

Integrating the Site with the Watershed and the Stream

Primer for Integrated Rainwater and Groundwater Management

About This Primer

Released in 2008, **Living Water Smart, BC's Water Plan** is a call to action to prepare communities for change and do business differently. Living Water Smart has 45 actions and targets:

- These establish expectations vis-à-vis how land will be developed (or redeveloped) and water will be used.
- The desired outcome is that BC communities will embrace 'designing with nature', reduce their water footprints, and protect stream health.

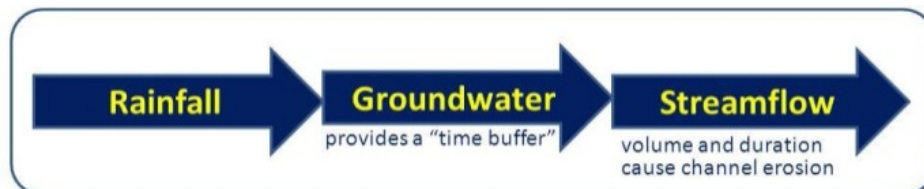
This Primer supports implementation of Living Water Smart principles in the local government setting. It is written for expert and non-expert audiences. Table 1 presents a section-by-section synopsis of the Primer storyline. Also, the image below serves as a road map. It identifies three elements of the **Water Balance**, namely: rainfall, groundwater and streamflow. The Water Balance is short-circuited when the land surface is hardened and below-ground flowpaths to streams are eliminated, such that:

- **Too Much Water:** During wet weather periods, increased runoff volumes over longer durations cause stream erosion and instability.
- **Too Little Water:** During dry weather periods, groundwater-fed baseflows are diminished.
- **Do Business Differently:** Both conditions have financial implications and sustainability consequences over time.

The Primer introduces the issue of the '**unfunded infrastructure liability**'. Viewing the watershed through an asset management lens provides local governments with a driver to require that development practices mimic the Water Balance.



Kim A. Stephens, MEng, PEng,
Executive Director
Partnership for Water Sustainability in BC
March 2012



Integrating the Site with the Watershed and the Stream

Primer for Integrated Rainwater and Groundwater Management

Table 1 – Synopsis of the Primer Storyline

<p>These lynch-pin position statements in “Living Water Smart, British Columbia’s Water Plan” provide context for the Primer:</p> <p><i>“By 2012, all land and water managers will know what makes a stream healthy, and therefore be able to help land and water users factor in new approaches to securing stream health and the full range of stream benefits.”</i> (p. 43)</p> <p><i>“Adapting to climate change and reducing our impact on the environment will be a condition for receiving provincial infrastructure funding.”</i> (p. 63)</p>		
	Section Title	Content Highlights
1	Background / Context	Draws attention to the Province’s ‘call to action’ to build greener communities. Connects the dots to the ‘how-to-do-it’ <i>Vancouver Island Inter-Regional Educational Initiative</i> . Introduces the water balance way-of-thinking and the factors that impact on watershed and stream health.
2	Connect Water, Land and People	Describes the regulatory and educational drivers behind a collaborative approach to changing the ‘land ethic’ in BC. Highlights the importance of a regional team approach to ‘get the watershed vision right’. Identifies guiding principles for implementing change in the local government setting.
3	Look at Rainfall Differently	Provides historical context for the evolution of the Water Balance Methodology. Describes how this led directly to the <i>Integrated Strategy for Managing the Rainfall Spectrum</i> ; and was the catalyst for a paradigm-shift from past peak flow practice to today’s volume-based practice.
4	Protect Stream Health	Explains how Puget Sound research has provided a road map for integrated rainwater management. Illustrates how ‘changes in hydrology’ impact on diversity and abundance of the fisheries resource. Connects the dots between Water Balance Methodology and the science of stream erosion.
5	Look at Groundwater Differently	Explains how the Englishman River demonstration project was only possible because of community involvement. Introduces the ‘flux’ concept to characterize groundwater movement. Introduces the use of ‘butterfly views’ to create understanding of how groundwater moves to the river.
6	Mimic the Water Balance	Provides guidance for establishing expectations so that champions in the local government setting can then lead change. Describes local government responsibility to protect the water balance. Introduces financial drivers for viewing a watershed through an asset management lens.
7	Guidance Documents	Lists and provides links for downloading.