

c. Asset Management for Sustainable Service Delivery

Introduced in Part A, *Asset Management for Sustainable Service Delivery: A Framework for BC* (Figure 16) is a landmark initiative. Several years in the making, the BC Framework is aligned with the asset management requirements for the Province's capital grants programs, and is therefore a game-changer.

Sustainable Service Delivery encompasses water resources and drainage, and hence, will determine the achievability of the Watershed Health Goal.

The Province's grants program provides a financial incentive for local governments to demonstrate how they can fulfil 'Design with Nature' objectives and expectations that are both explicit and implicit in the BC Framework.

Land Servicing and the 'Unfunded Infrastructure Liability'

The unwanted legacy of historical 'stormwater management' is the unfunded liability that is created when land development and infrastructure servicing practices combine to harden the landscape and short-circuit the natural Water Balance (bottom part of Figure 16).

When altering of the land surface short-circuits the Water Balance, consequences include expensive drainage and stream stabilization fixes (in an era when communities are challenged to fund and replace essential infrastructure services).

Implementing 'Design with Nature' development practices at the site scale – so that benefits accumulate and mimic the natural Water Balance at a watershed scale – ultimately means that communities will be more **resilient** during periods when there is either too much or too little rain.

Focus on Desired Outcomes

Over the past 15 years in BC, local government leaders have been applying science-based understanding to develop tools, establish precedents and gain the experience necessary to implement practices that would ultimately achieve the Watershed Health Goal.

The "missing link" in the sharing and learning process has been an opportunity or driver to package the tools, precedents and experience into a comprehensive and integrated application.

The renewed Gas Tax Agreement complete with requirements to implement the BC Framework (in order to meet asset management commitments) now provides a timely driver for such integration.

Outcome-oriented, the BC Framework is the catalyst for local governments to integrate natural systems and climate change thinking into Asset Management, and forestall an 'unfunded infrastructure liability'.

Asset Management Continuum: "The BC Framework provides a high level overview of what is needed to develop, implement and maintain strong asset management practices for local governments.



The BC Framework also points the way to integration of natural systems and climate change thinking into asset management. Resilient cities will be the ones that can absorb water and manage the water cycle as a closed loop. We can view asset management as a continuum. Communities will progress along it incrementally as their understanding grows. By accounting for and integrating the services that nature provides, they can achieve the goal of Sustainable Service Delivery for watershed systems," explains Liam Edwards, Executive Director (for Infrastructure and Finance, Local Government Division) in the Ministry of Community, Sport and Cultural Development.

Branding graphic for
Asset Management for Sustainable Service Delivery: A Framework for BC

Asset Management Defined:

Asset Management is an integrated process, bringing together skills, expertise, and activities of **People**; with **Information** about a community's physical **Assets**; and **Finances**; so that informed decisions can be made, supporting Sustainable Service Delivery

