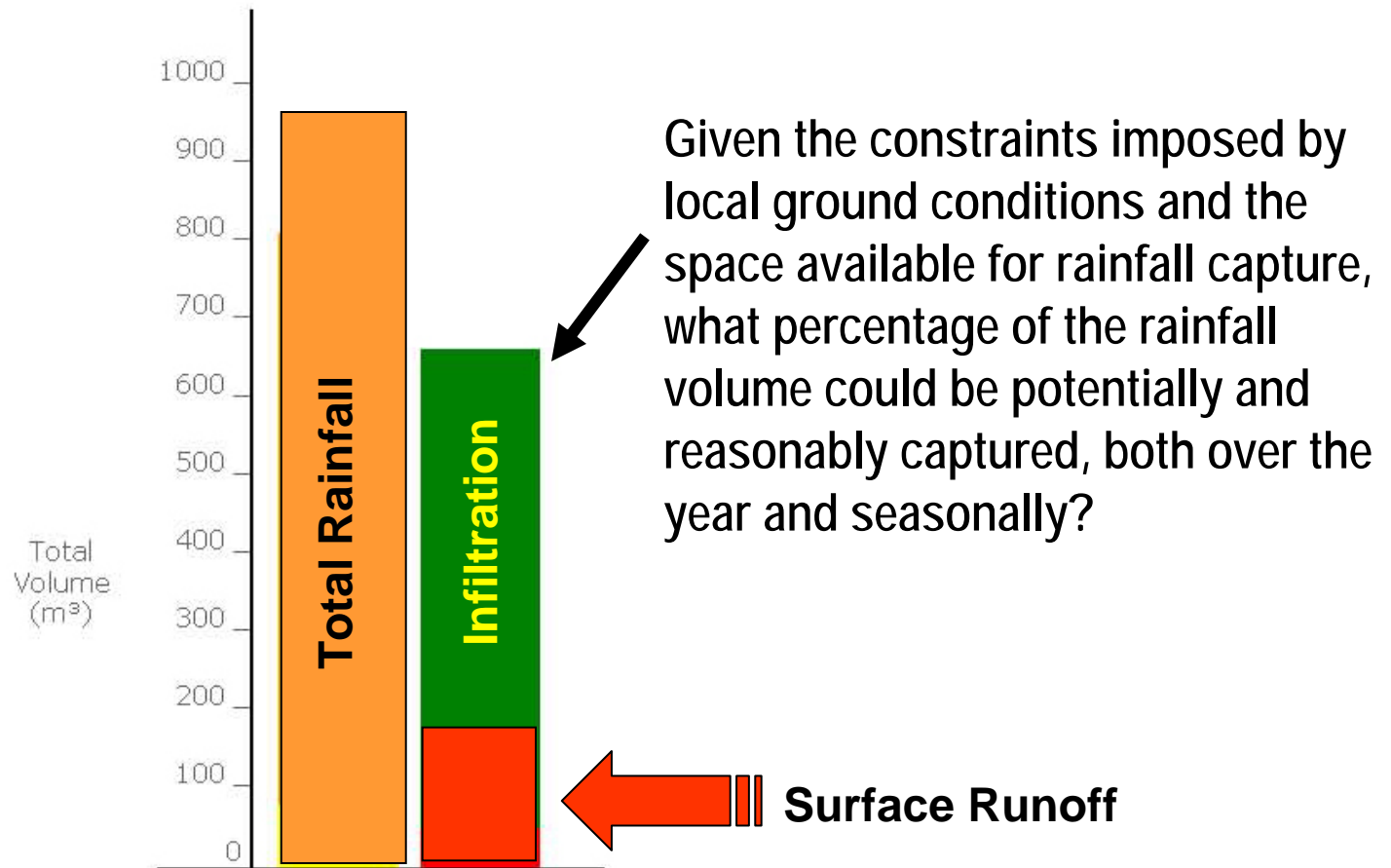


**WATER  
Balance  
MODEL**  
FOR BRITISH COLUMBIA

# We developed the Water Balance Model so that users could test the achievability of Performance Targets

**Water Balance Volumes For Catchment**

Graph for the period Jan 1 1999 to Dec 31 1999







