Asset Management Newsletter

EIGHTEENTH EDITION – FALL 2016 ISSUE

Asset Management takes LEADERSHIP

By Gord Hume
Previous Municipal Councillor and Author[1]

Leadership. It is one of the hottest topics in the world right now, as people look on in shock and disbelief at the US Presidential campaign and the vicious tone and vehement rhetoric being used. They wonder, is this what political leadership has become?

In business, politics, social or community agencies, church groups, schools, kid's sports or two people stranded on a desert island, there is a need for leadership--and leaders will emerge.

In my latest book, "The Leadership Crisis", I focus on the compelling attributes and characteristics of leadership in the public sector. This will also be the theme of my keynote address at the November conference in Vancouver.

Great leadership is crucial in government today, yet too often we see weakness, dysfunction at a City Council, and the inability of senior administration to come together with elected officials to generate a vigorous strategic direction and to support wealth generation, cultural vitality and a strong social advancement in that town or city.

With the steadily growing importance of municipal governments, local voters are sometimes bewildered by the antics at city hall. That can quickly change to disgust, and then laughter. When that happens, elected officials are often on the slippery slope to political oblivion. There are lots of examples of municipal councils imploding, or senior administration creating a negative and mean-spirited environment in which to work. In today's complex and litigious society, neither is very conducive to advancing a positive agenda of growth and prosperity.

Fortunately, there are a number of things that individuals and "wanna-be" leaders can do to improve their leadership skills and abilities. That will be much of the focus of my presentation. We'll talk about the 7 C's of great leadership and define each of them. We'll focus on building a stronger Council-staff relationship. We'll reveal some fascinating exclusive research on the attitudes inside city halls about their leaders. And we'll talk about ways to improve anyone's leadership skills and abilities.

The need for strong leadership in business today or in government has rarely been more important. Smart people understand that the global economy has arrived and that today there is a global hunt for talent. What municipalities do, how they set tax policies and strategic plans, how they use their public realm and plan their public places and spaces, how they encourage vibrant downtowns and provide a high quality of life for residents, all combine to create dynamic cities that will attract talent, investment and be able to compete with cities around the world.

1 GORD HUME is the keynote speaker on the Conference on Asset Management, November 3 and 4 at the Hilton Airport Hotel, Vancouver. Registration on www.civicinfo.bc.ca

Part of great municipal leadership today is also understanding the importance and urgency of smart asset management. If leaders are not focused on the protection, development and renewal of their municipal assets then their community becomes more vulnerable—and so does the next generation of residents and taxpayers.

In Canadian cities in recent years, we have seen mayors resign in disgrace, go to jail, councillors get tossed out of meetings, senior staff fired amidst a barrage of accusations and threats, voter anger explode in 'throw the bums out' type elections, Chambers of Commerce starting petitions against their local Council, fighting and splits on Councils, dysfunction and divisions inside the Council chambers to the point that the people's business isn't being done.

Canadians deserve better. That's why leadership in government, and particularly at the local level, is so crucial today. Businesses and talented young people have many choices in where they will locate and invest their money and future. Almost always they are choosing great towns and cities…and if your community isn't making their short-list, then economic peril looms.

Leadership. Great leadership. Strong leadership. Canada's municipalities need it, want it and deserve it.

Articles in this Edition:

Mid-Sask Municipal Alliance (MSMA)

Article Outline

The purpose of this case study is to provide an example of collaboration between a regional planning district and a corporate partner, and to describe the benefits of establishing long lasting relationships between communities and their corporate neighbors.

This article will outline strategies for aligning corporate values with community needs, and getting results that strengthen the ability of communities to deal with fiscal restraints around critical infrastructure issues.

Part 1 Origins and Purposes of Establishing the MSMA

By Wendy Gowda – RMA, RM of LeRoy No. 339 and Malcom Eaton, Mayor, City of Humboldt

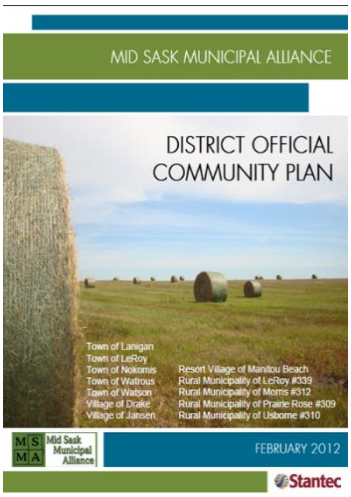
With the excitement and regional growth of a mine-site developing in the area, in 2010, local politicians from 11 municipalities in east central Saskatchewan (3 Rural Municipalities, 5 Towns, 1 Resort Village and 2 Villages, spanning 2520 square kilometres and home to 6518 people) came together to form an official group – Mid-Sask. Municipal Alliance (MSMA), tapping into the Municipal Capacity Development Program funded by the Provincial Government, SARM, SUMA. Regional development and organization was seen as optimal, and with these resources the municipalities;

- Collaborated on the development of a Community Action Plan,
- Entered into a Memorandum of Understanding (emphasizing inter-municipal co-operation, securing resources and building capacity to facilitate regional planning to support the coordination of infrastructure and land use to accommodate growth, and building capacity and relationship to support regional planning initiatives), and
- Developed a MSMA regional profile - all within one year of organizing!

The momentum continued to regional land-use planning, including a call for proposals to consultants to lead the work for the regional and municipal planning and zoning documents, local agreement for funding the group and researching resources for funding.

A consultant - STANTEC was hired and the alliance was on its way with regional land-use and strategic long term planning.

Organizational developments saw the Mid-Sask Planning District Agreement, the eventual formation of a Planning District including 12 member municipalities with the addition of a fourth Rural Municipality, and the hiring of a Director of Planning & Operations for the region.



The regional Mid-Sask Municipal Alliance District Plan and individual Municipal Official Community Plans and Zoning Bylaws were adopted in 2014, bringing to fruition the Mid-Sask goals for regional planning.

During this time, other municipal challenges included the requirement for, (and transition to) PSAB accounting for municipalities. A consultant firm, VEMAX – Gordon Sparks (now ATANA), had assisted with the development of a provincial template implementing a process for tracking and implementation of infrastructure records to PSAB standards of accounting.

This very naturally flowed into conceptual planning for regional infrastructure planning and asset management, both on a regional and a local level. Local politicians were responding to the impact of mine development and construction on local infrastructure, not only within MSMA but to surrounding communities. The City of Humboldt was invited to join MSMA as a contributing municipality. This growth, unprecedented in the region and in Saskatchewan resulted in the provincial designation of the Mid. Sask region being the first "Rapid Growth Area".

With the MSMA and provincial counterparts focused on growth planning; community leaders attended the National Infrastructure Summits in Regina in 2010 and 2011. Humboldt's Mayor Malcolm Eaton, along with representatives from the region, made the 1st Saskatchewan Municipal Infrastructure Summit for small communities a "reality" in Humboldt in 2013.

At the conclusion of this conference, representatives from the MSMA communities met with representatives from BHP Billiton, and a plan was made to pursue a collaborative asset management project for the region. Political leaders of each municipality demonstrated leadership by being prepared to have their municipality commit to participating in this project and provide cash contributions to cover a portion of the direct costs for the project plus provide "in-kind" contributions via staff time, etc.

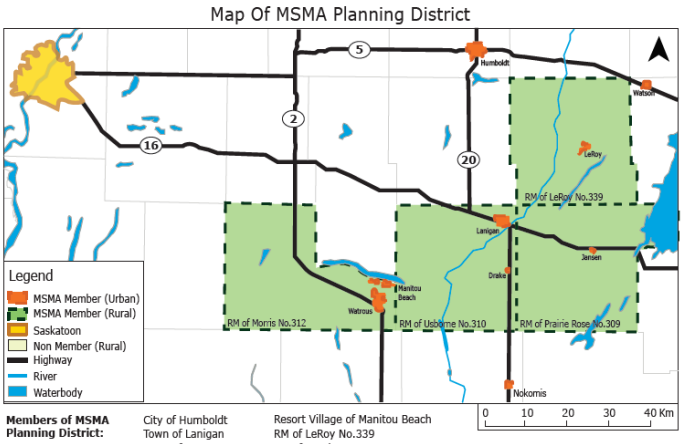


Figure 1: Map of MSMA Planning District

Part 2 – Corporate Partner

By Ken Smith – Manager Community and Ann Paton, Specialist Community, BHP Billiton Canada Inc.

BHP Billiton Canada Inc.

BHP Billiton is a leading global resources company with four major business pillars which are Petroleum, Copper, Iron Ore and Coal. The company believes that Potash in Saskatchewan will become the potential fifth pillar of its global business with the first project being the Jansen Project located between the Town of LeRoy and the Village of Jansen.

BHP Billiton works to create long-term shareholder value through the discovery, acquisition, development and marketing of natural resources. To build on their success today and for tomorrow, BHP Billiton is committed to the health and safety of their people, the environment and the communities near which they operate.

