By Kim Stephens, M.Eng., P.Eng., Executive Director, Partnership for Water Sustainability in BC; Glen Brown, General Manager, Victoria Operations, Union of BC Municipalities; and Wally Wells, P.Eng., Executive Director, Asset Management BC.

ASSET MANAGEMENT FOR SUSTAINABLE SERVICE DELIVERY:

Supporting the vision for integration of natural systems thinking into "The BC Framework"

OVERVIEW

Released in December 2014, *Asset Management for Sustainable Service Delivery: A BC Framework* is a game-changer. It signifies the dawn of a new era for British Columbia local government in terms of how communities service urbanizing and redeveloping areas, and define how infrastructure is planned, financed, implemented, and maintained. A "new business as usual" is emerging and extends beyond traditional municipal infrastructure to encompass services that nature provides, including hydrologic integrity and watershed health.

This article explains the *BC Framework*, introduces the "asset management continuum" and foreshadows how the Georgia Basin Inter-Regional Educational Initiative (IREI) will integrate "natural systems thinking" into the *BC Framework* – to protect watershed health, restore hydrologic integrity and tackle the "unfunded infrastructure liability" that is the unwanted legacy of historical "stormwater management."

Launched in 2012, the IREI provides local governments on the east coast of Vancouver Island with a mechanism to share outcomes and cross-pollinate experience with each other as well as with local governments in the Metro Vancouver region. The IREI program is developing the technical and educational foundation for implementing land servicing and drainage infrastructure standards of practice that support the Watershed Health Goal (as defined in *Beyond the Guidebook 2015: Towards a Watershed Health Legacy in the Georgia Basin*, to be released later in 2015).

In March-April 2015, the boards of five regional districts passed resolutions of commitment to IREI program implementation through 2017. The five regional districts represent 75% of BC's population. Starting in 2016, the next phase of the IREI will demonstrate how local governments can progress along the "asset management continuum" to incorporate sustainable service delivery for watershed systems.

ASSET MANAGEMENT FOR SUSTAINABLE SERVICE DELIVERY: A BC FRAMEWORK

Several years in the making, the *BC Framework* (Figure 1) identifies best practice for asset management. Most important is the message that asset management is a continuous process, not just the production of a plan. Because the province recognizes the *BC Framework* as best practice, and aligns its capital grant programs' asset management requirements to the *BC Framework*, it is a game-changer.

Coined in 2010, the term sustainable service delivery was introduced by the province to integrate financial accountability, infrastructure sustainability and service delivery. The *Worth Every Penny Workshop* hosted by the Regional District of Nanaimo in September 2010 initiated branding of the concept.

While the *BC Framework* was only launched in early 2015, it has garnered both national and international attention. Other provinces, as well as the Federation of Canadian Municipalities, are integrating the *BC Framework* into their respective work, and have identified it as a holistic and easy-to-understand resource. The *Asset Management for Sustainable Service Delivery: A BC Framework* is available at *www.assetmanagementbc.ca/framework*.

Gas Tax Agreement & asset management commitments

In May 2014, Canada, BC and the Union of BC Municipalities (UBCM) signed the renewed *Gas Tax Agreement* for a 10-year term. This provides the administrative framework for the delivery of federal *Gas Tax* funding to BC local governments. The agreement includes this lynch-pin clause:

The Parties agree that strengthening Local Government capacity to undertake Asset Management is integral to building strong

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cities, communities and regions, and agree to support Asset Management practices in all Local Government jurisdictions during the term of the Agreement.

Under the agreement, BC local government asset management commitments are captured as three separate steps or elements:

- Step 1: Establishing an asset management baseline.
- Step 2: Developing an asset management implementation program (including an asset management plan).
- Step 3: Implementation and reporting.

All three components will be integrated into *Gas Tax* annual reporting, which is a requirement in order to receive funding. Asset management commitments are aligned with *Asset Management for Sustainable Service Delivery: A BC Framework*, and support local governments moving towards service, asset and financial sustainability. As illustrated by Figure 1, the *BC Framework* provides a circular, continuous pathway to link all components of the asset management process.

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.

BC Framework & focus on outcomes

UBCM, in partnership with Asset Management BC and the Province, developed the *BC Framework*. It fulfills the requirement of the *Gas Tax Agreement*, and also serves as a stand-alone document that sets strategic direction for asset management and its implementation in BC.

The *BC Framework* has been developed to recognize the diversity of BC's communities. It also recognizes that asset management, and the best practices that support asset management, must be scalable to community size, character and capacity.

The *BC Framework* focuses on desired outcomes rather than prescribing specific methodologies, thereby allowing local governments to develop and implement an approach that can be measured and incremental, tailored to the individual needs and capacities of individual local governments.

The focus on outcomes is consistent with the enabling philosophy that defines the approach to regulation in BC. The province recognizes that communities are in the best position to meet their own unique needs and local conditions. Because the Province recognizes the *BC Framework* as "asset management best practice," it encourages local government to use it as a guide and/or reference. Being enabled means that the onus is on local government to embrace shared responsibility and implement tools and resources developed through partnerships (such as those with Asset Management BC and the Partnership for Water Sustainability in BC).

