



YOUR LOCAL ASSET MANAGEMENT COMMUNITY OF PRACTICE IN BC.

Enhancing BC communities through leadership in asset management.

THIRTIETH EDITION – FALL 2020

Asset Management Data now collected annually by the Province

Brad Kynoch, Local Government Infrastructure and Finance, BC
Municipal Affairs and Housing



Asset Management added to LGDE

The Province of BC launched the [Local Government Information System \(LGIS\)](#) in 2009, making it easier for local governments to report financial data to the Province. The Local Government Data Entry (LGDE) forms in LGIS provide a standardized financial measure of local government activities over the past fiscal year and form the basis for the Province's annual [Local Government Statistics](#). The last revision of the LGDE forms in 2009 was to accommodate major changes to the Public Sector Accounting Standards, including accounting for Tangible Capital Assets under PS 3150 - the first step in requiring local governments to assess the current state of their infrastructure.

In summer 2020, the Province made major updates to LGDE, many of which were to eliminate redundancies, remove underused data, and make the reporting process easier for local governments. However, the largest change was the addition of the Asset Management (AM) sections.

AM data now collected

LGDE is not an asset data register or asset management plan (AMP), nor does it request submission of these databases or documents. Instead, LGDE now collects AM data in the form of totals by asset class, which are the outputs from local governments' AM tracking and planning systems.

The following totals and averages are now collected by asset class:

Historical costs and planning (required)

- Historical cost (as per PS 3150)
- Accumulated depreciation
- Asset Management Plan (Y/N)
- Risk register (Y/N)

Asset additions (required)

- Renewed assets
- Upgraded or expanded assets
- New assets

Asset age and replacement value (optional)

- Average expected life
- Average age (calculated)
- Average remaining useful life (calculated)
- Current replacement value
- Annual replacement value depreciation

Asset condition (optional)

- Physical condition (% breakdown by value)
- Capacity vs. demand utilization (% breakdown by value)
- Functionality (% breakdown by value)

Over time, the optional fields will become mandatory after local governments have time to build internal awareness

and adjust reporting practices. This additional data also addresses the long-standing feedback that local governments find 'Current replacement value' to be much more effective for planning than Historical costs.

Interestingly, the 2016 Gas Tax survey identified that 84% of local governments were not tracking asset replacement costs at the time.

Because of COVID-19, the deadline to submit 2019 data was August 31, 2020. **If you have not yet submitted your 2019 data, please do so**, as the data analysis requires a complete provincial data set. For future years, the annual submission deadline will continue to be May 15.

How the data will be used

The newly collected AM data will help encourage better financial and asset management plans, measure the progress of sustainable service delivery, and monitor the overall financial health of the local government system.

More specifically, the Province will use the data to:

- Calculate and monitor key sustainability ratios;
- Identify trends, gaps, needs, and concerns;
- Produce an annual "Statement of Tangible Capital Assets" report for each local government; and
- Inform future infrastructure grant programs and support resources.

In an upcoming edition of the AMBC newsletter, the Province will explore sustainability ratios and how they can be calculated and used by local governments.

Resources and support

The [LGDE help manuals](#) have been updated to include additional definitions and guidance to cover the new AM sections. Please share your questions and suggestions with the Local Government Infrastructure and Finance Branch through email at LGDE@gov.bc.ca.

A Perspective from Asset Management BC

Wally Wells, P. Eng., Executive Director

With the Province now requiring reporting of financial data from Asset Management, where does this data and information come from? Well, it comes out of your asset management program. This is a 'game changer' for asset management. I have spoken with one lower mainland municipality who advised that their Finance staff, who then immediately contacted the Asset Management team to query if the data was available. The answer was "Yes, it is". The financial data reporting manual (Help manual) has

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been updated to provide guidance for reporting. It would be beneficial to review these requirements within the

context of your asset management program to ensure reporting of information is consistent with the requirements and does not create additional work. Hopefully, communities will progress and use their asset management programs to help in meeting this new requirement.

In the next AM BC newsletter (January 2021), we will have additional information on reporting.