**Practical Site Level Solutions  
are Typically Landscape-based**





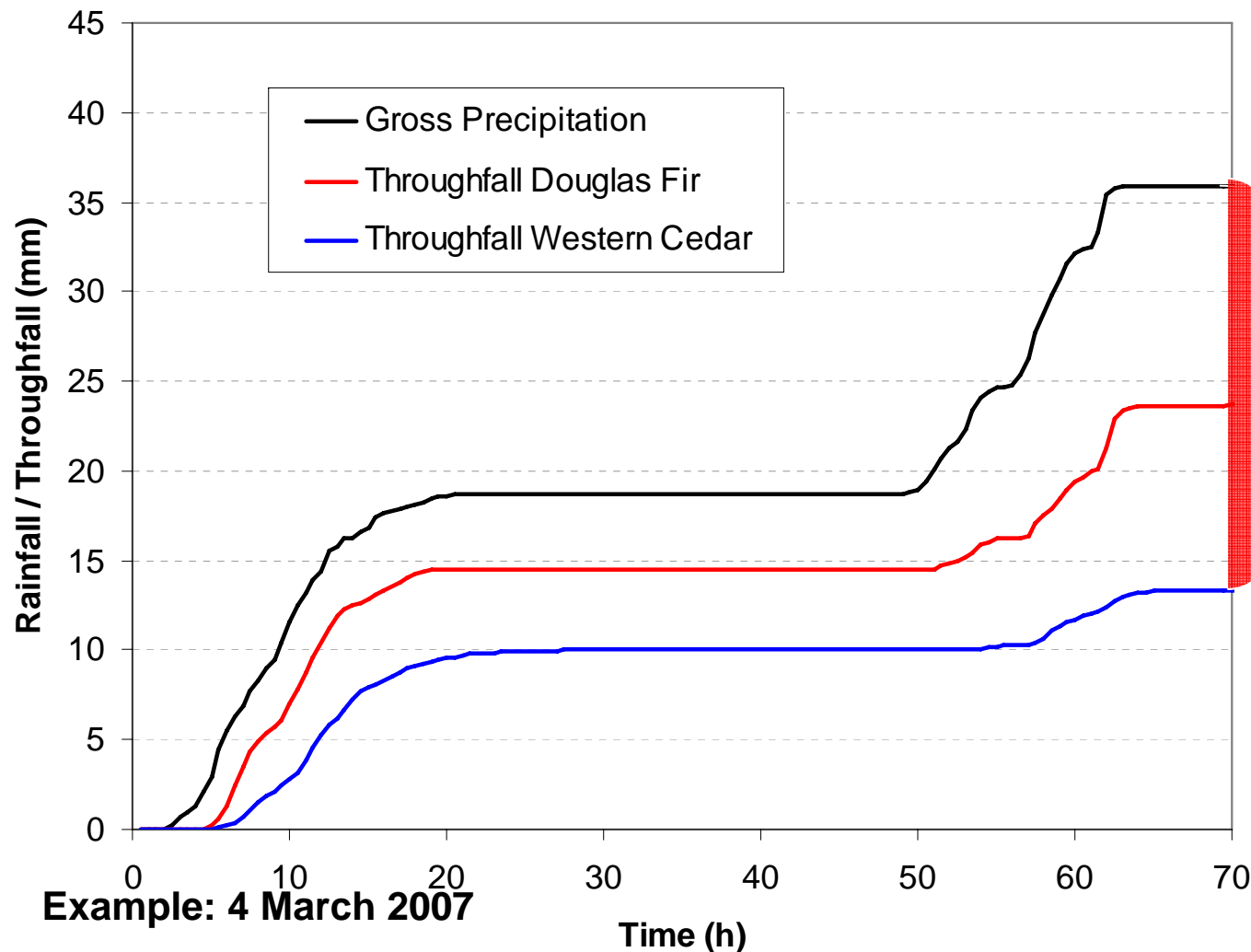
**Demonstrating How Water Moves  
Through Soil Creates Understanding**

# The UBC Urban Forest Research Project is precedent-setting because...



...it is quantifying the proportion of rainfall intercepted by the tree canopy in an urban forest

