



## Asset Management Newsletter

SIXTEENTH EDITION – WINTER 2016 ISSUE



### Eco Strategies “Why we need to integrate natural capital into asset management”

*By Emmanuel Machado, CAO, Town of Gibsons; Roy Brooke, Brooke and Associates.*

Many municipalities think of assets as engineered or ‘grey’ infrastructure such as roads, sewers and buildings, and execute asset management processes accordingly.

This is only partially true.

There is increasing evidence that municipalities can reduce risks further, and save more resources, by also considering natural assets such as wetlands, forests, foreshores and rivers in their asset management processes.

Protecting and managing nature to provide municipal services is not new, of course, as an example from New York City illustrates. Much of New York’s water is drawn from the Catskills and Delaware watersheds. In the 1980s, concern about contamination led to an Environmental Protection Agency requirement for surface water filtration. Instead of building a water purification plant, however, New York tried watershed improvements and restoration. These provided the desired result – clean drinking water – at a fraction of the cost of an engineered asset: restoration cost about \$1-1.5 billion, whereas a filtration plant would have cost \$6-8 billion and required \$300-500 million/year to operate.

The problem with such examples is that, historically, they have been hard to transfer from one municipality to the next.

However, the apparent synergies between asset management processes and the measurement and management of natural assets may change this. It turns out that standard asset management processes (see Figure 1) lend themselves remarkably well to the measurement and management of natural assets, which makes it practical for municipalities to use the approach.



*Figure 1: There are strong synergies between asset management processes and the management of natural capital.*

The Town of Gibsons, BC (pop. 4400), provides an example of how this looks in practice.

Gibsons must protect its business and infrastructure from the sea; manage run-off from nearby mountains; and, prepare for climate change such as increased

temperatures, precipitation and sea-level rise – and, of course, contain costs. To achieve this, the Town is applying the same asset management process they use for traditional engineered assets to natural assets such as their woodland, creeks and foreshore. This includes *assessing* natural assets with the help of the David Suzuki Foundation using open-source modeling software, *planning* based on the results of the assessment, including developing scenarios that demonstrate the effects of land-use on natural assets, *implementing* strategic and operational plans for key natural assets, and *developing* inter-disciplinary teams to manage the assets.

*“The approach is based on a Town policy that deems nature a municipal asset and gives it the same consideration as traditional capital assets,” says Gibsons Director of Engineering Dave Newman. “Nature has no capital costs and if we manage it properly, provides core municipal services far cheaper than the operating expenses we would pay for an engineered alternative to provide the same services. The evidence to date shows that this approach gives us a lower-cost and efficient asset inventory, one that provides numerous non-financial benefits also.”*

The approach is gaining interest. A wide group of stakeholders participated last fall in the first phase of the Municipal Natural Capital Initiative, which seeks to adapt and replicate approaches that integrate natural capital into asset management processes. As part of this, the Town of Gibsons, together with the David Suzuki Foundation, Sustainable Prosperity, Brooke & Associates Consulting, with financial support from Tides Canada and Vancity Credit Union, convened representatives from the organizations listed in **Box 1** to create the basis for municipal pilot projects in BC and beyond.

“Now that we have input and concept validation from stakeholders, the next phase is to launch municipal pilot projects in BC and beyond,” said Roy Brooke, who is acting as project manager for the Municipal Natural Capital Initiative. “This will include developing tools to guide municipalities; providing support throughout the process of identifying, assessing and planning related to natural assets; and ensuring peer-to-peer learning.” The results of the pilots should enable many more municipalities to start adopting the approach.

A call for non-binding expressions of interest will be issued in late January 2016 to determine more precisely which municipalities want to launch a pilot and dialogue is ongoing with a number of potential funders. Assuming

that the project receives funding, formal letters of intent will be requested from municipalities and pilots would start in June 2016.

#### Box 1: Participants in the Autumn 2015 Municipal Natural Capital Workshop

- Alberta Land Institute;
- BC Real Estate Foundation;
- Capilano University;
- City of Courtenay;
- City of Nanaimo;
- City of North Vancouver;
- City of Port Moody;
- City of Surrey;
- City of Vancouver;
- Corporation of Delta;
- Credit Valley Conservation Authority;
- District of North Vancouver;
- Earth Economics;
- Federation of Canadian Municipalities;
- Lintott Architects;
- Metro Vancouver;
- NAMS;
- Partnership for Water Sustainability in BC;
- Planning Institute;
- Province of BC;
- The Natural Step;
- Township of Langley;
- UBC

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- **Getting the Most from Infrastructure Assets: The Idea of ecological accounting**
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*Eco Strategies continued*

The natural synergy between asset management and measuring natural capital means that municipalities starting out on their asset management journey may soon be able to readily integrate information on natural assets into their work from the start. Municipalities that are already using asset management processes will be able to integrate natural capital information into their existing work. As Wally Wells, Executive Director of Asset Management BC concludes, "The integration of natural capital information is an important evolution in asset management and an important opportunity to embrace in the months ahead."

## Getting the Most from Infrastructure Assets: The Idea of Ecological Accounting

*By Tim Pringle – Director & Past-President, Partnership for Water Sustainability in British Columbia & Chair, Ecological Accounting Protocol Project*

Outcome-oriented, **Asset Management for Sustainable Service Delivery: A BC Framework** (The BC Framework) points the way to integration of natural systems and climate change thinking into asset management.

The **Ecological Accounting Protocol** project will address the challenge of determining financial values for goods and services drawn from natural systems. The emphasis is on 'civil services' that provide a municipal function. The project will be undertaken by the Partnership for Water Sustainability in 2016-2017 as a deliverable for the Georgia Basin Inter-Regional Education Initiative (IREI).

This article (the first of two) discusses the importance of devising an ecological accounting protocol and the valuation issues that arise. Part two will focus on how the protocol would enable full risk and opportunity assessment of all assets owned by and available to local government.