The long-term nature of their operations allows BHP Billiton to establish long lasting relationships with communities where they work collaboratively to make a positive contribution to the lives of local residents and to society in general.

BHP Billiton and Engagement

BHP Billiton recognises the importance of partnering with communities and organisations such as the MSMA and supporting their initiatives and overall development.

The company believes that success is achieved when communities, customers and suppliers value their relationship with them. This is done through early and frequent engagement by BHP Billiton Corporate Affairs staff located in offices in Saskatoon and LeRoy.

On a periodic basis, Corporate Affairs will conduct visits to communities and reach out to municipalities by phone or email if face-to-face meetings are not possible. On an annual basis, site tours are coordinated by BHP Billiton for High School Students and local Leadership to tour the Jansen Project site and view current and proposed activities.

Approach to Community Investment

It is important for BHP Billiton that community investments made are effective and deliver the best possible long-term outcomes for nearby communities. Investments are driven by the needs and resources of the identified communities through consultation, research, planning and dialogue.

BHP Billiton aims to provide lasting social, environmental and economic benefits that assist in building local capacity and attractive communities. Once in operation, the BHP Billiton Jansen Project will attract a permanent workforce of over 1,000 people and BHP Billiton wants their site-based employees to live in local, vibrant and healthy communities with their families.

Community Readiness

BHP Billiton has been actively engaging with the communities from the inception of the Jansen Project. In early 2012, in consultation with the local communities, BHP Billiton prepared Community Readiness Studies. These studies assessed community infrastructure, services, housing and capacity and were presented to municipalities to assist them in future community planning initiatives.

BHP Billiton participated in various planning initiatives including the Provincial Rapid Growth Committee (RGC) which is a multi-ministry team launched to assist municipalities experiencing rapid growth. The Humboldt/Jansen region was selected as a pilot project. The RGC assessed the region in many areas including water treatment and supply, wastewater treatment & solid waste facilities, municipal land use and financial planning, transportation infrastructure, human services (social services, education, victim services, mental health services and other forms of health and wellness care), emergency services and housing.

BHP Billiton also provided funding to various local planning initiatives including: Prairie Innovation Enterprise Region's (PIER) Regional Housing and Demand Assessment, LeRoy and Area Rental Housing Action Plan and the LeRoy Economic Development Committee's Area Growth Management Plan and the Humboldt Strategic Action Plan.

In 2013, BHP Billiton sponsored and attended the Municipal Infrastructure Conference held in Humboldt. This event was the first-ever event focused on the infrastructure challenges faced by mid-sized urban centres, towns, villages and rural municipalities in Saskatchewan and was organized by the MSMA and its member municipalities and the Humboldt and District Chamber of Commerce with assistance from Sagehill Community Futures. The conference centered around infrastructure funding, asset management, planning for growth, inter-municipal and government cooperation, and best practices. Much discussion was held regarding the importance of municipalities preparing asset management plans as a future requirement to trigger government infrastructure funding.

Following the conference, BHP Billiton met with the MSMA and discussed asset management planning in the region. BHP Billiton made a decision to partner with the MSMA on the development of Asset Management Plans for member municipalities and contributed $123,000 to cover half of the project costs.

What Does the Future Hold?

BHP Billiton continues to progress the Jansen Project through work currently being done to excavate and line two underground shafts: a production and service shaft. It is anticipated that the Jansen Project will begin commercial production in the decade post 2020 subject to BHP Billiton board approval/sanctioning for the funds required to construct and operate the potash mine.

Some work continues on the surface at the Jansen site where the 2,586 person Discovery Lodge has been constructed to house the potential construction workforce required to build the surface and underground facilities. BHP Billiton values the relationship with the MSMA and its member municipalities and remains committed to the continued efforts of the alliance. The company feels that this will assist the region in its preparations to manage the impact of economic growth as a result of the BHP Billiton Jansen Project and other industrial expansions in the area.

Part 3 – Accomplishments to Date

By Celine Favreau, Director of Operations & Planning, MSMA

The Mid-Sask Municipal Alliance (MSMA) is currently an association of thirteen municipalities. The primary focus of the member municipalities is to manage the impact of rapid economic growth as well as ongoing issues associated with housing, infrastructure, health and education.

In 2014, with the municipal & regional asset management plans well underway, thanks to the significant funding contribution from BHP Billiton, the MSMA turned its attention to strategies moving forward.

Since being established, the members of MSMA have been working to identify and address both the opportunities and the challenges of stimulating economic development, providing guidelines to reduce conflicts between land uses, protecting sensitive environmental areas and developing strategies to support community revitalization and population growth.

In February of 2015, representatives met to discuss the need to begin promoting both the MSMA services as well as the MSMA as a regional entity, advertising the assets of the region to attract people and investment to the region. The Growing Forward Strategy that resulted from these discussions identified the need to review the current governance structure, develop a comprehensive membership strategy, develop a communications plan, and to establish a 'bigger' picture of what the MSMA can become.

The members further discussed the position they intended to fill, with the resignation of their staff person, and felt that if they interviewed an individual who had the right management skills and not necessarily a planning background that they could consider contracting a part-time planner maybe even in partnership with a member municipality. An economic developer was hired in the full-time staff position in July of 2015.

Transition to Include Community Economic Development (CED) in the Mandate

In 2016, the MSMA is intent on establishing a solid foundation in support of innovation and expansion of opportunities for business investment attraction. A partnership with the Humboldt & District Chamber of Commerce has been established to initiate identification of common issues and start to build a connection to the business community across the region.

The MSMA supports both the Humboldt & District Chamber and the Watrous-Manitou Marketing Group Business Retention and Expansion (BRE) initiatives in establishing a foundation for an MSMA region wide BRE program. These partner organizations are at work with the Saskatchewan Economic Development Association (SEDA) in accessing their provincial BUSINESS COUNTS BRE system and associated Customer Relation Management (CRM) system.

The MSMA is also partnering with SEDA and the Aboriginal Business Support Network (ABSN) in establishing an effective Entrepreneurial Development System (EDS) that integrates the identification of opportunities with a wide range of programs, and tailors products and services to meet the diverse needs of entrepreneurs.

Figure 2: MSMA Board 2016

Goals Moving Forward

Funding approved in 2016 through the Invest Canada - Community Initiatives (ICCI) funding program proposal is focused on creating regional capacity to attract Foreign Direct Investment (FDI) and laying a solid foundation for the future. The first of two proposal objectives is to develop a FDI Investment Attraction Strategy for the MSMA Region, this strategy will be specific to the MSMA, including sub-strategic considerations for key industry sectors.

The second objective is to promote the regions' strengths and investment opportunities via establishing a MSMA region-wide business investment attraction brand and web portal. A unified region will provide an effective access point for potential business investment and will work to build industry/service delivery clusters within the region to support economic growth, in addition to supporting the attraction of new residents to the region.

Building on the completion of the asset management plans, during the summer of 2016 the members have begun the process of transferring infrastructure data to

Geographic Information System (GIS) data files. Working with Prairie Mapping Industries, GIS mapping will provide participating member municipalities with a professional quality asset management mapping product.

Moving forward, the group has agreed to continue to work together with ATANA and the NAMSPlus system, to continue to build on the base information within the asset management plans, complete regular reviews and updates, and secure advice on a long-term infrastructure replacement strategy across the district.

Part 4 – Future Potential

By Gordon Sparks, ATANA

AMP (Asset Management Plan) Work Achieved with the MSMA to Date

As of July 2016 each of the 13 municipalities have 1St cut AMP's for each of the Core Infrastructure Asset Groups so they have the "foundation" in-place to begin the "Infrastructure Asset Management Journey".

The AMP's were developed by ATANA Staff working directly /collaboratively with the staff from each MSMA municipality. ATANA staff took the lead in identifying the information required and the staff with each municipality led the assembly of the required information and provided the information to ATANA Staff who then used the NAMSPlus system (i.e. Tools and Templates) to create the AMP's.

Potential for the MSMA Moving Forward

This "Journey" will involve:

- Developing plans for other necessary asset groups as identified by the community
- Developing a strategic asset management plan outlining the summary of all asset groups
- Using the AMP's to provide inputs for a long term financial plan for the community
- Utilizing the plan information to make informed decisions regarding renewal of existing infrastructure and addition of new infrastructure across the organization within the conversation of appropriate levels of service, risks, and willingness to pay.
- Reviewing & updating the AMP's on a re-occurring basis as demined appropriate – may be annually or every second, third etc. year depending on the situation in each municipality

The MSMA as a Leader

The continued progress of the MSMA region has led to acknowledgment of the region as a progressive planning district resulting in the work of the MSMA attracting the attention of a number of outside agencies. The Conference Board of Canada, and the CMC-Canada Institute view the MSMA as "an excellent example of how municipalities can collaborate around infrastructure planning in support of economic growth".

As a result, the MSMA has been approached by these institutes to provide documentation on the district's progress in order to showcase it as "an excellent model for others to emulate".

