

# Primer on Water Balance Methodology for Protecting Watershed Health

Integrating the Site with the Watershed, Stream and Aquifer

## Table 1 – Synopsis for the Busy Reader

**ABSTRACT:** This Primer is the fifth in a series of guidance documents. These add depth to *Stormwater Planning: A Guidebook for British Columbia*. This Primer describes the science-based Water Balance Methodology that integrates engineering and biophysical understanding so that communities can implement Watershed-based Targets that “mimic the Natural Water Balance” and thereby restore and/or protect Watershed Health after the Natural Environment is altered by human activities.

**Target Audiences:** The methodology and science behind it are presented in a layered fashion to accommodate the interests of a continuum of audiences, ranging from those who are generalists and desire a basic understanding of core concepts, to those who are drainage modellers and wish to delve into supporting details.

Part	Title	Content Highlights
A	<b>Watershed-Based Approach to Rainwater Management</b>	Presents an overview of the regulatory and historical context for the Watershed Health Goal that drives the performance target approach to capturing rain where it falls, and then maintaining the natural proportion of rainwater entering streams via three pathways: surface flow, interflow (shallow sub-surface flow), and groundwater flow.
B	<b>Water Balance Methodology Explained</b>	Elaborates on watershed processes and the three pathways introduced in Part A; explains HOW the Water Balance Methodology examines both the flow path of water in a watershed and the flow in a stream; and introduces the three performance criteria for balancing volumes and measuring success in protecting stream health.
C	<b>Science Behind the Methodology</b>	Provides an overview of computer modelling practice for context; and then elaborates on WHY and HOW the Water Balance Methodology is innovative because it integrates and applies standard scientific and engineering principles which are not typically employed in standard engineering design of municipal infrastructure.
D	<b>How to Establish Watershed Targets</b>	Draws on case study experience to lead the reader through the ‘how-to’ steps when applying the Water Balance Methodology to complete statistical analyses, verify a computer model for baseline conditions, and establish performance targets that would mitigate the impacts on stream health that would otherwise result from land development.
E	<b>References</b>	Provides a starting point for interested readers to learn more about the regulatory context for the <i>Beyond the Guidebook Primer Series</i> ; describes the scope of each Primer and includes links so that copies can be downloaded from the waterbucket.ca website.