Human settlement always depends on natural assets for basic needs. Local government, at least in BC, commands the greatest influence on the use of civil services that may be drawn from natural assets.

In this article we explore what this process looks like on the ground in the context of site development and drainage (horizontal infrastructure) and The BC Framework.

Emphasis is on hydrologic functions, the primary natural form maker in watersheds and a key consideration in the process of land development, also a form maker in watersheds.

### It is a question of using opportunities provided by all assets

A number of practitioners in the engineering and land use field have written about the limitations of design and installation of horizontal infrastructure, especially for protection of hydrologic function and integrity.

Principal concerns include incomplete data and emphasis on the site using limited reference to the greater watershed context (Andy Reese, *Voodoo Hydrology*; Jim Dumont, *Water Balance Methodology*; Patrick Condon, *Urban Design-UBC*; Emanuel Machado, CAO Gibsons, BC, *Eco Asset Strategy*)<sup>1</sup>.

**Think like a watershed...** In BC most local governments have opportunity to draw on civil services, especially management of rainwater (stormwater), from natural assets.

By devising and adopting strategies to use streams (conveyance), ponds (retention), wetlands (water quality, aquifer recharge, release rates), tree cover (interception, infiltration), and soils (conveyance and infiltration) local governments can connect development sites to the watershed and likely reduce long-term management costs of infrastructure.



Such strategies allow retention, use and management of natural assets while securing amenities attractive to

<sup>1</sup> Partnership for Water Sustainability in BC, 2016; [http://waterbucket.ca/rm/files/2013/02/Andy-Reese\\_Voodoo-Hydrology\\_Pitfalls-What-Need-to-Know\\_Feb-2013.pdf](http://waterbucket.ca/rm/files/2013/02/Andy-Reese_Voodoo-Hydrology_Pitfalls-What-Need-to-Know_Feb-2013.pdf).



community needs and the value of real estate development. The BC Framework is outcome-oriented and is “the catalyst for local governments to integrate natural systems and climate change thinking into asset management.”

**The practical challenge...** Strategies for sustainable service delivery based on asset management can be more successful over the life cycle of infrastructure if both engineered and natural civil services are utilized. The challenge is how to calculate the most effective blend of these options. Of course the need for measurement and valuation is paramount. While engineered services involve expenditures that are readily accounted, those drawn from nature do not have commonly accepted measures and values.

Let’s posit that ecological accounting is the process needed for this challenge. We explore the idea in the final sections of this article.

### Using civil services from nature is not a new idea

Use of services from natural assets to support community prosperity rarely gets the respect it deserves. Why worry if the source appears to free? Yet, historic realignments occur as in the case of the Agricultural Land Reserve Act BC (1972), a broad stroke asset management strategy which regulates defined lands and soils for agricultural purposes excluding other uses that might be more lucrative.

**Back to the future...** Industry also may recognize the importance of managing natural assets. In the early 1900s, the Vancouver Power Company (VPC) and the BC Electric Railway Company (BCERC) were involved in a common venture to dam the Coquitlam River to create an impoundment for generation of hydroelectric energy for the BCERC, three cities, and potable water for the City of New Westminster.

In response to pressure to log the watershed in 1905, R.H. Sperling, General Superintendent of VPC wrote to James Lemay, Crown Timber Agent:

*“I consider that the removal of timber would seriously affect the present annual rainfall in the vicinity of Coquitlam Lake. I consider that if logging or shingle bolt cutting were carried on, that the danger from fire sweeping that part of the country, would be very great indeed, owing to the amount of debris left on the ground, as a result of such work and that if a fire were to spread over the area immediately surrounding Coquitlam Lake,*

*destroying the timber thereon, it would undoubtedly affect the storage of the water there, by reason of lessening the precipitation and causing the early melting of the snow which falls in considerable quantities on the hills in that vicinity during the winter months. The snow, if protected by the shade of timber, would run off slowly but if the timber were removed, the snow would go off with a rush, carrying with it all kinds of debris, depositing same in the Lake, thereby defiling the water supply of the Cities which consume it. The removal of the timber would, I consider, lessen the storage of water, by at least 25 per cent.”*



Photo Credit: Coquitlam River Roundtable

Subsequently, the provincial government protected the watershed from logging. On March 3rd, 1910, the federal government passed an Order-in-Council creating a 56,000 acre forest reserve in the Coquitlam watershed. The assets of these early industries are owned now by BC Hydro.

### Current local government initiatives

Today several local governments are taking measures to include natural assets more systematically in their strategies for asset management.

- The Town of Gibsons has adopted an “Eco-Asset Strategy” which considers “nature to be the town’s most valuable infrastructure asset.”

Gibsons’ natural capital assets, and the ecosystem services they provide, are a fundamental and integral part of the Town’s infrastructure. Natural capital assets provide clear advantages over engineered (or grey) infrastructure. They:

- are cheaper to operate and maintain, if not degraded;
- may provide “free” ecosystem services;
- do not depreciate if properly managed;
- are carbon neutral or even carbon positive.

(source: Town of Gibsons Website)

- The Cowichan Valley Regional District's (CVRD) *Areas of Focus* for the next three years include watershed management plans, watershed governance structures, and realizing increased water storage in Cowichan Lake. In one local watershed which supplies potable water, the CVRD is purchasing land to protect its natural integrity.

Of course local governments often mimic nature (design with nature) to secure infrastructure services.



Image Credit: Carrie Baron, City of Surrey

- The City of Surrey continues to rehabilitate wetlands for water retention and stream protection as well as adding amenity value to local parks and real estate
- Increasingly, a number of local governments favour development that involves infrastructure design that maintains the hydrologic function of sites using tools such as the Water Balance Model.

