

# Sustainable Watershed Systems

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**B**.C. local governments are faced with three interconnected issues. The first is to manage more effectively infrastructure and assets that underpin quality of life and economic productivity in an era of scarce resources. The second is to contain costs, taxes and risks. The third is to maintain community resilience in the face of challenges, including climatic variability and extremes.

Released in December 2014, *Asset Management for Sustainable Service Delivery: A BC Framework* is a game-changer. It makes the link between local government services, the infrastructure that supports the delivery of those services, and the health of watershed systems. Asset Management BC in partnership with the Union of BC Municipalities and the province developed the B.C. Framework.

Sustainable service delivery is defined in the B.C. Framework as: a collection of practices that enables continuous delivery of current community services in a responsible manner that does not compromise the ability of future generations to meet their own needs.<sup>[1]</sup>

Sustainable service delivery is the “new paradigm”. It is the singular aim. Sound asset management practices prevent in-service failure of assets which consequently cause service delivery interruptions. Therefore, asset management is the means to achieve the aim.<sup>[2]</sup>

The BC Framework focuses on desired outcomes. It does not prescribe specific solutions. It is aligned with the asset management requirements for the province’s capital grants program. This is the financial incentive for integration of watershed systems thinking into asset management.

A watershed is an integrated system, infrastructure, and an asset that provides municipal services. Watershed systems thinking covers the continuum from water supply to drainage, and encompasses human and/or ecosystem needs.

Where a local government regulates land use, a watershed is an integral part of the drainage infrastructure assets of the local government. More specifically, the three pathways (surface,

shallow lateral flow, groundwater) by which rainfall reaches streams are infrastructure assets. They provide ‘water balance services’. As such, protection and maintenance of the three pathways has financial, level-of-service and life-cycle implications for asset management.

What happens on the land does matter — for example, hardening the land surface short-circuits the water cycle (balance). The result: either too little or too much flow in watercourses. Consequences include avoidable and expensive fixes in an era when communities are challenged to fund and replace essential infrastructure services. Hence, the financial (economic) benefits of protecting urban watersheds are three-fold:

- Avoidance of financial liability due to short-circuiting.
- Reduction of capital and operational costs.
- Provision of ‘water balance’ services at less cost.

The need to protect headwater streams and groundwater resources in B.C. requires that communities expand their view from one that looks at the site by itself, to one that considers the site, watershed, stream and aquifer as an integrated system.

Over the next two years, the Georgia Basin Inter-Regional Educational Initiative (IREI) would facilitate integration of watershed systems thinking and adaptation to a changing climate into asset management.

Launched in 2012, the IREI is endorsed by five regional boards representing 75 per cent of the population of B.C. In April 2015, all five (Capital Region, Metro Vancouver, Nanaimo Region, Cowichan Region and Comox Valley) recommitted through 2017. Program delivery is led by the Partnership for Water Sustainability in B.C.

By 2017, a program goal is that all local governments would understand how to achieve sustainable watershed systems through asset management (supply source, stream, aquifer).

The Town of Gibsons is pioneering a strategy that addresses the three issues identified in this article. The Eco-Asset Strategy is a financial and municipal management approach that comple-

ments strategies to maintain, replace and build both traditional engineered assets (roads, storm sewers) and engineered “green” assets (rain gardens). Moreover, the strategy can support municipal climate change adaptation and resilience building efforts.

The strategy focuses on identifying existing natural assets (green space, forests, topsoil, aquifers and creeks) that provide municipal services for water balance management; measuring the value of the municipal services provided by these assets; and operationalizing this information by integrating it into municipal asset management.

The strategy helps to explain the value of natural assets in terms of financial and management strategies. It takes Gibsons beyond making an environmental case for preserving nature, which is relatively straightforward, and beyond headline-grabbing but often hard-to-translate statements. In other words, the Eco-Asset Strategy allows the town to bring the value of nature into the DNA of municipal decision-making.

The forest in Gibsons contains creeks and ponds that manage, convey and filter rainwater runoff. If the town can preserve the area as a healthy ecosystem and manage it in a way that optimizes its current functions, then it manage risks by avoiding a massive liability for building, installing and maintaining storm drains that would otherwise replace the existing natural system.

The BC Framework signifies the dawn of a new era for local governments in terms of how communities service urbanizing and redeveloping areas, and define how infrastructure is planned, financed, implemented and maintained.

B.C. local governments are sharing and learning from each other. Water balance tools and case study experience are in place. Local governments can move beyond traditional infrastructure asset management thinking to account for watershed systems as infrastructure assets.

By 2017, it is envisioned that professional development provided by the IREI program would result in a common understanding among all departments within an organization about how they could align their efforts to achieve sustainable watershed systems through asset management. **CB**

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[1] Footnote to reference the BC Framework for this definition

[2] Footnote to reference “CAOs, Asset Management and the New Paradigm” article in AMBC Newsletter, Fall 2015