Natural services & asset management continuum

Asset management is a continuous process, not a discrete task. Too much emphasis is too often placed on the "Asset Management Plan." 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.
- Understand the life-cycle implications of managing the built and natural environments as integrated components of a healthy watershed.
- Inform and educate elected representatives and citizens.

FIGURE 1: Sustainable Service Delivery: A BC Framework

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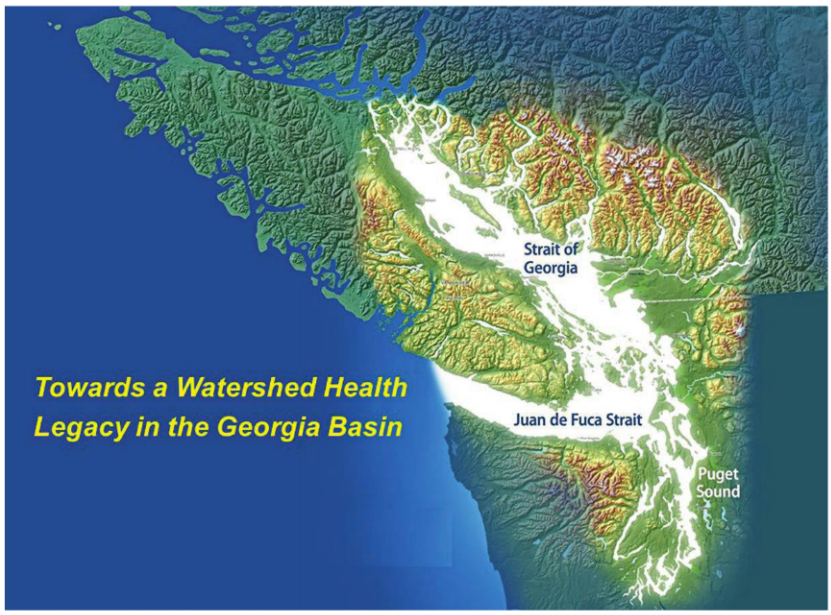
The *BC Framework* points the way to a holistic and integrated approach to asset management. Nature, and the ecosystem services that it provides, are a fundamental and integral part of a community's infrastructure system. This is not to suggest that all ecosystem services provide a municipal function. Trees, soil, green spaces, and water do contribute a valuable municipal function in maintaining the hydrologic integrity of a healthy watershed. Thus, 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.

The asset management process is a continuum. The process starts with the engineered assets that local governments provide. Communities will progress along the continuum incrementally as their understanding grows. By also accounting for and integrating the services that nature provides, over time they can achieve the goal of sustainable service delivery for watershed systems.

FIGURE 2: The Georgia Basin



SUSTAINABLE SERVICE DELIVERY FOR WATERSHED SYSTEMS

Sustainable service delivery encompasses water resources and drainage, and hence, will determine the achievability of the watershed health goal, defined as:

"Create a legacy through implementation of standards of practice that are affordable and effective in maintaining healthy streams and watersheds."

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 land servicing and drainage infrastructure practices that would ultimately achieve the watershed health goal. Outcome-oriented, the *BC Framework* is the catalyst for local governments to integrate natural systems and climate change thinking into asset management.

Georgia Basin Inter-Regional Educational Initiative

The Georgia Basin (Figure 2) is comprised of lands and watersheds that surround and drain into the Salish Sea. This inland sea encompasses the Strait of Georgia, Puget Sound and the Strait of Juan de Fuca. Tributary lands include the east coast of Vancouver Island, Metro Vancouver and the Fraser Valley.

The five regional districts participating in the IREI are Capital Region, Cowichan Region, Nanaimo Region, Comox Valley, and Metro

FIGURE 3: Cascading Objectives

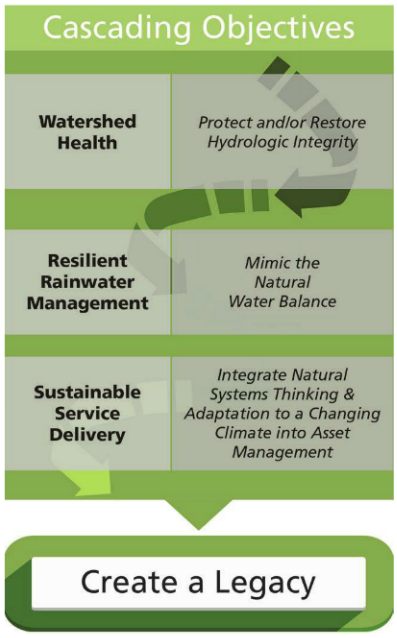


FIGURE 4: Integration of site with the watershed, stream and groundwater aquifer

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Vancouver. In 2013, the partners formed an IREI Leadership Team. In 2014, the team delivered an Inter-Regional Collaboration Series. The Partnership for Water Sustainability in BC functions as the IREI secretariat.

By 2017, an over-arching IREI program goal is that local governments in the five regions would truly understand *how* natural systems support municipal services and would be able to fully integrate this understanding and associated methodologies into 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 service delivery for watershed systems.