At the same time, it appears that only a few leaders in local government talk about the importance of using civil services drawn from natural assets to put in place an infrastructure that costs less and lasts longer than one based primarily on engineered infrastructure. However, the later strategy is our current heritage. What are the arguments for changing traditional approaches?

### The BC Framework provides opportunity to change traditional approaches

The first argument is that The BC Framework sets the stage for local government to devise new strategies

through assessment, planning and implementation. There are no restrictions on including in this process, civil services drawn from natural assets.

The summer 2015 edition of *Watermark* magazine (BC Water and Waste Association) published the article [Asset Management for Sustainable Service Delivery: Supporting the vision for natural systems thinking into "The BC Framework"](#). The authors assert that:

*"The BC Framework points to a holistic and integrated approach to asset management. Nature, and the ecosystem services that it provides, are an 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 sustainable service delivery is that communities would protect, preserve, restore and manage these natural assets in the same way that they manage engineered assets."* (p 24)

The second argument is that most BC communities have access to relatively healthy natural assets. Using civil services from nature is feasible and ultimately practical. Metro Vancouver enjoys sources of reliable, uncontaminated potable water due to decisions made more than 100 years ago to protect source watersheds from degradation by human activities.

The third argument is that natural assets provide opportunities to make infrastructure design, construction and management less costly in the long term. Natural assets do not depreciate if properly managed. And, these assets are carbon neutral and can be carbon positive.

It makes sense for local governments to consider using when possible civil services supplied by natural assets. What balance of engineered and natural assets might be optimal? Let's consider this question.

### Ecological Accounting – an idea whose time has arrived

Services drawn from natural assets ought to be a measured part of drainage and other horizontal infrastructure (institutional sites, parks, trails, airports, reserves/buffer areas, etc.). If not, opportunities may be missed.



Increasingly, local governments find their efforts to assess available assets frustrated when considering natural assets. Not only are such assets (natural systems) typically located in more than one jurisdiction, there are few generally accepted measures to value them as well as the services drawn from them.

Assets that are not clearly “owned”, described and quantified are difficult to value. Historically the result has been that what is not measured is not managed.

**Accounting vs economics...** Ecological accounting differs from ecological economics. The latter is a field of enquiry researched by many agencies and scholars including in BC Nancy Olewiler (Economics Simon Fraser University) and the David Suzuki Foundation.

The Canadian Society for Ecological Economics and similar international organizations work to influence policy and standards related to the recognition and imputed value of natural assets and the services they provide to human settlement, flora and fauna. Ecological accounting proposed here would deal with specific civil services drawn from natural assets in local watersheds and utilized at various sites and/or throughout a community.

“The Federation of Canadian Municipalities (FCM) estimates a local government infrastructure deficit of \$123 billion increasing at \$5 billion per year. This cost has escalated over tenfold from \$12 billion in 1985 to \$60 billion in 2003 due to the accelerating combination of aging infrastructure and continuing deterioration. In addition, local governments receive only 8 cents on the tax dollar –the province gets 42 cents and the federal government gets 50 cents. Since local governments own 50 % of community infrastructure, local governments are facing a fiscal crisis.”

**Source:** Kim Fowler, “Local Government Land Use and Asset Management in BC” citing Mizra Saed, “Danger Ahead: The coming collapse of Canada’s municipal infrastructure”, Federation of Canadian Municipalities Nov. 2007, p. 2.

Local government owned capital assets impose burdensome levels of cost to manage and replace infrastructure over life-cycles. Drawing services from natural assets has the advantage of adding little or no capital costs while deriving desired services.

There appears to be little existing research to describe the cost of managing natural assets compared to

engineered assets. Ecological accounting faces the challenge of monetizing natural assets and services in a way that can be compared to engineered assets and services.

### Ecological Accounting – describing, quantifying and valuing

Some natural assets used by local government to provide civil services are valued and appear on the balance sheets. For example, lands for watershed protection or for wetlands and retention areas in parks and natural areas often are owned and, thus recorded in financial statements. However, some of these lands are recorded at nominal values and bear no relation to market values for them if used for development purposes.



Photo Credit: Carrie Baron, City of Surrey

The management costs (maintenance, insurance, water quality control security, etc.) typically are not separated from general departmental budgets; but, they could be in order to reflect actual outlays for this work as part of an ecological services account. In the early stages (years) of adopting ecological accounting, local government could create proxy accounts that present the financial realities associated with use and management of natural assets to provide civil services as a strategic component of infrastructure and sustainable service delivery.

No doubt tax payers would appreciate knowing that natural assets were a strategic part of infrastructure with the advantage of reducing capital investment and replacement costs as well as (probably) reducing management outlays.

### Valuation

It takes a community to manage natural assets. The concepts of goods and services ought to be clarified. Valuing a forest as potential lumber (goods) is vastly different from viewing it as habitat, aquifer recharge zone, potable water source, etc., which are desired services. But how should the cubic meter of water drawn from the watershed be valued?

Local governments know the costs of maintaining impoundments, debt servicing, treatment, pumping and delivery (pipe systems). Because some of the watershed



lands are owned privately, should the owners expect rent income in exchange for keeping the land in healthy condition?

In the case of engineered assets, professional services, labour machine work, pipes, catch basins, pumps etc. all have costs that become capitalized, together with the land, into the final sales price of the homes, commercial space and other real estate development.

There is no parallel for the value of civil services drawn from nature. There is no place for nature on the balance sheet.



**Risk vs opportunity...** A further challenge to valuation is the reality that engineered assets are controlled by the designers, installers and ultimate owners who will have to manage and eventually replace the goods.

Ecological services depend on natural asset conditions – almost always a system (streams, wetlands, forest, etc.) – in a watershed whose lands are owned and/or controlled by more than one entity. Future conditions may be unpredictable due to land owner activities, suggesting levels of risk as well as opportunity.