For more information, visit the MSMA's webpage at: http://www.midsaskmunicipalalliance.ca.

Partnership for Water Sustainability publishes Primer to support vision for "Sustainable Watershed Systems, through Asset Management"

By Kim Stephens, M.Eng., P.Eng, Executive Director
Partnership for Water Sustainability in BC

Released in September 2016, *Sustainable Watershed Systems: Primer on Application of Ecosystem-based Understanding in the Georgia Basin* is written in a magazine-style to appeal to technical and non-technical readers alike. TO DOWNLOAD A COPY, VISIT:

http://waterbucket.ca/rm/files/2016/08/Primer-on-Application-of-Ecosystem-based-Understanding_Sept-2016.pdf

A watershed is an integrated system. The need to protect headwater streams and groundwater resources in BC requires that communities expand their view from one that looks at a site in isolation to one that considers all sites, the watershed landscape, streams and foreshores, groundwater aquifers, and so on, as an integrated system.

The Primer serves as a refresher on core science-based concepts that underpin the vision for *Sustainable Watershed Systems, through Asset Management*, a guidance document released by the Partnership for Water Sustainability in November 2015.

Ask the Right Questions

Everyone learns about the water balance (water cycle) in elementary school, but by high school most have forgotten what they learned. So what does this mean for communities, the reader might well ask? Consider that: A legacy of community and infrastructure design practices has failed to protect the natural water balance (hydrologic integrity). Failure has financial, level-of-service and life-cycle impacts and implications for local governments, and hence taxpayers. Consequences include expensive fixes.

Local governments are starting to recognize that natural assets have value, ecosystem services have a role in municipal service delivery, and so need to be integrated into their asset management programs. Hence, the sixth in the *Beyond the Guidebook Primer Series* is written to help multiple audiences (whether elected, technical or stewardship), ask the right questions and ensure that "science-based understanding" is applied properly and effectively to implement practices that restore the hydrologic integrity of watersheds.

Vision: Re-Set the Ecological Baseline

The vision for Sustainable Watershed Systems is the culmination of a building blocks process which cross-pollinated Washington State and BC experience.

In the mid-1990s, Washington State research established the **primacy of hydrology** in either protecting or impacting stream health. In BC, this finding spurred development and evolution of the Water Balance Methodology. Twenty years later, a convergence of initiatives and ideas is the catalyst for taking stock of past and current research.

In 1995, Dr. Daniel Pauly coined the phrase "shifting baseline syndrome" (Figure 1) to describe why each new generation lacks direct knowledge of the historical condition of the natural environment, and how this lack of understanding plays out as a failure to notice change.

The flip side of an impact, however, is an opportunity. Over the past two decades, a series of teachable moments has set the stage to reverse the sliding baseline in the Georgia Basin. Communities could re-set the ecological baseline IF they would implement standards of practice that truly replicate and restore a desired watershed condition. This outcome requires a 'whole systems' approach to community planning and infrastructure servicing.

Watersheds are Infrastructure Assets

BC has a provincial policy, program and regulatory framework that enables local governments to move from UNDERSTANDING to IMPLEMENTATION of a "whole systems" approach keyed to the primacy of hydrology.

The new Water Sustainability Act ("the Act") plus ***Asset Management for Sustainable Service Delivery: A Framework for BC*** are lynch-pins for looking at water and watersheds differently. The Act connects land and water, and makes the link to desired water balance outcomes.

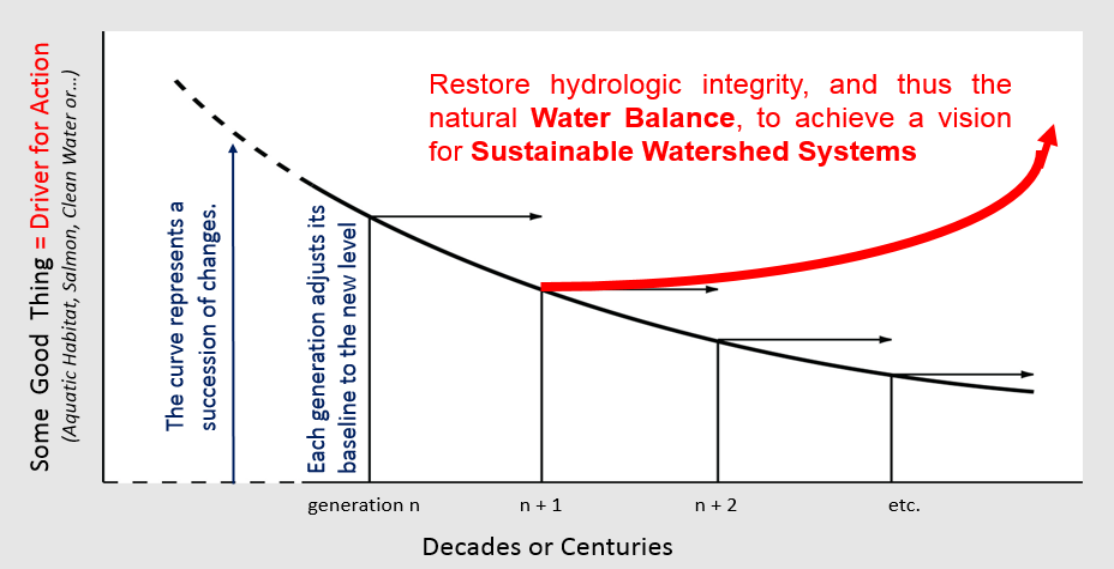


Figure 1: Re-Set the Sliding Ecological Baseline

The BC Framework is a powerful tool for local governments to focus their community planning and infrastructure decision processes on beneficial life-cycle outcomes.

Asset management has traditionally been about hard engineered assets such as waterlines, sanitary and storm sewers, and roads. Yet, watershed systems are also "infrastructure assets". Trees, soil, green spaces and **Water Balance pathways** contribute to a municipal service function. These assets provide *hydrologic integrity* for a healthy watershed system. This desired outcome is a driver for protecting and managing nature's services in the same way that engineered assets (and the services they provide) are managed.

Whole Systems Approach

Restoring hydrologic integrity, and thus the water balance, is key to achieving a water-resilient future in urban areas. A key message in the Primer is the necessity of "staying true to the science" IF communities are to achieve a vision for *sustainable watershed systems*. The Partnership hopes that readers will be inspired to learn more about the science behind the Water Balance Methodology and the four themes introduced (figure 2).

Harness nature to adapt to a changing climate: Part 1 introduces new ecosystem-based adaptation (EbA) research in BC that may inspire a new generation to "think and act like a watershed".

Get the hydrology right and residential water quality typically follows along: Part 2 celebrates the 20th anniversary of publication of the seminal Washington State research by Dr. Richard Horner and Dr. Chris May on the primacy of hydrology.

A journey to a water-resilient future starts with the first rain garden: Part 3 showcases breakthrough rain garden water quality research by Dr. Jenifer McIntyre at Washington State University that builds on the work of Horner and May.

Water balance pathway to a water-resilient future: Part 4 introduces the parallel journeys of Washington State, California and BC; and how the Water Balance Methodology is the foundation for an ecosystem-

Figure 2: Four Themes of Water Balance Methodology

Achieving sustainable watershed systems through asset management will require long-term commitment by communities, successive municipal councils and regional boards, and generations of land and water professionals.

Getting the Most from Infrastructure Assets: Ecological Accounting Protocol

By Tim Pringle, Chair, Ecological Accounting Protocol Initiative, Partnership for Water Sustainability in BC

Note: This article is the second in a 2-part series.

The earlier article, titled **Getting the Most from Infrastructure Assets: the idea of ecological accounting** *(AMBC Newsletter Issue No. 16, February 2016) introduced the concept for the Ecological Accounting Protocol (EAP) as an asset management tool.*

The current article outlines how the EAP would work.

Figure 1 *(next page), illustrates where the EAP would fit within the provincial framework for Living Water Smart and Building Greener Communities. Application of the EAP would enable local governments to progress along the* **Asset Management Continuum for Sustainable Service Delivery** *to achieve "Sustainable Watershed Systems" (AMBC Newsletter Issue No. 17, June 2016)*

Context

The Partnership for Water Sustainability in British Columbia has developed several tools that practitioners can use to protect the hydrology of a watershed. These tools apply to infrastructure design and construction as well as agriculture and other land use practices. The EAP will be another resource in this suite of tools.

Released by the Partnership for Water Sustainability in November 2015, *Beyond the Guidebook 2015:* ***Moving Towards "Sustainable Watershed Systems, through Asset Management"*** introduced a new paradigm, and that is – watersheds are infrastructure assets, and therefore they must be protected and managed as such to both ensure hydrologic integrity and restore the natural water balance.

Watersheds as Infrastructure Assets: A watershed is an integrated system. The three pathways by which rainfall reaches streams (over the land surface, shallow horizontal through the soil layer, and deep vertical to groundwater) are "infrastructure assets". They provide "water balance services".