# The proportion of rainfall intercepted by a single tree can be substantial



39% Interception

66% Interception

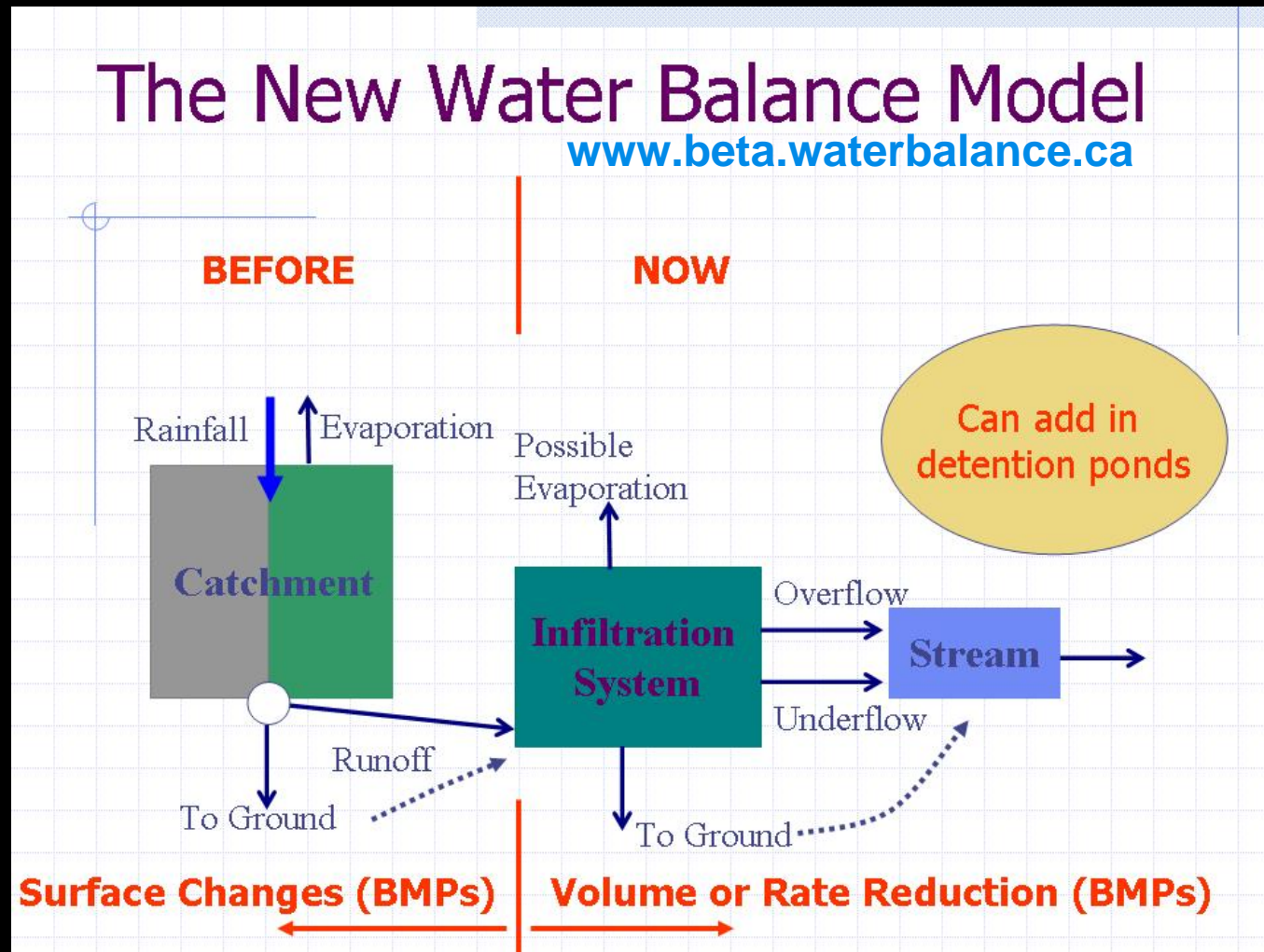


**When space is limited,  
there is only so much one can  
do on the individual site**

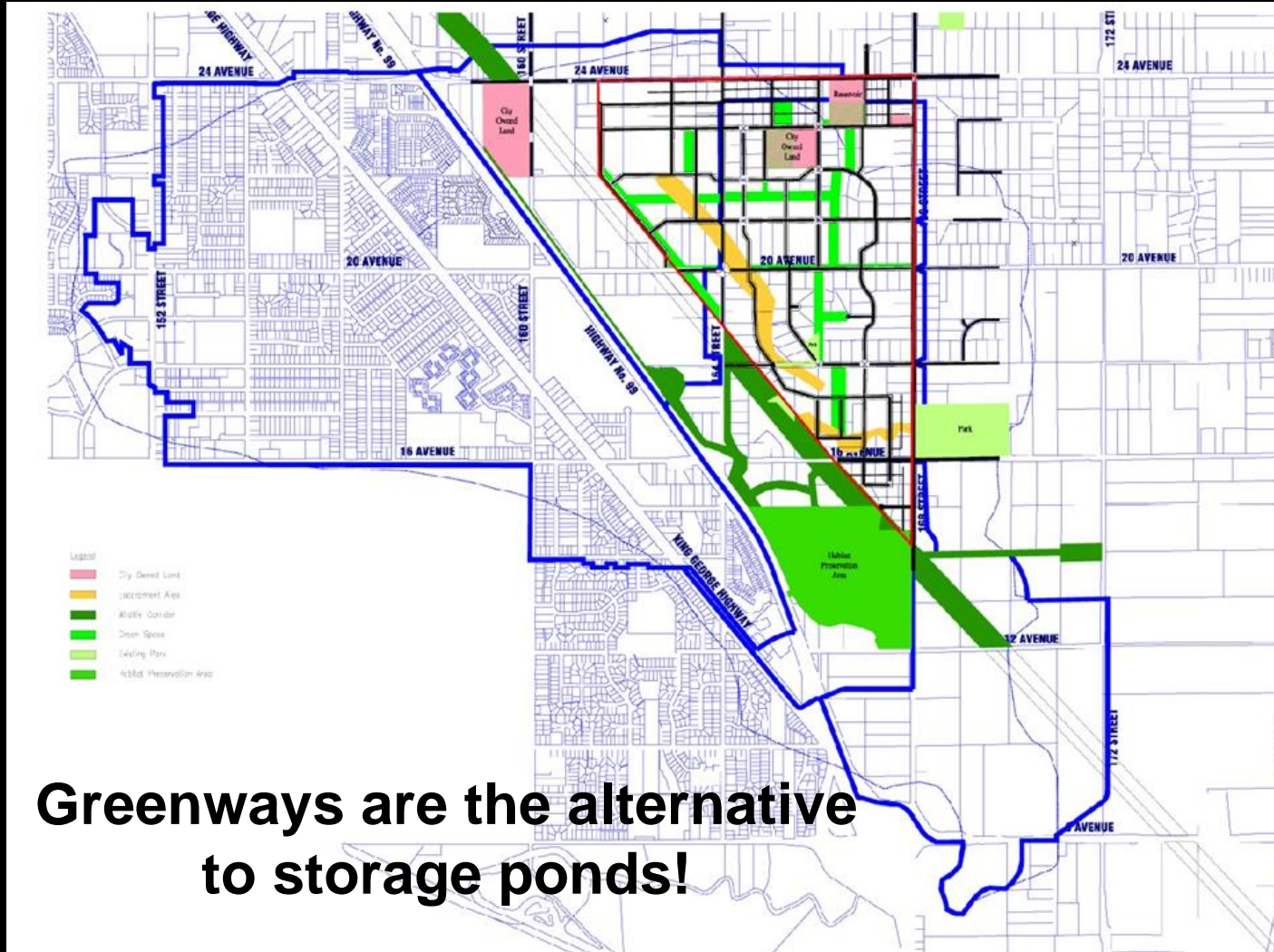




# Integrating the site with the watershed and the stream to influence the greening of the environment



# Fergus Creek in the City of Surrey is the pilot for Beyond the Guidebook







BRITISH  
COLUMBIA  
The Best Place on Earth



**“Today’s expectations are the standards of tomorrow.”**



# **The New Business As Usual**



- ☑ **Part One – Where We Have Come From:**  
Provincial Context
- ☑ **Part Two – Where We Are Going:**  
Vancouver Island & CAVI



An aerial photograph of Vancouver Island, showing its intricate coastline with numerous fjords and inlets. The land is covered in dense green forest, and the surrounding waters are a deep blue-grey. A semi-transparent green rectangular box is positioned in the upper half of the image, containing white and yellow text.