*Photo Credit: Town of Gibsons*

At the same time, natural assets may adjust to climate change continually, while engineered assets cannot. Clearly, these assets present long-term risks as well.

## Conclusion

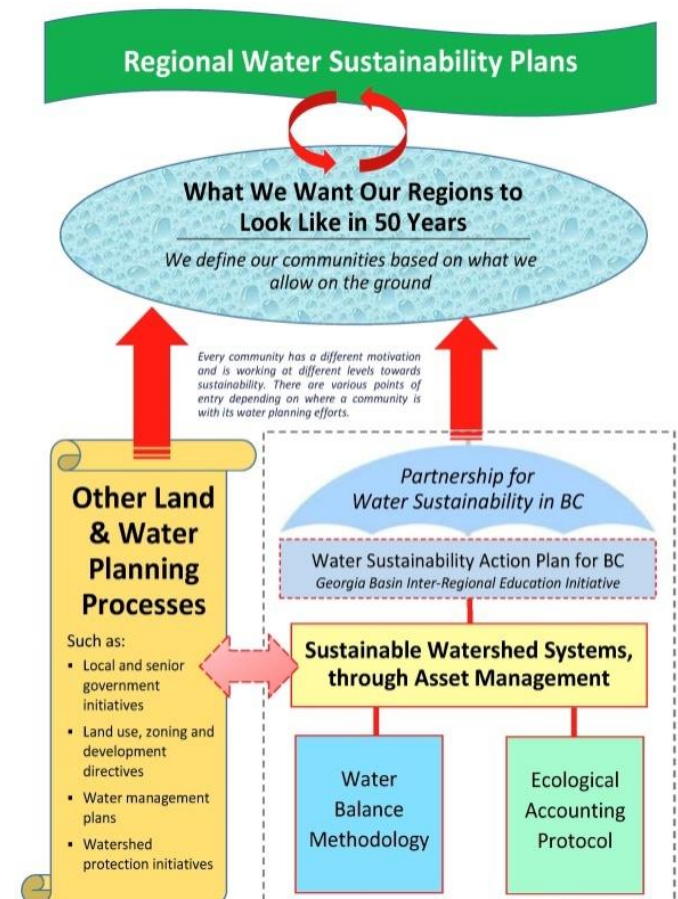
An **Ecological Accounting Protocol** will be a tool to support the full risk and opportunity assessment of all assets owned by and available to local governments.

Looking ahead, it is envisioned that use of the Ecological Accounting Protocol would help support regional water sustainability planning processes in British Columbia. This

outcome would be consistent with the policy objectives of the Water Sustainability Act, passed in 2014.

Figure 1<sup>2</sup> conceptualizes the multiple land and water processes that can be at play in a region. Going forward, the twin technical pillars of the IREI program will be the Ecological Accounting Protocol (to be developed) and Water Balance Methodology (existing). Adopted by the Province in 2002, the Water Balance Methodology provides practitioners with guidance for protection of hydrologic function and integrity.

In summary, the best blend of engineered assets (infrastructure) and natural assets (that provide ecological goods and services) would support a robust long-term asset management plan and the required financial commitments.



<sup>4</sup> Partnership for Water Sustainability in BC, *Beyond the Guidebook 2015: Moving Towards "Sustainable Watershed Systems, through Asset Management"*, November 2015, page 156, [http://waterbucket.ca/viw/files/2015/11/Beyond-Guidebook-2015\\_final\\_Nov.pdf](http://waterbucket.ca/viw/files/2015/11/Beyond-Guidebook-2015_final_Nov.pdf)

## Asset Management in Atlantic Canada

*By Wally Wells, P.Eng.*

Since AM BC was formed in 2009, we have seen an increasing level of awareness across Canada of the important role that asset management planning plays in protecting investments in municipal infrastructure. A new not-for-profit organization, **Atlantic Infrastructure Management Network (AIM)** has recently been formed to guide and support public infrastructure management in Atlantic Canada.

**Atlantic Infrastructure Management Network** is a network of individuals and organizations having interest in or responsibility for the management of public infrastructure in Atlantic Canada.

I recently spoke with Daisy Foster, a founding member and Managing Director of AIM. As past CEO of BCWWA, Daisy was a member of AM BC from its inception until she left the Province and moved to Atlantic Canada in 2013. Daisy credits her experience with AM BC as inspiration for forming the Network in Atlantic Canada. "Not only has AM BC developed high quality resources for use in BC, it has provided free access to these resources to other Provinces. It makes it easier for all of us when we share resources." Daisy also said "AM BC is a great model for the rest of the country and the leadership that AM BC has provided is very valuable to us in Atlantic Canada."

Although **AIM** has been in existence for just a few months, planning is already well underway for two Conferences in 2016 – St. John's NL on June 20-21, 2016 and Halifax, NS on September 19-20, 2016. Conference organizers say these conferences will be different than other national conferences in that each will have a regional/provincial focus, bringing communities together to share experiences and discuss successes and challenges in a more localized context. Each conference will be followed by a one day hands-on workshop on asset management planning.

**AIM** is also supporting the formation of Provincial Working Groups in Atlantic Canada. A Nova Scotia Working Group has already been formed and AIM expects that working groups will be in place in the other Atlantic Provinces by the end of 2016.

Daisy indicated that AIM is being very well received in Atlantic Canada by provincial and local government representatives and there is strong recognition of the

value that AIM can provide through providing opportunities for collaboration within provinces, among provinces and between local governments. "We are very excited about working with all of our partners in Atlantic Canada and across the country to improve the state of asset management.

For more information on the **Atlantic Infrastructure Management Network (AIM)**, see [www.aimnetwork.ca](http://www.aimnetwork.ca) or contact [dfoster@aimnetwork.ca](mailto:dfoster@aimnetwork.ca).