As proposed, the Ecological Accounting Protocol (EAP) is an economic tool to make real the notion of "watersheds as infrastructure assets".

Practitioners would use it to determine whether or not drawing services from natural assets for drainage infrastructure makes financial sense. It would enable practitioners to price expenditures or avoided expenditures that occur in such contexts.

It follows that potential capital expenditures for engineered services and those drawn from natural assets could be compared. Practitioners could determine the optimum balance of these options. Such design of infrastructure services offers enhanced protection of watershed hydrology (and ecology) as well as lower life-cycle costs for the assets.

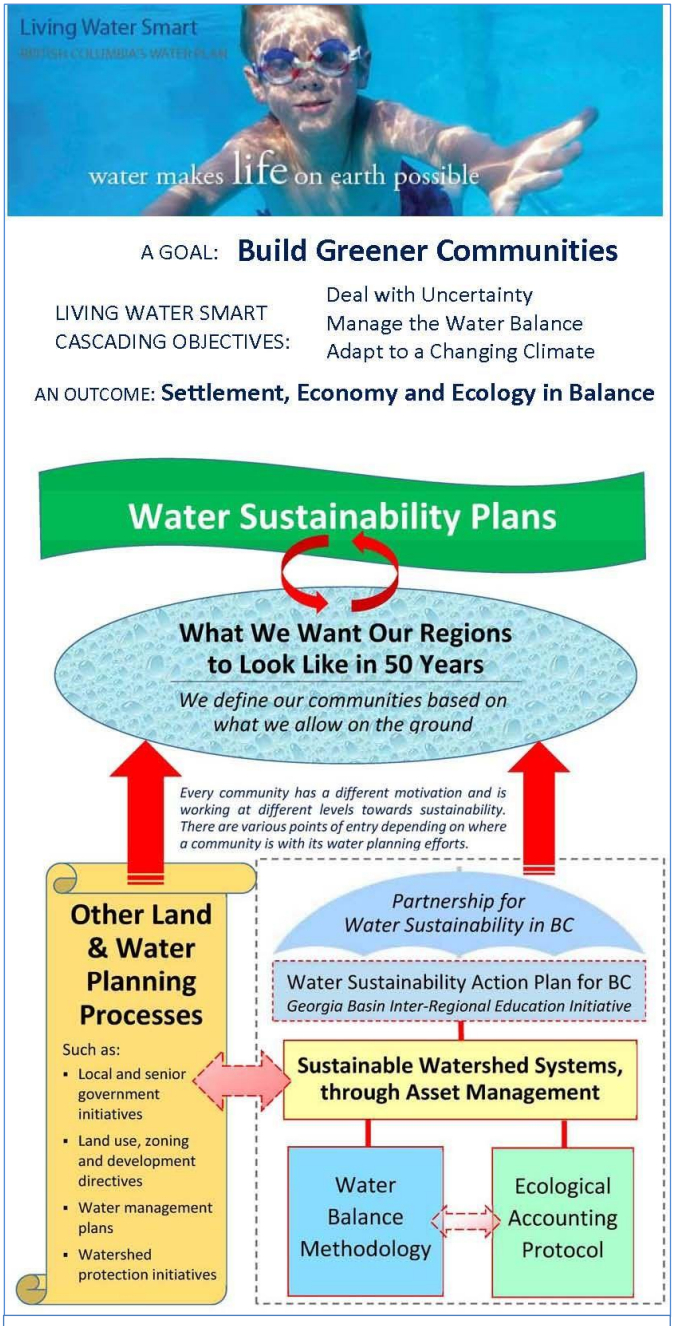


Figure 1: Roadmap for Living Smart Water and Building Greener Communities

The EAP is a natural extension of asset management with the inclusion of the value and costs associated with the use of natural assets. The EAP would allow Asset Managers and Owners to see a more complete picture of value and future costs and the resulting funding required for Operating and Maintenance of the components of the watershed that begin as a Natural Asset and are converted into infrastructure to save initial capital construction costs.

Water Balance Methodology: As indicated on Figure 1, the EAP would be used in conjunction with the Water Balance Methodology (Methodology) to establish the watershed operation and whether its streams are capable of being altered for use as part of the drainage system.

The Methodology enables assessment of the hydrology of one or more sites in a watershed and it compares different scenarios of watershed development. The assessment analyzes rainwater interception and infiltration as well as surface water retention, flows, subsurface inter-flows and groundwater characteristics of a site(s).

The Methodology guides design of infrastructure to maintain hydrological functions at pre-development levels. The Methodology also can indicate design to improve hydrological functions.

Four Analytical Approaches: The Ecological Accounting Protocol would support four related analytical approaches to capital expenditure and life cycle costs represented in infrastructure (drainage) services drawn from natural assets. These are Substitution, Cost Avoidance, Environmental (watershed health) Benefits, and Attributed Values. They are explained as follows.

Analytical Approach #1 - Substitution

Practitioners involved in providing civil services for land and real estate development may utilize both natural and engineered assets to meet design and opportunity cost objectives for the required infrastructure (drainage) services. In practice designers, installers and regulators usually focus on engineered assets to provide these services.

The emphasis tends to cost avoidance. Use of services derived from suitable and available natural assets occurs infrequently. This reality suggests that from an asset management point of view opportunities to reduce life-cycle costs of infrastructure may have been left on the table. Why?

An obvious reason is metrics and pricing. For example, a natural wetland / pond and stream system might retain, release and infiltrate rainwater volumes in a similar or

more efficient manner than would an engineered retention pond and storm drain system. However, there are few examples of proven performance of solutions based on natural assets.

While expenditures for machine work, materials and labour for the engineered retention pond are at hand, no corresponding metrics exist for the natural wetland system.

If the various engineered inputs were priced on the basis of cubic metres of water handled by the system, then the volumes passing through the natural system would add up to comparable capital expenditure. By considering the annual or periodic maintenance as well as replacement expenditures for each system, life-cycle costs might be calculated.

The EAP would support the substitution approach and, from an opportunity cost point of view, help determine whether or not services drawn from natural assets would be a better investment than engineered services only. The EAP would indicate the optimum balance of services from engineered and natural assets.

Analytical Approach #2 - Cost Avoidance

Cost avoidance really is about how much infrastructure costs now and later. Developers and contractors want to keep current expenditures for infrastructure works as low as possible, while meeting design and regulatory requirements.

The management and life-cycle costs are the problems of other practitioners with different but limited sources of funding. There is a heavy bias to rely on what has been constructed and proven in previous projects. Drawing services from natural assets infrequently occurs. Likely, this traditional approach would not optimize or lower life-cycle costs.

When regulating infrastructure design and construction, local government will want to avoid negative post-construction impacts resulting from altered hydrological conditions. These impacts include stream erosion and degradation, property damage, flooding of lowland areas, and contamination of surface and well water.

In conjunction with the Methodology, practitioners could use the EAP to price capital expenditures that would maintain the hydrological condition of a watershed and avoid future costs related to altered surface and subsurface flows.

Finally, infrastructure that utilizes services from natural assets would offer other cost benefits. The assets would not need to be replaced and they can be used for a longer life cycle. Local governments could realize reduced future costs for infrastructure assets and services, thus lowering pressure to increase property taxes. Property owners likely would applaud this scenario.

Analytical Approach #3 - Environmental (Watershed Health) Benefits

As discussed above, the EAP is a tool that would help practitioners design drainage infrastructure which preserves, and possibly improves, the hydrological conditions of a watershed. This approach equates with protection of watershed health.

The benefits to the ecology of a watershed are obvious. Not only would the flora and fauna benefit, but healthy watershed systems would better withstand climate change impacts.

Healthy watersheds offer natural systems that may contribute to infrastructure required by human settlements. Examples include streams (water conveyance), wetlands (water quality, aquifer recharge, and release rates), tree cover (interception and infiltration), soils (infiltration, conveyance and storage) and groundwater (storage). The value of these natural assets are the focus of the current Municipal Natural Capital Initiative.

Analytical Approach #4 - Attributed Values

The EAP would also support another approach to improved infrastructure investment that includes use of services form natural assets and lower life cycle costs; this emphasis is on attributed values of natural assets. These are cultural and economic values capitalized in natural systems.

For example, many resort and recreational property developments are situated where natural amenities (the sea, lakes, rivers, forests, etc.) are an attraction. The condition of these natural assets has a bearing on the financial success of the resort and recreational property investments.

In a residential development, the expenditure for use and protection of natural assets may be offset to some degree by increased property values related to natural areas, streams, ponds, trails, etc. We all are aware that homes on waterfront, with “water views,” or adjacent to natural areas command higher prices than similar homes without such exposure.

Such attributed values also may have cultural importance, that is, widely shared values. These include clean and abundant potable water, natural areas for passive enjoyment, viewscapes and other values.

Not the least of these is improved capacity to adapt to climate change.