# The New Business As Usual:

Visualize What We Want Vancouver Island to Look Like in 50 years

CAVI promotes water-centric planning and a  
*Design with Nature* way-of-thinking and acting  
to create livable communities  
in balance with ecology



# What Does CAVI Do?

CAVI brings together those who plan and regulate (local government), those who build (developers) and those who provide the legislative framework (the Province).

CAVI provides support to organizations with a focus on water sustainability, and helps them develop and share their ideas and successes so that others can see how they too can get on board.

An aerial photograph of a river delta, likely the Amazon, showing a complex network of waterways and lush green vegetation. A semi-transparent dark green rectangular box is overlaid on the upper portion of the image, containing yellow text.

**To establish a common language,  
we have defined a ‘Green Vocabulary’  
that is cascading:**

- **Green Value**
- **Design with Nature**
- **Green Infrastructure**
- **Water Sustainability**

# A 'Design with Nature' approach to community design means...



- Develop compact, complete communities
- Increase transportation options
- Reduce the loads on water, waste and energy systems
- **Protect and restore urban 'green' space**
- **Strive for a lighter 'hydrologic footprint'**
- **Achieve higher levels of receiving water protection**



# **In Year One, We Exceeded Our Own Expectations**

- **June 2007:**

Launched the Creating Our Future program as an adjunct to Gaining Ground Summit

- **September /October 2007:**

Organized the Showcasing Green Infrastructure Innovation Series

- **December 2007:**

Collaborated with Elected Reps to host the Green Infrastructure Leadership Forum

An aerial photograph of a river delta, likely the Fraser River, showing a complex network of channels and wetlands. A dark green rectangular box is overlaid on the top left of the image, containing the title text in yellow.

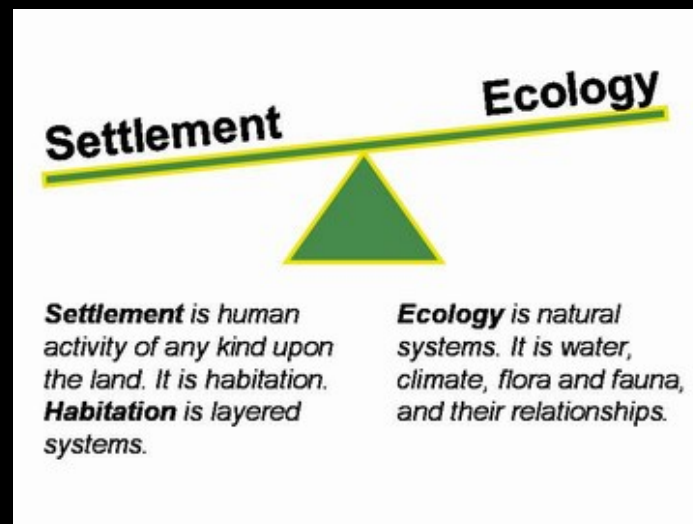
# **2007 Vancouver Island Series**

## **Green Infrastructure Innovation**

- **Comox Valley**  
*Connecting to Sustainability*
- **Nanaimo Region**  
*Designing with Nature*
- **Cowichan Valley**  
*Partnerships & Collaboration –  
moving from Concept to Reality*

# 2007 Green Infrastructure Leadership Forum

Co-hosted by CAVI and the Vancouver Island Association of Coastal Communities.....



.....the Forum initiated a conversation about **A Positive Settlement Strategy**



## **In 2008, program elements for *The New Business As Usual* include...**

- Beyond the Guidebook:  
Create Liveable Communities & Protect Stream Health
- Catalogue of Green Value Practices: Taking actions on the ground that add up to A Positive Settlement Strategy
- Green Value Workshops for Land Owners & Developers
- Showcasing Green Infrastructure Innovation in the Capital Region
- Climate Change Workshop:  
Risk Management & Sustainable Infrastructure

## And in conclusion.....

“And finally, we still need to remember that it is not solely wisely developed or green urban infrastructure but human behaviour which ultimately determines our sustainability”

Peter Andzans  
Manager, Community Sustainability  
City of Abbotsford  
January 2008