## Village of Anmore Operational Level of Service Study

*By Kevin Dicken, Director of Operations Village of Anmore.  
Catherine Dallaire, and Bernadette O'Connor, Opus  
International Consultants.*

In 2015 as part of the Master Plan for the Water Utility, Anmore undertook a review of its system capacity, operational lifecycle practices, and existing service levels to determine the required funding to support its current and long-term service delivery objectives.

One of the goals of asset management is to ensure delivery of the specified customer service levels at the lowest life cycle cost. A key element in achieving this goal is to ensure assets meet their expected service lives through asset care measures. Another key element is to monitor asset condition and asset performance to intervene at the optimum point in its service life to either upgrade, repair, or replace the asset or its components. Maintenance and monitoring by operational inspections must be undertaken with sufficient regularity to mitigate the risk of not delivering the agreed level of service; however, we also do not want to over inspect and increase costs unnecessarily. In Anmore, this has left us questioning what do we do, what do we measure, and how often do we do this?



We also wanted to explore needs-based funding for operations, maintenance, and inspection activities. Historically we typically built our operating budgets based on the previous year's expenditures. However we realized that this approach reinforces the political and public expectation that budgets should remain static, and we were very aware that this practice does not reflect the financial investments needed to maintain our infrastructure. We therefore needed evidence to show why we would be required to change our budgeting approach. Maximizing the service life of our infrastructure and compiling evidence for needs-based funding should somehow be linked.



*Photo credit: Infrastructure Canada – Anmore project  
“Providing safe water to our communities”*

The first step we took was to get an independent specialist review of our operations, maintenance, and inspections (OMI) activities as part of the Master Plan. The purpose of this review was to identify what activities we needed to do to reach asset lifespan and improve our operational practices. We engaged Opus to help us with this task and the outcomes they provided to us included:

- Detailed documentation of current operational practices, procedures and technical service levels
- Assessment of:
  - Whether regulatory requirements are being met
  - What operational practices support getting the expected service life of assets
  - Compliance with OMI related standards, policies, and bylaws
  - What OMI practices promote a safe potable water supply and maintain water quality
  - Industry standards that are appropriate for Anmore
- Identification of OMI activities that would increase the asset service life, reduce operations or asset failure risks, or were

required for legislative or warranty requirements

- Ear-marking options where we could reduce the current level of effort without compromising asset lifespan or risk (i.e. where we were over-delivering and could reduce costs)
- Quantification of the level of effort and cost for current activities and proposed activities

This provided the answers to what do we do, what do we measure, and how often do we do this. This work also gave us the foundation to maximize asset lifespan with improved operations, maintenance, and inspections, and provided us with the costs for an optimal program (i.e. an OMI funding needs analysis).

Transitioning from a typical budgeting approach to a needs-based budgeting approach proved challenging. In reality we knew there would not be enough money to implement the ideal OMI program so trade-offs would have to occur to find an acceptable cost-benefit-risk balance. Initially the decision for what changes and improvements to the OMI program we should promote, seek funding approval for, and implement was arrived at from collaborative between Opus staff and Anmore Utility. Then we developed a process to help expand the OMI discussion. Opus assisted us with a pilot workshop where together we expanded on the earlier OMI assessment to include a means of communicating considerations for OMI decisions and capturing the basis for OMI recommendations to the final decision makers. Considerations to be communicated include:

- What activities are mandated and what current levels of service cannot be reduced
- Whether each OMI program could be increased or decreased and how that would affect the operational level of service (i.e. an increase or decrease in the scope of work or in the frequency of the activity)
- For those activities that could be varied, the positive and negative outcomes of increasing or decreasing the level of service, as they relate to:
  - Impacts to the Customer (service delivery)
  - Impacts to the Assets (life expectancy)
  - Impacts to the Organization (governance and compliance risks)
- For new activities that are recommended from the OMI assessment to be included in the program, also describing the customer, asset

and organization impacts of not implementing these activities versus implementing them

This process was essentially a guided operational Level of Service assessment. It was in a useful MS Excel spreadsheet format that listed all the activities within the program and their current cost as defined in the previously completed OMI assessment, and it helped to guide me through the thought process, which ultimately defined the 'what-if' scenario of increasing or decreasing the level of service.



The spreadsheet provided a complete picture of the costs, benefits, and risks of each activity that was analyzed and gave me the flexibility to apply the analysis to any individual activity, groups of activities, or all activities. Having completed the pilot workshop, it was evident that the impact statements and rating for increasing or decreasing the current level of service on any activity would be of great help in:

- Documenting the logic for what we currently do
- Communicating the cost-risk-benefit of proposed changes to the OMI program
- Understanding the consequences (in cost-risk-benefit terms) if activities are not funded
- Identifying what activities could be reduced for the least adverse impact if budget cuts do occur
- Documenting the consequences of changing current level of service not just in customer terms but also how it will impact the asset and risk to the organization

The importance of assessing consequences for assets and the organization as well as the impact on customers became evident during the pilot workshop. We discovered that some changes which seem to have little or no adverse impact on the customer can have a significant impact to risk exposure or reducing asset

lifespan, as in the case of cutting budgets on some essential inspections.

The spreadsheet documented the interrelated information about our OMI program in one place so we could see the complete picture of what we do, how and why we do it, how often and for what cost alongside what will happen if we do it differently. The spreadsheet also provided us with a place to put in a proposed OMI program for the following year and then calculate the budget needed to fund that program. We can use this to build, define and support our department needs or to test trade-offs or minimize the impact of budget cuts.



## Who is Asset Management BC?

*By Wally Wells, Executive Director, Asset Management, BC*

In 2003, National Research Council released a report on the State of Infrastructure in Canada. This report, funded primarily by the NRC, Canadian Public Works Association, Engineers Canada and Canadian Society of for Civil Engineering, was presented to The Deputy Minister of Infrastructure Canada with actionable items.