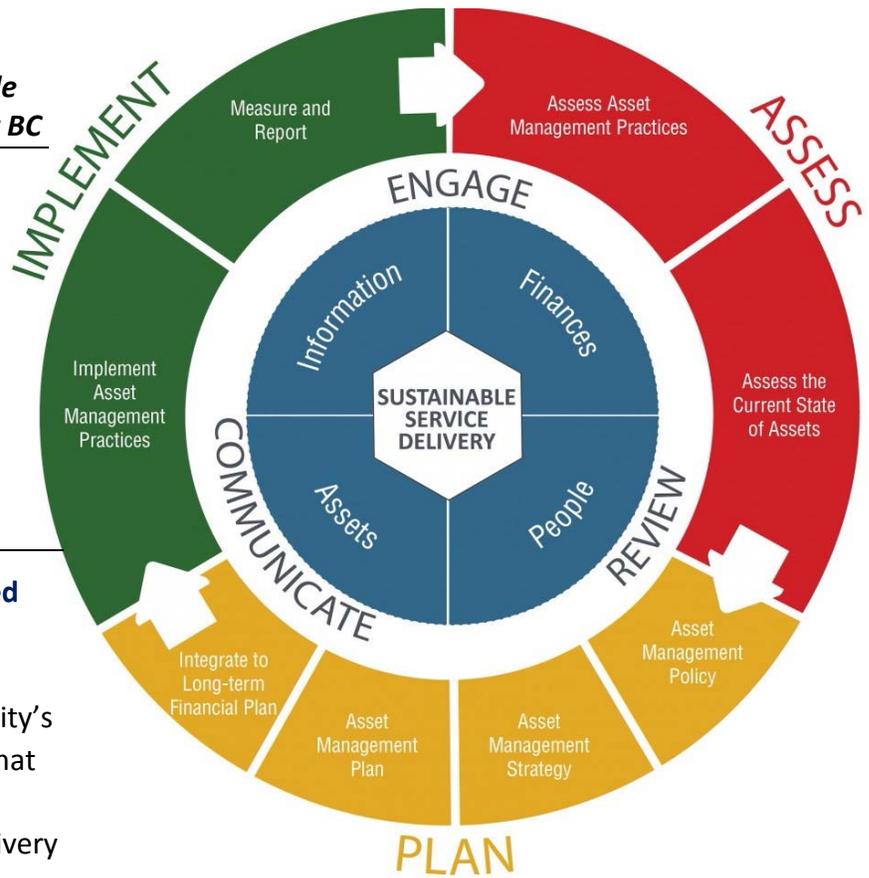


Figure 16

When the land surface is hardened, below-ground flow paths to streams are eliminated

With potential financial liability and sustainability consequences



TOO MUCH WATER:

Erosion, instability and movement of gravel and contaminants

TOO LITTLE WATER:

Creeks go dry ... (and fish will not survive)

Sustainable Service Delivery for Watershed Systems

The Union of BC Municipalities (UBCM), in partnership with the Province and Asset Management BC, developed the BC Framework. It sets strategic direction for asset management and its implementation in BC.

The BC Framework makes the link between local government services, the infrastructure that supports the delivery of those services, and the health of watershed systems. The focus on outcomes allows local governments to tailor an approach to individual needs and capacities.

Value Natural Services: The BC Framework defines asset management as a continuous process (not a discrete task). The PLAN is only a part of the overall process. The PROCESS deals with all of the components necessary to:

- refocus the business process to properly manage a community's infrastructure within the built environment; and
- understand the life-cycle implications of managing the built and natural environments as integrated components of a healthy watershed.

The BC Framework recognizes that nature, and the ecosystem services that it provides, are a fundamental and integral part of a community's infrastructure system. This recognition reflects an understanding that trees, soil, green spaces, and water contribute a valuable municipal function in maintaining the hydrologic integrity of a healthy watershed.

The ultimate vision for fully integrated Sustainable Service Delivery is that communities would protect, preserve, restore, and manage these natural assets in the same way that they manage their engineered assets.

Get It Right At the Front End: Holistic application of the BC Framework would help local governments reconcile two dilemmas:

- **Engineered assets:** The long-term operating, maintenance and renewal cost of infrastructure assets is usually about 80 percent of the life-cycle cost. Communities bear this cost forever. Often this is not adequately funded through property taxation and utility charges. For this reason, the life-cycle shortfall is characterized as an 'unfunded infrastructure liability.'
- **Natural assets:** Loss of hydrologic integrity is a consequence of historical drainage and 'stormwater management' practices that do not respect the Water Balance. Local governments bear the entire financial burden to stabilize and restore watershed systems impacted by increased runoff volumes after the landscape is transformed by development. This too is an 'unfunded infrastructure liability.'

Sustainable Service Delivery for watershed systems, and 'getting it right at the front-end,' would apply to land uses that local governments regulate and/or can influence within settled areas of watersheds (Figure 17).

Inform and Educate Practitioners: By 2017, an over-arching program goal of the *Georgia Basin Inter-Regional Educational Initiative* (IREI) is that local governments in the partner regions would truly understand **how** natural systems support municipal services and would be able to fully **integrate** this understanding and application of the Water Balance Methodology as the technical foundation for programs, planning and funding.

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*.