A Look Ahead

The Partnership for Water Sustainability in BC intends to develop the EAP as a natural extension of asset management. It would make sustainable service delivery more robust with the inclusion of the value and costs associated with the use of services from natural assets to supply infrastructure.

The EAP would allow Asset Managers and Owners to see a more complete picture of value and future costs, including the funding required for Operating and Maintenance of the components of the system that adapted Natural Assets for infrastructure to save initial capital construction costs.

Figure 1 – The road map (Figure 1 on page 9) illustrates where the Ecological Accounting Protocol fits within the provincial framework for Living Water Smart and Building Greener Communities.

Asset Management in British Columbia: Looking at the Results from the Gas Tax Asset Management Assessment Form

By Christina Ross, UBCM

From May to July 2016, the Union of BC Municipalities (UBCM) asked British Columbia (BC) local governments to complete an assessment on the current state of their asset management.

The completion of the Asset Management Assessment Form (the Survey) was a mandatory reporting requirement of the Federal Gas Tax Agreement. Survey results shared here describe aggregate responses from those local governments that submitted by the deadline.

The Survey design was based on *Asset Management for Sustainable Service Delivery: A BC Framework* (the Framework). The purpose of following the Framework was to assess asset management in BC from a high level perspective, based on best practices established within the Framework. Additionally, a desired outcome was to achieve strides towards increasing asset management

Figure 1: Framework Process Wheel

literacy among local governments. Focusing on desired outcomes, the Survey was comprised of over 50 questions related to the process of asset management. Continuing with this theme, the results shared below will follow the outer circle of the Framework's established process: **Assess**, **Plan** and **Implement** (**Figure 1**).

Assess

Assessment of Asset Management practices and the current state of assets

The assessment of asset management practices supports local governments in identifying existing practices and processes; evaluates how well these processes are applied and how effective they are; and most importantly, it identifies areas of organizational strength and opportunities for improvement.

When asked if a formal asset management process had been established over 50% of local governments responded that a formal process was under development or currently in place.

While half of local governments have formalized a process for asset management, many more local governments have been busy managing information on existing assets.

Survey responses from local governments show that 58% had assessed the current state of assets (**Figure 2** – on next page) while 84% had developed an asset inventory for at least one asset category.

When local governments were asked about the quality and availability of data on existing assets (**Figure 3**), over two-thirds of responses regarding the condition and location of assets were described as competent to strong. Over a half of responses regarding asset service

delivery, expenditures and identification and understanding of risk were described as being competent to outstanding.

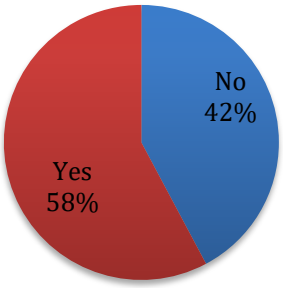


Figure 2: Local Governments Who Have Assessed the Current State of Assets.

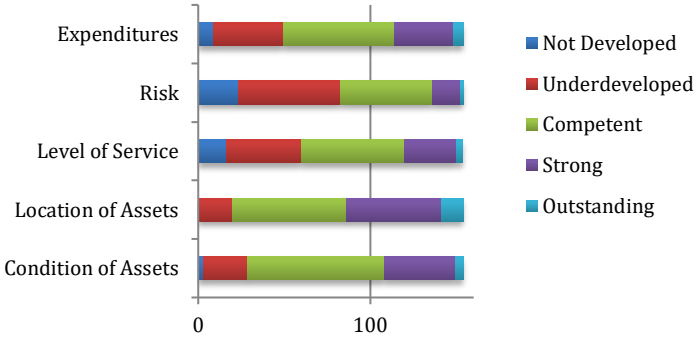


Figure 3: Quality and Availablilty of Data for Existing Asset Condition, Location, Level of Service, Risk, and Expenditures

Plan

Policy, Strategy, Plans for Asset Categories, and Integration of Asset Management into Long-term Financial Planning

Planning for asset management guides the development of resources that focus and support individual organizational needs. The planning section of the Framework ensures that guidelines and processes are in place to guide staff and elected officials and furthermore, identifies eventual outcomes that are measurable and community based.

Table 1 (below) shows results for planning activities undertaken by local governments. The competency scale is based on the number of response selections chosen from best practices as described by the Framework set out in **Table 2** (below).

Responses from the Survey showed that roughly 30% of local governments have established both asset management policies and strategies. Of those with existing policies and strategies, 21% of policies and 15% of strategies are considered competent to outstanding.

Table 1: Reported Status of Local Government Asset Management Planning Activities

	Policy	Strategy	Plan	Integration into Long-Term Financial Planning
Underdeveloped	10%	14%	20%	18%
Competent	6%	8%	8%	12%
Strong	9%	3%	5%	8%
Outstanding	6%	4%	7%	6%
Not Developed	69%	71%	60%	-

Table 2: Scale for Meeting Best Practices

Categories	# of Response Selections
Not developed	0
Underdeveloped	1-3
Competent	4-6
Strong	7-9
Outstanding	10 +

When asked about the number of asset categories with existing asset management plans, 47% of local governments indicated that at least one plan had been developed.

With regards to the integration of asset management related information into Long Term Financial Plans, over 44% of local governments were found to be moving forward with this activity. Currently 26% of deliverables related to this integration are considered competent to outstanding.

Implementation

Implementing, Measuring and Reporting on Asset Management Practices

Plans and practices are developed to be implemented. Here the dedication to asset management assessment and planning activities drives local governments towards achieving sustainable service delivery. Furthermore, when activities are measured and reported, they lead local governments towards increased accountability and transparency.

When local governments were asked if implementation plans had been defined, over 43% reported that they had. Of local governments with implementation plans, 32% of these are considered competent to outstanding. With regards to measuring and reporting, 32% of local governments indicated these practices had begun. Of those local governments currently measuring and reporting on asset management, 10% are considered competent to strong.

Moving Forward with Continuous Improvement

The process of asset management is one of continuous quality improvement (CQI). Striving for improved services and increased positive outcomes, CQI is a cyclical, data-driven process; it is proactive, not reactive. The Framework process (Figure 1 on page 11) provides an excellent visual demonstrating the continuous nature of asset management.

When local governments were asked if they had reviewed or updated resources related to asset management activities, 21% indicated they had. When asked if any portion of asset management inventories had been updated, over 31% of local governments indicated this had been done.

The Survey results indicate that local governments are actively embracing and moving forward with asset management practices. While a number of local governments are leaders, it is apparent that most local governments are building capacity and developing a culture geared towards sustainable service delivery.

These successes, no matter how small, should be celebrated.

Through collaboration and partnership, the results of the Survey help identify areas local governments, Asset Management BC, the Province of British Columbia, and UBCM, can support local governments moving forward. To date, these organizations have partnered to develop tools including AssetSMART 2.0 and the Asset Management Roadmap for BC, facilitated training opportunities and workshops, and published resources like the Framework to support local governments on the path towards sustainable service delivery.

The results from the Survey provide a snapshot of where local governments currently stand in terms of asset management. A 'State of Asset Management in BC' report is anticipated to be available by the end of 2016. Moving forward, and as a requirement under the Federal Gas Tax Fund Agreement, individual local governments will be developing an Asset Management Implementation Plan (the Plan) outlining how current asset management practices will be improved on over the remaining seven years of the Federal Gas Tax Agreement.

Further information regarding the Plan will be available in Fall 2016. For future updates, please visit the UBCM Asset Management webpage[1] and subscribe to UBCM's The Compass[2] newsletter.

The Prince George CLIC Case Study

By Lourette Swanepoel RPP, MCIP, ENV SP. Registered Professional Planner and accredited Envision® Sustainability Professional, Stantec Consulting. Tiina Schaeffer, Manager of Sustainable Community Development,

Introduction

In issue #14 and #17 of the AMBC newsletter, the **Community Lifecycle Infrastructure Costing (CLIC)** tool was introduced as an essential tool to help local governments explore the impacts of land use decisions on their infrastructure lifecycle costs. CLIC is the result of a multi-year process driven by the British Columbia Ministry of Community, Sport, and Cultural Development (MCSCD). During the pilot phase, six BC communities were engaged and in 2015 the first version was released to the public.

One of these pilot communities was the City of Prince George, which has continued as an active participant in applying the tool and providing advice on ongoing tool development.

Applying CLIC in Prince George

The City of Prince George pursued CLIC as part of its **Asset Management Policy** and **Asset Management Workplan** to facilitate land use decision making that would take into account the long-term cost of the new infrastructure they take on. This approach recognizes that it's planning decisions that commit the community and their tax dollars to assets for decades, if not centuries. Planning, Engineering, and Finance each play a critical role in asset management. CLIC further linked to a number of Council Strategic Goals, the OCP's growth management direction, and the City's **Sustainable Finance Guidelines.**

Prince George used the tool to compare two typical development scenarios to see what the relative impact was of these scenarios on infrastructure lifecycle cost – one a low density subdivision and a medium density infill scenario. Each had a similar land area, road length and residential area.