Three areas of interest were discussed and pursued.

- Formation of a National **Roundtable for Sustainable Infrastructure**: Lead taken by Engineers Canada with support and participation of Infrastructure Canada. One of the Committees was Small Communities chaired by Glen Brown who was then with the BC Ministry of Community, Sport, and Cultural Development. Unfortunately, the 'roundtable' did not come to fruition.
- Formation of **National Asset Management Working Group (NAMWG)**: Lead by Canadian Public Works Association in partnership with Infrastructure Canada, co-chaired by Peter Enslen, City of Calgary (CPWA) and Tony Varriano (Director General, Infrastructure Canada) the group released, in 2005, **A National Framework for Sustainable Infrastructure**. Funding for the NAMWG was provided by Infrastructure Canada.
- Education and Training: The lead role was assumed by the Canadian Society for Civil Engineering. Infrastructure Canada deferred participation at that time. This became part of the above two other initiatives.

### **The Formation of Asset Management BC**

The principles behind the formation of Asset Management BC evolved from NAMWG. The National Framework developed through NAMWG addressed "why" do asset management and "what" is asset management but deliberately did not address "how" to do asset management except to follow the guiding principles espoused in InfraGuide. Our local governments are creations via legislation of the Provinces and Territories with differing mandated requirements, plus the physiography, population, climate and many other factors differ significantly across our 4000+ communities. One approach therefore is not appropriate for all. There are many valid approaches to asset management.

The original National Working Group (NAMWG) was co-chaired by Canadian Public Works Association and Infrastructure Canada. People were selected from across Canada representing a mix of technical and financial disciplines from large and small communities representing different geographical areas of Canada and different sizes of communities. A key lesson learned, in two years of discussion and meeting, was the need to recognize asset management as an integrated process that engages the entire municipal corporation, crosses all

disciplines and requires ultimately a clear understanding by all of the language, the objectives and the process.

**A key recommendation of NAMWG was that asset management be taken to the provincial / territorial level where the administration of local government occurs and deal with the 'how' at more local level.**

### **Asset Management BC**

In 2007, a workshop on asset management was held at BCIT downtown campus in Vancouver to address asset management via a series of speakers and determine interest in having a "practice" area for asset management at local or regional level. A second workshop, with over 70 attendees, took place in 2008 at which time Glen Brown announced support of and encouragement from the Provincial government in forming what evolved into Asset Management BC.

In 2009 steps were taken to create **Asset Management BC**.

The principles behind selection of partners were and are:

- Associations representing the core political, technical, financial, planning and executive skills of our communities
- All forms of community local governments in BC (municipalities and Regional Districts)
- The Province through the Ministry of Community, Sport and Cultural Development
- First Nations through Indigenous and Northern Affairs Canada and a major First Nations group.
- Chair shall be from municipal sector
- New partners are added as deemed appropriate by both parties. Two examples of these are the Consulting Engineers of BC (2013) and the Municipal Insurance Association of BC (2014).
- Other partners attend Working Group meetings for limited periods of time where their skills contribute to asset management. A recent example is the Auditor General for Local Government office in preparation of their 'Perspectives' document on Asset Management

Once set up and discussion respecting organization took place, it was agreed that:

- AM BC is not membership driven but is a 'community of practice' for integrated asset management, as most partners of AM BC are



membership based. AM BC should not compete for members with our partners. In fact, the AM BC Working Group has specifically stated it will not become membership based and AM BC is open for all.

- No formal organizational structure has been established
- Co-chairs of the Working Group are: **David Allen**, CAO of the City of Courtenay and **Andy Wardell**, Director of Financial Services of the District of North Vancouver.



David Allen



Andy Wardell

- The Working Group meets periodically to provide overall guidance and direction for AM BC.
- AM BC developed a Mission and Vision statement. The core activity of AM BC is "Knowledge and Information transfer".
- A website was established to disseminate information to all users.
- Asset Management BC works primarily with and through our partners for activities and events. Asset Management BC may take the lead role but would encourage partnerships in all cases.
- As time has evolved Asset Management BC has been engaged more and more by our partners in their activities and events.
- Asset Management BC has a part time Executive Director. The role provides administrative support and a wealth of contacts and networking for progress of activities.

### What is available to you?

- The most recent achievement of AM BC is the development and publication of [Asset Management for Sustainable Service Delivery: A BC Framework](#). The Framework is 'integrated into the Gas Tax Framework

Agreement in BC' and supported/endorsed by BC local government associations and the Province. The 'framework' is proposed as the basis for Asset Management practice for all communities in BC and for asset management funding entitlements within the Renewed Gas Tax funding agreement (2014).

- The State of Asset Management in BC (2010). An interview based assessment of 40 BC local governments to determine the understanding, progress and maturity of asset management.
- AssetSmart. The interview process used for the above report was documented and developed into a very useful tool for self-assessment of the 'readiness' of a community to engage in asset management. An updated version is now available: AssetSmart Version 2.0
- Roadmap for Asset Management: Using 4 communities a baseline was developed and comparatively used to prepare a roadmap for asset management. A manual for the basic asset management process was prepared with the additional manual for intermediate and advanced asset management to be prepared in the future. This is not a critical path but a guide on the steps needed to achieve an effective asset management plan.
- Asset Management Policy: A guide was prepared on how to prepare an asset management policy to initiate asset management. Several policy documents endorsed by different communities are in the resources section of the AM BC website (note: the manual is dated and needs an update).
- Newsletter: a newsletter is prepared 3 or 4 times a year and issued primarily through the mailing list managed by CivicInfo. Fifteen (15) newsletters issued varying from 8 to 14 pages.
- Website: Continued additions to website of resources, news and current events.