Cascading objectives

The IREI is connecting the cascading objectives (Figure 3) for watershed health, resilient rainwater management and sustainable service delivery. Their inter-relationship is not yet widely known or understood. This is mainly because sustainable service delivery is a relatively new way-of-thinking for many, and especially for local governments that are only now embarking on an asset management planning process. *Beyond the Guidebook 2015: Towards a Watershed Health Legacy in the Georgia Basin*, scheduled for release later in 2015, will present a framework for integration of the three cascading objectives.

Objective 1: Protect and/or restore hydrologic integrity: Watershed health is a function of how the landscape is altered by humans. A primary measure is the condition of aquatic ecosystems in stream corridors. Hardening the land surface short-circuits the water cycle. The result: either too much or too little flow in streams. Consequences include expensive fixes in an era when communities are challenged to fund and replace essential infrastructure services. Hence, the unwanted legacy of historical drainage and stormwater management practices is an unfunded infrastructure liability. "Design with nature" requirements for land development, on the other hand, would maintain a watershed's hydrologic integrity. A life-cycle benefit would be avoided expenditures over the long term.

Objective 2: Mimic the natural water balance: Resilient rainwater management accounts for all the rainfall-days per year. Emphasis is on soil-water interaction, how rainwater reaches streams via three pathways (surface runoff, lateral interflow in shallows soils and deep groundwater), and performance targets for "design with nature" solutions. These address the implications for both water supply and drainage. The technical foundation is the *Water Balance Methodology*, adopted by the province in 2002. The methodology addresses flow path differences, is evolving as understanding expands and becomes clearer over time, and provides solutions that would maintain stream health within a developed watershed. The methodology integrates the site with the watershed, stream and groundwater aquifer (Figure 4).

Objective 3: Integrate natural systems thinking & adaptation to a changing climate into asset management: Sustainable Service Delivery builds on the principles of asset management. It integrates land use, infrastructure servicing, financial, and ecological planning. Emphasis is on the levels-of-service that assets provide and *what level is affordable* over time. Nature is an asset and provides services. The benefits and value of design with nature solutions grow over time.

Beyond the Guidebook 2015 is the third in a series of guidance documents that build on *Stormwater Planning: A Guidebook for*

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"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**."

British Columbia, released by the Province in 2002. By applying the *Water Balance Methodology*, the guidebook vision is that community development activities and further alteration of the built environment would result in cumulative benefits, not impacts. In 2002, the guidebook identified a path forward for local governments. The *Beyond the Guidebook Series* documents the progress of local government champions who are leading implementation of practices that would restore hydrologic integrity after land is urbanized.

CLOSING OBSERVATIONS

Asset Management for Sustainable Service Delivery: A BC Framework is a holistic and integrated approach to asset management. It identifies natural services and the use of natural resources – and how they are part of/integrated into the overall services provided at a local government level. Application of the *BC Framework* will help local governments reconcile two dilemmas:

1. **Engineered assets:** The long-term operating, maintenance and renewal cost of infrastructure assets is usually about 80 per cent of the life-cycle cost. Communities bear this cost forever. Often this is not adequately funded through property taxation and utility charges. Thus, the life-cycle shortfall can be characterized as an *unfunded infrastructure liability.*
2. **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.*

The unfunded infrastructure liability is a driver for local governments to consider longevity, focus on what happens after developers hand off municipal infrastructure, get it right at the front-end, and prepare for the future. Climate change is part of the liability equation – adaptation has level-of-service implications for infrastructure. Thus, climate change must be a factor in decisions related to all infrastructure.

Over the next two years, the IREI program would progressively inform and educate an expanding network of practitioners (inside and outside local government) on how to integrate natural systems thinking and climate change adaptation into asset management (to achieve hydrologic integrity and hence prevent 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.

ABOUT THE AUTHORS

KIM STEPHENS: His four decades of experience as an engineer-planner cover the spectrum of water resource and infrastructure engineering issues. Provincially, he has had a leadership role in a series of initiatives related to water sustainability, rainwater management and green infrastructure. Since 2003, Kim has been responsible for developing and delivering the *Water Sustainability Action Plan* for British Columbia and its program elements. The *Action Plan* provides a partnership umbrella for developing tools, processes, understanding, and talent. Collaboration and learning from each other will help local BC governments focus on outcomes and successfully implement a water-centric approach to community planning and development.

GLEN BROWN: Glen has been a sustainability advocate for the past 15 years, working with the Province and now with UBCM. His focus has been on supporting local governments by building awareness, educating, and developing tools and resources. With Wally Wells, Glen facilitated the establishment of Asset Management BC and led the development of the *Asset Management for Sustainable Service Delivery: A BC Framework*. Glen has been an active member of the BCWWA, participating in several committees and initiatives.

WALLY WELLS: After a 41-year business career dealing with public infrastructure, Wally helped establish the community of practice in BC for Asset Management. With core partners from associations, local governments, First Nations, and the province, Asset Management BC assists communities with knowledge, information and tools for the process of asset management.