1. http://www.ubcm.ca/EN/main/funding/renewed-gas-tax-agreement/asset-management.html
2. https://visitor.r20.constantcontact.com/manage/optin?v=001dxstjuHoWkLR69Y7ZEHRbqc3PGsXnMyL87JWnWvlcRCZTG0H8TQUH9EMnVoztbSnSf4fEQaEfQFRhWMROTXWJyhsadayMnYSRs5ge1FGhfE2yckWIFePPr8ddjf3-eQKzatqdcj3qurCGlCmq05vspTZoBHtINkr

The Prince George Results

Using CLIC, the City was able to demonstrate that:

- ***Initial capital costs in the infill scenario are a mere fraction (about 94-97% lower) than that of the subdivision scenario.*** This difference is due to the upfront investment required in new infrastructure for the low density neighbourhood, compared to the infill scenario where infrastructure already exists. The infill scenario accounts for the age of existing infrastructure (in terms of when replacement is needed) but capital cost for capacity upgrades to existing infrastructure were not required as a result of the redevelopment.
- ***Annual operating costs in the infill scenario are slightly less (about 14% lower) per household.*** It should additionally be noted that the O&M cost for the subdivision would be an additional cost in the municipal operating budget (i.e. new assets being added that requires additional O&M), whereas the O&M cost for the infill scenario are, for the most part, already part of existing O&M cost.
- ***Annual lifecycle costs in the infill scenario are less (about 21% lower) per household.***
- ***Annual lifecycle revenues in the infill scenario are less (about 15% lower) per household.*** This can be expected given the higher number of small units in the infill scenario (i.e. apartments vs. single detached) that produce less tax revenue per unit due to the smaller lot size. Also, the City's proactive policies on charging DCCs for subdivisions and providing subsidies to infill scenarios are reflected here. However, when considering **total revenue collected per hectare, the infill scenario produced substantially higher (about 56% more) revenue** per annum over the 100-year lifecycle.
- ***Households also experience other non-tax-based savings (about 18% less) with the more compact infill scenario***, such as lower home energy costs, driving costs, transit costs, vehicle collision costs, air pollution, and climate change costs.

Graphs for results are shown on following page

The Value of Using CLIC

One of the most valuable outcomes from the process was the intentional "digging" to compile costing data from various groups into one common inventory of typical costs for critical infrastructure. Some information sought was not available and thereby identified some gaps in data and financial understanding.

Tiina Schaeffer, Manager of Sustainable Community Development, indicated that "What we've found with CLIC is that we've really been able to break down silos and can see alignment of our work - planners now "see" alignment with the financial plan and asset management plans; asset management sees alignment of their work with the OCP and financial guidelines; and finance is starting to see alignment with the OCP and asset management plans".

Other ways in which CLIC added value included:

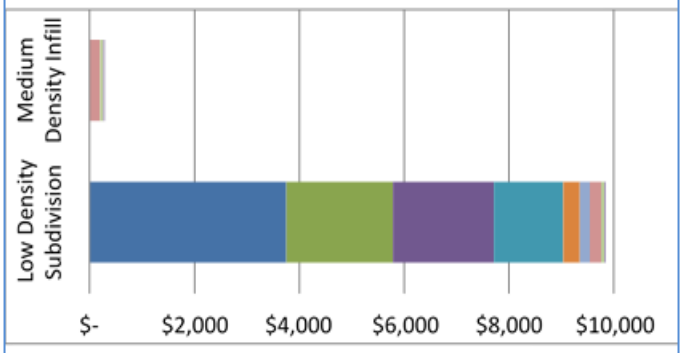
- Transforming planning arguments for more compact growth that focus on liveability and sustainability into quantifiable terms that demonstrate a business case for planning decisions from a long-term financial perspective
- Simplifying lifecycle costing to a few easy steps
- Increasing awareness of who pays for the long-term costs of development (community infrastructure)
- Connecting short-term decisions on how the City manages assets to the long term financial and land use planning decisions
- Exploring development options, policy directions or what-if scenarios (such as increased density, cost allocations, development cost charges, user fees, etc.) to see what the impact of variables in decisions are on the lifecycle cost.

Lessons Learned

Through their experience with CLIC, Prince George has a number of lessons to share with other communities looking to this tool:

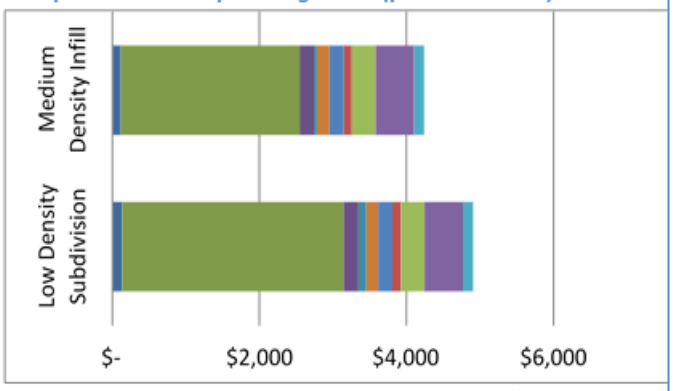
- Starting is the first step.
- Identify a champion.
- Engage a cross disciplinary team.
- Facilitate corporate buy-in from the outset.
- Let go of certainty.
- Maintain focus.
- Take time to reflect on the results.

Graph 1: Initial Capital Costs (per household)



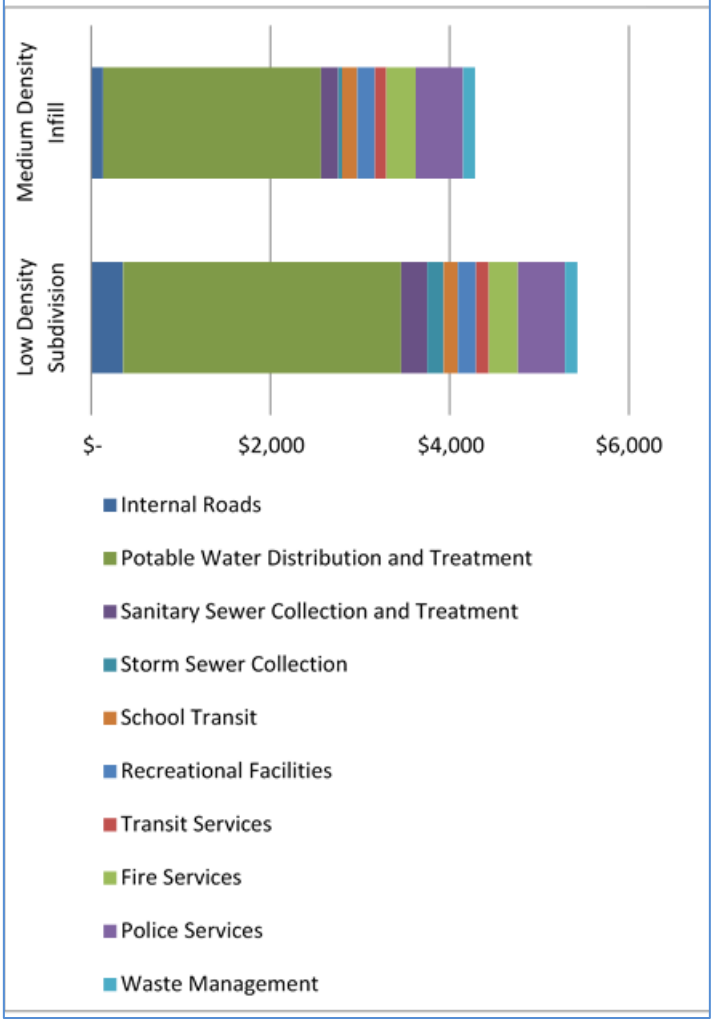
(For legend see Annual Lifecycle Cost)

Graph 2: Annual Operating Costs (per household)

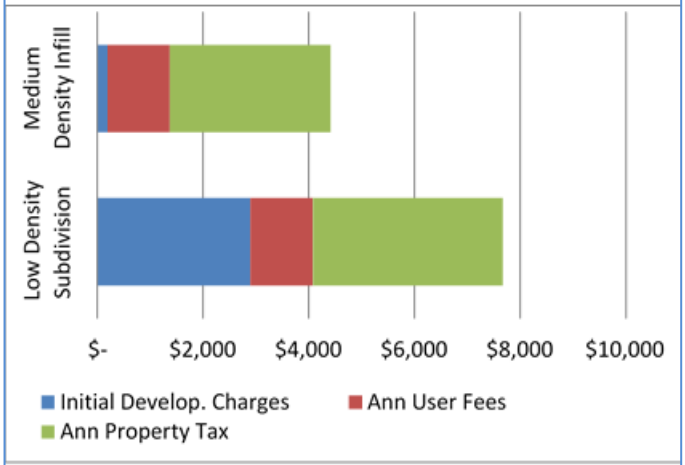


(For legend see Annual Lifecycle Cost)