### Training

AM BC have held a number of Workshops co-sponsored with our partner Associations. A very successful workshop was held in October of 2014. It is intended to host a major workshop in October 2016.

AM BC hosts the NAMS training process in BC. This training program owned by The Institute of Public Works Engineering Australasia is specifically designed by the public sector, for the public sector, for integrated asset management. It is proposed to hold at least two NAMS training sessions in BC in 2016.

### **Summary**

AM BC has proven its value to our communities and partners. AM BC also has assisted Yukon, NWT, Alberta, Saskatchewan and Atlantic Canada in forming like networks; Ontario has a similar network in place. Our contacts and information exchange include all these networks and partners along with other governments and national Associations such as Canadian Network of Asset Managers and Federation of Canadian Municipalities. Outside Canada, AM BC has developed contacts in Australia, New Zealand, United Kingdom, United States and Indonesia.

Current areas of interest include eco-strategies, climate change, performance measures and improved techniques for communicating the message. Asset Management BC is your network and Area of Practice. All information is available at [www.assetmanagementbc.ca](http://www.assetmanagementbc.ca)

## **Infrastructure Report Card 2016**

CNAM was a key part of this great initiative and we are proud that our members authored the accompanying asset management primer document, helped market and actively participated in the survey which gathered extensive new municipal data on the state of infrastructure in Canada. Many thanks go out to Alain Gonthier, CNAM past Chair, for his leadership in chairing the Canadian Infrastructure Report Card Advisory Board.

The 2016 report card shows that over one third of Canada's municipal infrastructure is in fair, poor or very poor condition, meaning they are in need of attention. The report also demonstrates that reinvestment in existing municipal infrastructure is below target levels, and if this trend continues, it will result in a decline in the condition of municipal infrastructure in Canada.

CNAM expects this highly anticipated document represents a call for action and will further inform and inspire our national conversation on the importance of smart investment in infrastructure.

CNAM is pleased to announce a webinar on the 2016 Canadian Infrastructure Report Card by Alain Gonthier, CNAM past Chair and Chair of the Canadian Infrastructure Report Card Advisory Board. Keep an eye on your inbox and the CNAM website for dates and details.

CNAM had a very successful webinar series in 2015 and will be launching its 2016 series in the very near future. The webinar series are one of the many CNAM membership benefits and available to members only.

## **Infrastructure Investment has HUGE Payback**

*GFOA, BC Article*

The very fabric of our communities is premised on the physical infrastructure we have for essential services such as water, sewer and transportation and for optional services such as recreation and culture. The infrastructure municipalities' steward, on our behalf by our communities, also supports essential services such as health care, education, marine and air services. It is through the integrated process of Asset Management that we methodically organize the activities, timing and funding to ensure we renew the physical infrastructure of our communities.

If we can agree this is important, why is it a problem? Public agencies, particularly municipalities, for decades have only budgeted for current operations without regard to future replacement of assets. This worked when our infrastructure was new or young in life but not anymore. Our infrastructure is aging. Our short term focus and lack of forward thinking and long term planning has caught up to us.

So today, to meet this challenge, senior levels of government are increasing 'infrastructure' funding through grants and transfer payments. Municipalities are being challenged to make significant progress in planning, funding and stewardship over local infrastructure. These accountabilities include documenting the need, having an orderly plan prioritizing these expenditures and evidencing progress toward long term sustainability, hence the need for Asset Management and its integration into longer term financial plans.

But are there benefits beyond just infrastructure renewal?



A new report by the Canadian Centre for Economic Analysis (CANCEA) shows that the economic importance of public infrastructure investment is vastly greater than previously found using traditional economic models. Using unique agent-based modelling, CANCEA found that public infrastructure investments generate an economic return on real GDP that is almost eight times as large as the impact predicted by traditional economic models.

A recent report entitled 'Investing in Ontario's Public Infrastructure: A Prosperity at Risk Perspective'<sup>3</sup> uses Ontario big data/big analytics approach to assess infrastructure impacts. The Canadian Centre for Economic Analysis (CANCEA) team examined the long-term economic impact of Ontario's 10-year, \$130-billion infrastructure plan using its unique research platform called Prosperity at Risk. The research found that for every \$1 billion invested in infrastructure as part of the Ontario \$130 billion 10 year plan, \$1.7 billion in provincial tax revenue will be generated relative to not making the infrastructure investment.

Andy Manahan, Executive Director of the Residential and Civil Construction Alliance of Ontario (RCCAO), states that this research reinforces the value of infrastructure investment. "This modelling shows us that a \$1-billion investment in public infrastructure supports 85,000 job-years in Ontario over the next 30 years. When governments invest in public infrastructure, there are huge returns in tax revenue."<sup>4</sup>

The new Liberal government committed to running a deficit for the next two years specifically to fund infrastructure renewal across our country. Through both the Gas Tax agreements and the Build Canada funds, the prescribed method for accountability for securing and using funds is stated as "proving you have an active asset management program and strategy". To help meet this challenge local governments in BC can start by leveraging the recently published "**Asset Management for Sustainable Service Delivery: A BC Framework**". Available in both a long version for the practitioner and short version for council members and the general public, it sets out the integrated process for achieving asset management programs and strategies and is linked to funding applications from senior governments.

<sup>3</sup> See full report at [www.cancea.ca](http://www.cancea.ca)

<sup>4</sup> Quotes taken from ReNew Magazine article by Todd Latham [www.renewcanada.net](http://www.renewcanada.net)

The Framework and resources supporting it are available on the Asset Management BC website at [www.assetmanagementbc.ca](http://www.assetmanagementbc.ca)

## CNAM Annual Conference – Halifax May 2016

The Canadian Network of Asset Managers (CNAM) invites you join us in Celebrating 10 Years: Navigating Asset Management in Canada.