Sustainable Watershed Systems, through Asset Management applies to land uses that local government regulates and is founded on an understanding of how the **Water Balance Methodology** integrates the **Site** with the **Watershed, Stream and Groundwater Aquifer**

The Water Balance Methodology is about managing the whole rainfall spectrum and providing benefits to the stream through the wide range of stream needs - from base flow to managing flooding. The Water Balance Methodology bridges all ranges in rainfall and streamflow events. The Water Balance Methodology incorporates robust and proven calculation techniques and engineering applications to define a watershed and stream as a whole system. In this manner the results can be used to provide a quantitative assessment of both impacts and mitigation effectiveness. It also possible to show benefits that have been long thought as not achievable.

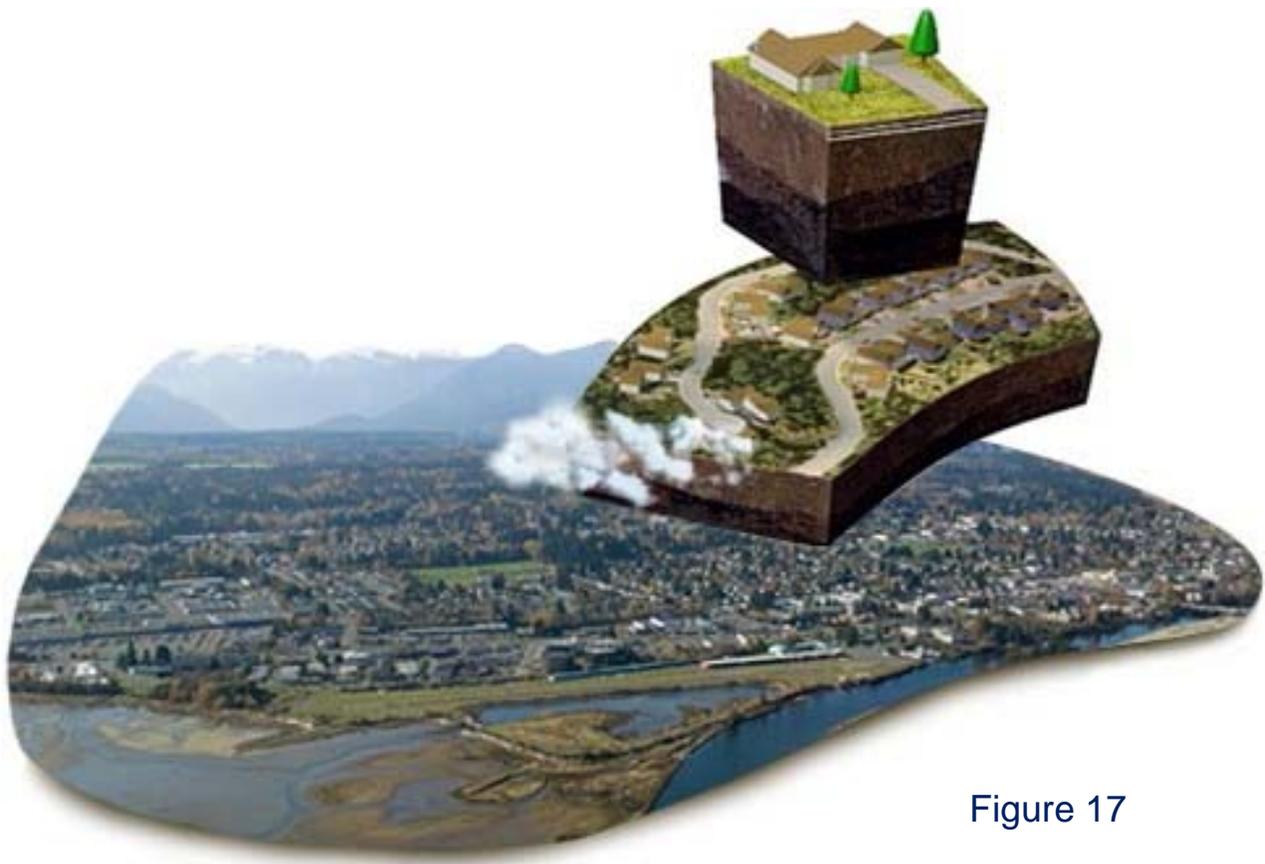


Figure 17