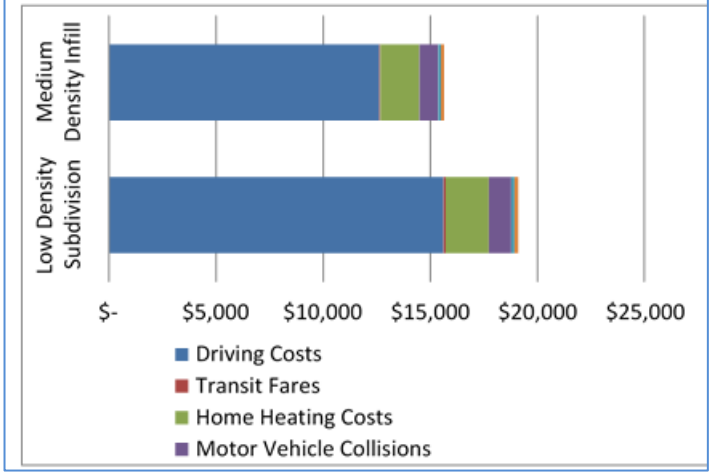
Graph 3: Annual Lifecycle Cost (per household)



Graph 4: Annual Lifecycle Revenues (per household)



Graph 5: Private & External Costs (per household)



The Prince George experience can be helpful in identifying how CLIC can connect a community's land-use planning and asset management planning processes. CLIC provided a high-level costing of the age-old planning principles regarding the cost of sprawl and if there is a business case for densification in Prince George's context.

The CLIC tool is available for free download at

http://www.cscd.gov.bc.ca/lgd/greencommunities/sustainable_development.htm

Funding for CLIC Tool outreach has been provided by the Real Estate Foundation.

MMCD Infrastructure Data Standards Built on AutoCAD Civil 3D 2015

By Andrew Walther, for MMCD

The MMCD Infrastructure Data Standards include the following components:

1. Municipal CAD Standard – Ongoing Development
2. Drawing Production Standard – August 2016
3. Construction Modeling Standard – Not Complete
4. Asset Data Exchange Standard – April 2016
5. Asset Data Management Register – February 2012

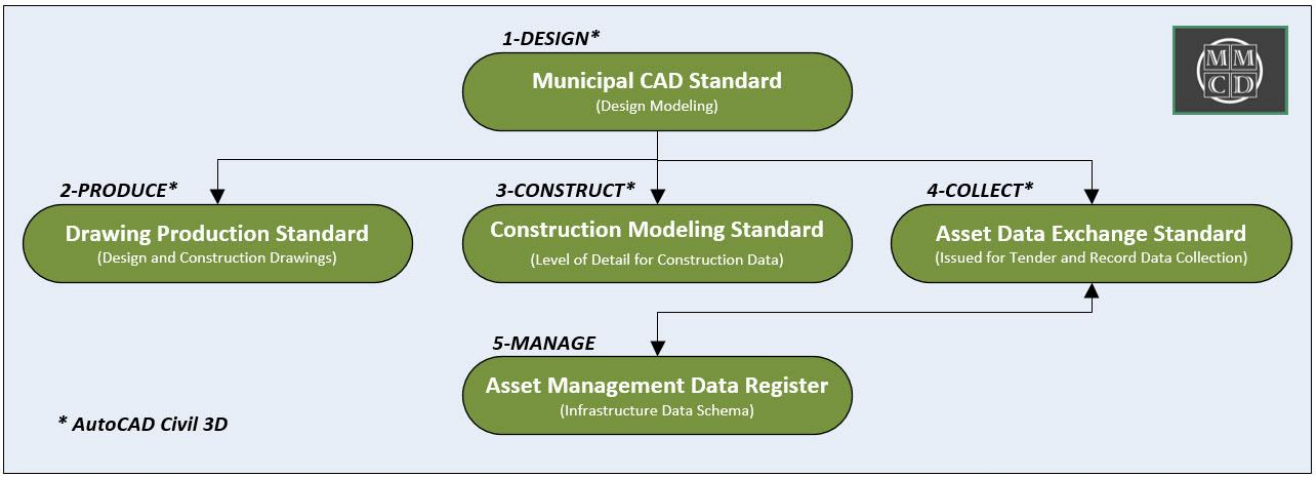
The Municipal CAD Standard consists of the AutoCAD Civil 3D drawing template and supporting files. The Drawing Production, Construction Modeling and Asset Data Exchange Standards are subsets of the Municipal CAD Standard.

The MMCD Asset Data Exchange Standard provides tools for infrastructure data attribution required by Local Governments for design and construction submissions. The MMCD Drawing Production Standard provides sample drawings and guidelines for contract drawing set contents.

The MMCD Drawing Production Standard was developed after the MMCD Asset Data Exchange Standard and therefore contains all the attribution tools. The Drawing Production Standard is built on the latest version of the AutoCAD Civil 3D drawing template and supporting files.

The MMCD infrastructure data standards development hierarchy is shown in the illustration below.

Information available from the following link: www.mmcd.net/documents/mmcda-amdr/



Birds of a Feather - 'Flock' Together

By Mellissa Osbourne, Vice Chair / Director, CNAM and Wally Wells, Executive Director, Asset Management BC

Awareness of the need to understand and address funding for aging infrastructure replacement and upgrade has led to development of asset management strategies and programs. Why now? Unfortunately, municipal government processes were never set up to effectively deal with the future cost of aging infrastructure. The focus was on new 'stuff'. As a result, huge pressure was successfully imposed on senior governments to help fund our aging infrastructure. One of the criteria imposed by most senior governments was local planning for future physical and financial needs, hence asset management.
As most assets are owned by our 3700 municipalities which have major differences in size, physiography, climate, location and resources, one size will not fit all. So the need for regional groups to develop knowledge transfer and information for the practice of asset management, link their network and resources together and interface with core national groups evolved very quickly. Quebec, through CERIU formed the first Regional group in Canada dating back to 1994. Out of the National Asset Management Working Group in 2008, regional group called "Communities of Practice" emerged. Two national groups, who do not rely on regional or provincial chapters are key to the success of this national network.

Canadian Network of Asset Managers (CNAM) in 2015 provided an opportunity to gather these regional and national groups together to create what we collective chose to call the "Regional Round Table". Participants included Asset Management British Columbia (est. 2008); Infrastructure Asset Management Alberta (est. 2013); Municipal Asset Management Saskatchewan (est. 2012);

Ontario Coalition for Sustainable Infrastructure (est. 2006); NWT government; the Federation of Canadian Municipalities (est. 1901) and the Canadian Network of Asset Managers (CNAM est. 2006). The second "Regional Round Table" was held at the 2016 CNAM conference held in Halifax and with the above participants adding Quebec, Le Centre d'expertise et de recherché en infrastructures urbaines (CERIU est. 1994) and Atlantic Canada (including Newfoundland and Labrador) Atlantic Infrastructure Management (AIM est. 2015).

The discussions focused on sharing experiences, current activities and a collective agreement that our prime mandate was *information sharing and knowledge transfer* at regional and national levels. The group is a partnership of the 'communities of practice' and two national partners each retaining individuality yet sharing and collaborating on like challenges and opportunities.

The discussions resulted in the following suggestions for the partnership: to hold bi-annual conference calls; to continue meeting annually; to share web pages with links and to exchange relevant information among all the partners. While each group has their own direction, structure and on-going activities, one thing was clear, we all see the opportunity to collaborate and grow a community of practice for asset management to support our communities and higher levels of governments by providing best value. After all, that is why we are here.

NAMS Training for Asset Management Schedule

The 3-day NAMS training program for municipal staff will be offered through Asset Management BC in September and October at locations listed below. Registration fee is $1,650 per person. Subsidy of 50% of that fee is available providing two or more people attend representing different disciplines as well as for communities who have previously participated now sending new or additional staff. Locations of the 2016 workshops are expected to be:

- Lower Mainland – Oct 31, Nov.1 & 2, –Hilton Airport Hotel, Vancouver
- Southeast BC – Cranbrook, Nov. 8, 9 &10, St. Eugene Conference Center and Hotel
- Northern BC – Prince George, Oct 19, 20 & 21, Ramada Inn
- Okanagan – Kelowna, Nov 16, 17 and 18, Location TBA
- Vancouver Island – Campbell River (FULL), Oct 4, 5, & 6, Enterprise Centre Ballroom

The NAMS training program gives you the tools and knowledge to develop your asset management plan. NAMS in itself is not an asset management system nor a specific asset management software package. It does not replace any software packages you current or intend to use.

For more details, see www.assetmanagementbc.ca or contact **Asset Management BC** at info@assetmanagementbc.ca Registration is available at www.pwabc.ca Go to events and scroll down to the workshop you want.

Asset Management BC Conference

Mark your Calendar for November, 2016. The date is November 3rd and 4th at the Hilton Airport Hotel, Vancouver, (Richmond).