Join us on the east coast in the scenic city of Halifax for the 10th Anniversary of the Canadian Network of Asset Managers and chart the course for another decade of steering the asset management ship to clearer waters. Prepare to walk the plank in May 2016.

Halifax is an urban centre wrapped in seacoast and history – you'll want to see for yourself.

The conference will be at the Halifax World Trade Convention Centre. Host hotels are The Cambridge Suites and The Prince George Hotel.

The conference program will be announced shortly. Registration and further information is available at [www.cnam.ca](http://www.cnam.ca).





## Tips and Tactics: Useful Performance Measuring

by Bernadette O'Connor,  
of Opus International Consultants (Canada) Ltd

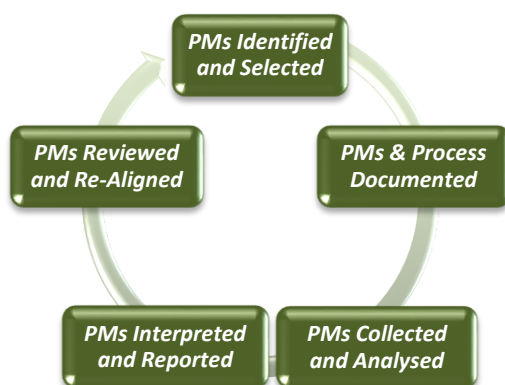
In a recent discussion on performance measuring, a comment was made to me (referring to municipalities and similar organizations with infrastructure), that *"I don't know that any or many are actually doing it"*.

I thought about this and concluded from my experience that quite a few organizations have a splattering of technical levels of service that are in fact performance targets and some of these are measured. However most generally don't do them well. I say this because even organizations that believe they have performance measures successfully implemented at least for key technical targets, are often not well structured and little thought has been put into connecting the elements that make up a good performance measure such as;

- **"why"** are we measuring this? and
- **"what"** is it telling us? and
- **"how"** should we be using this information to impact decisions that actually make a difference?

"What you measure gets managed" is a truism often referenced in the asset management world, but it is also important to remember that **what you measure drives behaviours** as well.

Setting up performance measures and the process for measuring, analysing, reporting, reviewing, amending and re-measuring performance, must be by 'design' to be effective. That is, thought must be put into it.



Mature Performance Measure Process

The main purpose of Performance Measurement is not *Reporting Performance*; it is *Managing Performance*, and managing it with the specific objective of sustainable service delivery.

Thus the 'measuring' is only one part of a process that should include to:

- » Monitor **current state** and performance **trends**
- » Provide **understanding** to decision-makers
- » Give **direction** for **improvement**
- » Adjust for **changing expectations** over time
- » Align and **re-align** actions to goals

Before a process can be implemented however, you need to 'design' your performance metrics; what are you going to measure? The following provides a useful guide:

1. Identify the 'big-picture'. What is the context?
2. Define Objective. What are you trying to achieve?
3. Map the Logic between Objective and Activities.
4. Identify best appropriate Metrics considering cost, ease of analysis, how strongly the metric connects to performance objective, and behaviours generated.
5. Generate ownership through engagement, communicating the 'why' and establishing roles and responsibilities.
6. Start recording measured data as soon as possible, use the data, learn from the data, communicate widely, and when needed effect change.

For those who already have performance measures, these should be reviewed regularly to identify if any significant things are not being measured, and whether any current measures are ineffectual – i.e. tell nothing of any value for decisions.

Good Performance Management provides:

- Clear Understanding of Current State
- Support for Decisions and Business Planning
- Data to Optimize Operations / Service Delivery
- Increased Performance / Public Confidence
- Improved Communication
- Fact-based Performance Results
- Robust Connectivity / Alignment
- Responsible Governance

Some key points in summary are:

- Performance measurement doesn't start with the metric; it starts with knowing your outcome.
- Not everything that can be measured is important.
- Measurements that don't lead to meaningful action have little real benefit.
- Well-designed metrics and performance management will identify what activities really matter and encourage good management of them.

## Upcoming Events

### Federation of Canadian Municipalities

February 9 - 11, 2016

#### **Sustainable Communities Conference**

Ottawa ON.

[www.fcm.ca](http://www.fcm.ca)

### Government Financial Officers Association of BC

June 1 – 3, 2016

#### **Annual Conference**

Chateau Whistler

Whistler, BC

[www.gfoabc.ca](http://www.gfoabc.ca)

### Public Works Association of BC

April 4 – 8, 2016

#### **INFRA 1130 Asset Management**

BCIT Downtown campus

Vancouver, BC

[www.pwabc.ca](http://www.pwabc.ca)

### Municipal Insurance Association of BC

April 11 – 12, 2016

#### **Risk Management Conference**

Fairmount Waterfront Hotel

Vancouver BC

[www.miabc.org](http://www.miabc.org)

### BC Water & Waste Association

May 1 – 3, 2016

#### **44<sup>th</sup> Annual Conference and Trade Show**

Whistler, BC

[www.bcwwa.org](http://www.bcwwa.org)

### Canadian Network of Asset Managers

May 9 – 12, 2016

#### **10th Annual Networking Conference and Workshops**

Halifax, Nova Scotia

[www.cnam.ca](http://www.cnam.ca)

### Planning Institute of BC

May 10 - 13, 2016

#### **Annual Conference**

Delta Grand Okanagan and Conference Centre

Kelowna, BC

[www.pibc.bc.ca](http://www.pibc.bc.ca)

### Union of British Columbia Municipalities

September 26 – 30, 2016

#### **Annual Convention**

Victoria Conference Centre

Victoria, BC

[www.ubcm.ca](http://www.ubcm.ca)

## Questions & Answers

Raising questions and making comment are strongly encouraged as this newsletter is provided for the advancement of Asset Management. You are invited to email the editor and note whether you wish your comment or question to be published.

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