Keynote speaker: Gord Hume

Gord served 4 terms on London City Council before turning his attention to speaking and writing about local government. Author of 6 books, he will speak on his latest book, "The Leadership Crisis"

'THE LEADERSHIP CRISIS' looks at local government leaders with a clear eye. The good characteristics of strong, dynamic leaders are many-as are their flaws and weaknesses. Canadian municipalities, and all orders of government, have seen a great range of leaders. This book explores the characteristics of political and civil service leaders, compares them to business and professional leaders, and studies 'what went wrong' in

Program Highlights

- Asset Management for Sustainable Service Delivery: A BC Framework
- Shaping your organization for Asset Management
- Communicating the message
- Long term financial planning
- Performance measures
- How to define service levels
- UBCM Survey: Lessons learned

Programs and Funding

Infrastructure Canada, UBCM and the BC Ministry of Community, Sport and Cultural Development will address their programs that support infrastructure funding and asset management. Federation of Canadian Municipalities have NEW funding and will outline the new programs and opportunities.

Lots of time is available for questions comments and discussion. This will take place on Friday morning.

Conference Program

Thursday, November 3

8:20 - **Opening and Welcome**

Andy Wardell, Director, Financial Services, District of North Vancouver Co-chair - **Asset Management BC**

8:30 - 9:45 - Gord Hume - Keynote Speaker

9:45 - 10:15 **- Shaping your Organization around Service Delivery**

David Allen, CAO, City of Courtenay, will detail the municipalities innovative organizational changes, geared towards aligning municipal operations with asset management best practices.

BREAK

1030 - 11:00 **- Asset Management for Sustainable Service Delivery: A BC Framework**

Doug Allin, CAO, City of Grand Forks will present the Framework as the basis for the asset management process for BC

11:00 - 11:30 **- The UBCM Asset Management Survey— What did we learn?**

Glen Brown, General Manager Operations, Victoria, Christina Ross, Gas Tax Program Analyst UBCM will present an overview of the results of the UBCM Municipal survey completed in July.

Sponsors

11:30 - 12:15 **- Communicating the Message How to present Asset Management in plain language.**

Christina Benty, prior Mayor of the Town of Golden Strategic Solutions Limited Jan Enns, Communications Consulting and Training

1:00 - 1:45 - How Long Term Financial Plans rely on Asset Management Plans

Rick Danyluk, Manager of Financial Planning, District of North Vancouver will explain how the 11 asset category asset management plans tare used to prepare the Long Term Financial Plan.

1:45 - 2:30 - Performance Measures and Reporting Framework for Sustainable Service Delivery

Doug Allin, CAO City of Grand Forks and Kevin Ramsay, retired CAO and now Innova Strategy Group will present the on-going work on performance measurement

2:30 - 3:15 **- Your turn - Discussion of integrating service levels into your strategies.**

This will start off with a presentation by Allen Mapstone, JRA, Institute of Public Works Engineering of Australia, followed by discussion and questions from the floor.

3:15 - 4:15 - Panel chaired by Wally Wells

"What's behind an Asset Management Policy" Emanuel Machado, CAO Town of Gibsons

"Pulling it all together– How to set overall priorities" Andy Wardell, Director, Financial Services, District of North Vancouver

"Garbage in! Garbage out! Pay attention to your data base" Barry Davis, Deputy Director of Engineering, City of Burnaby (retired)

Friday, November 4

8:45 - Summary of Previous day and introduction for today

David Allen Co-chair Asset Management BC

9:00 - 12:00 - Programs and Funding—Panel Chaired by Christina Benty: Presentations and discussion

- Infrastructure Canada **Laura Di Paolo**, *Director General, Program Integration*
- Federation of Canadian Municipalities, **Donna Chiarelli**, *Senior Policy Advisor*
- Union of British Columbia Municipalities, **Glen Brown**, *General Manager, Victoria Operations*
- Ministry of Community, Sport and Cultural Development, **Brian Bedford,** *Director, Infrastructure and Engineering*

CLOSE

Registration: $360 + GST

Register at www.civicinfo.bc.ca **(events)**

Vancouver Airport Hilton Hotel
5911 Minoru Blvd
Richmond BC V6X 4C7
Tel: 604-273-6336
Room Block: Asset Management BC

CNAM Call for Presentation for 2017 Conference in Calgary

The 11th annual Canadian Network for Asset Managers conference will be held in Calgary, Alberta May 15 -17, 2017. This is a great opportunity to not only attend the premiere national asset management conference in Canada but also be a participant by putting in a presentation. Besides the diverse scope of the program, the networking opportunities with peers from across Canada is second to none.

The conference theme is 'Harnessing the Power of Asset Management' and will deliver leading edge professional development, idea sharing and networking opportunities with your peers and government leaders to help municipalities of all sizes extend the framework, vision and

implementation of their asset management programs. Go **to www.cnam.ca . Submissions due October 31, 2016**

Join us in Calgary next May as we continue "Harnessing the Power of Asset Management". Now in its 11th year, the CNAM Conference and Tradeshow will deliver leading edge professional development, idea sharing and networking opportunities with your peers and government leaders to help municipalities of all sizes extend the framework, vision and implementation of their asset management programs.

Tips and Tactics: Criticality versus Consequence – What's the Difference?

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

Talk to any group of people about the terms consequence and criticality in relation to infrastructure assets and you will quickly see that there is a lot of different opinions and general confusion about the definition of the terms and the application of them. So here is my take on it;

Consequence

The expected effect or result of an asset failure

To assess a consequence rating for an asset you need to include consideration of the Criticality of the Asset to Service Delivery. However, that is not all you consider. There are issues outside of Service Delivery that add to the consequence such as;

- Environmental Impact
- Financial Impact

- Community & Commercial Disruption
- Health & Safety

Consequence Drives Failure Management Planning and Strategies

Criticality

A measure of how important the asset is to system it is in and the delivery of the service that system provides

Criticality considers the Functional Importance of an asset. A criticality rating assessment should not include issues to do with the State of the Asset such as condition, performance or capacity for future demand, or remaining life. These attributes are indicators for the probability of a failure occurring and not a measure of the criticality of the asset or the level of consequence if the asset should fail.

Criticality Drives Functional Optimization

Risk

The product of Consequence and the Probability of that Consequence occurring

Criticality is an input to Consequence and therefore an input to Risk rating.

Risk is dynamic and varies over time relative to changes in;

- State of the Asset (Remaining Life)
- Performance Criteria (Demand / Standards)
- System Optimization (reducing Criticality as input to Consequence)

Risk should be measured and recorded in terms of both the Risk Potential and the current Mitigated or Residual Risk along with the Mitigation method / measure.

Risk Drives Investment Planning, Operational Activities, and Monitoring

Notes on Consequence and Criticality

- A highly Critical asset is not necessarily a high Risk asset.
- An asset with a high Consequence score may or may not be highly Critical
- Several highly Critical assets may have different Consequence scores depending on what Consequences would occur if the asset failed
- A high Consequence (and/or highly Critical asset) can have a low Risk score due to low probability or effective mitigation
- A high Consequence or highly Critical asset will not need increased monitoring, increased maintenance activities, or proactive intervention unless the Probability of failure has passed a threshold to drive the residual Risk score up.

Application of Criticality and Consequence

- Highly Critical assets provide a focus and prioritization for system optimization and mitigation measures to reduce the Consequence and/or the Probability of failure
- High Risk assets provide a focus and prioritization for investment planning, works programs, and public communication strategies
- High Consequence assets provide a focus and prioritization for failure management strategies

Upcoming Events

Union of British Columbia Municipalities (UBCM)
September 26-30, 2016
Annual Conference
Victoria Conference Centre
Victoria, BC
www.ubcm.ca

Canadian Network of Asset Managers
May 15 – 18, 2017
11th Annual Networking Conference and Workshops
Hyatt Regency
Calgary AB
www.cnam.ca

Local Government Management Association
May 16-18, 2017
Annual Conference
Penticton Trade & Convention Centre
www.lgma.ca

BC Water and Waste Association
May 27 – 30, 2017
45rd Annual Conference and Trade Show
Victoria, BC
www.bcwwa.org

Planning Institute of BC
May 30 – June 03, 2017
Annual Conference
Prince George, BC
www.pibc.bc.ca

Federation of Canadian Municipalities
June 1-4, 2017
Annual Conference and Trade Show
Ottawa Convention Centre
www.fcm.ca

Government Financial Officers Association of BC
June 14 -16. 2017
Annual Conference
Fairmont Hotel, Victoria BC
www.gfoabc.ca

Questions & Answers

We strongly encouraged you to raise questions and make comment are as this newsletter is provided for the advancement of Asset Management. Email questions or comments to the editor and note if you wish to be anonymous or not to have comment published.

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Editor: Bernadette O'Connor

OPUS

Opus International Consultants
Victoria, British Columbia
Ph. 250 952 5640
Email: bernadette.oconnor@opusinternational.ca

Issued by: **Asset Management BC**

www.assetmanagementbc.ca
E- mail: info@assetmanagementbc.ca