Your comments are encouraged and welcome to info@assetmanagementbc.ca

Putting Asset Management into Action at the City of Courtenay Using “The 4 C’s”: Collaboration, Capacity, Culture and Council

David Allen, Chief Administrative Officer, City of Courtenay



I was first bitten by the Asset Management (AM) bug back in 2010¹ and soon realized that AM needed to become a core function of local governments. A short time later I was invited to be Co-Chair of the Asset Management BC Community of Practice and have happily been in the thick of it ever since.

Now, ten years later, I'd like to share a concise overview of several principles we've collectively learned and how we apply them at my workplace as CAO of the City of Courtenay. They've coalesced into what we locally refer to as “The 4C’s: Collaboration, Capacity, Culture and Council”.

While CAO for three years at the Town of Golden, BC (pop. 3,700), we were one of a handful of local governments in western Canada who were early adopters of an established, comprehensive set of AM best practices. Specifically, we hosted the first Canadian group to be trained in the Australian National Asset Management Strategy (NAMS) methods of AM practice.²

After becoming CAO of Courtenay, BC in 2013, we began exploring how to implement an AM Program at the City. I was keen to see how the NAMS practices we'd learned in Golden could be applied to a larger community like Courtenay (pop. 25,600) and was fortunate to have a strong group of experienced staff to start down this path.

During this period, we also collaborated with external agencies on several high-level AM projects. For example, we were part of the AMBC team that developed the original version of “Asset Management for Sustainable Service Delivery - A BC Framework”.³ We also supported the BC Auditor General for Local Government (AGLG) office in developing their Perspective Booklet “Asset Management for Local Governments”⁴ and were invited as

expert AM practitioners to develop and become a Project Community in the Municipal Asset Management Initiative.⁵

This opened our minds to thinking of AM practices in far broader terms, so that they might be applied in any community, regardless of size. We didn't realize it, at the time, but it led to us eventually conclude that operationalizing AM would involve four separate, interconnected initiatives that would be the pathway for our journey toward Sustainable Service Delivery: “The 4C’s”.

Because effective communications should be an existing, organization-wide practice, it has not been given its own specific category as one of “The 4C’s”. Communications, and more broadly public engagement, plays a significant part in how local government decisions are made and is only mentioned here to provide general and AM-specific useful references we have come to depend upon.⁶

The first “C” is Collaboration: This has been essential to Courtenay in identifying the tools and supports needed in implementing a successful corporate-wide AM Program. Through participation in Asset Management BC (AMBC), and the Asset Management BC Community of Practice Partners, we have been able to share and learn about the implementation of AM best practices.

In fact, collaboration has played a key role in the formation and early evolution of AMBC with early support coming from the Province of BC, UBCM and broad consultation and discussion with a wide variety of stakeholders including local and senior governments, professional associations, private and academic sectors.⁷ Since then, the formation of the Asset Management BC Partnership Committee affiliated with the BC Local Government Management Association (LGMA) has provided additional opportunities for collaboration and support.

- 1 Then Mayor of Saanich, Frank Leonard, spoke on the importance of AM at a Local Government Leadership Academy (LGLA) workshop. Soon after – led by Wally Wells – AMBC published its inaugural newsletter containing a feature article by Glen Brown based on Mayor Leonard's presentation.
- 2 <https://namscanada.org/home>
- 3 <https://assetmanagementbc.ca/framework/>
- 4 https://aglg.ca/app/uploads/sites/26/2017/04/Asset_Management_For_Local_Governments.pdf
- 5 <https://mnai.ca/pilot-communities/>
- 6 We adopted the IAP2 approach for general communications: <https://iap2canada.ca/foundations> and there are many AM-specific resources at the AMBC website: <https://assetmanagementbc.ca/communicatingam/>
- 7 From AMBC website: <https://assetmanagementbc.ca/about/>

The next “C” is Capacity: Effective AM for Sustainable Service Delivery cannot be achieved without people. As we all know, staff capacity is a finite resource that can’t be squandered as we work hard to maintain service levels, regardless of population growth, service-creep, development, and increased regulatory requirements imposed by provincial and federal governments.

However, after a clear assessment of staff resources we realized that capacity for AM purposes was not necessarily about the *number* of staff members. It was far more about staff *competencies* and the organizational structure they work within to deliver the various services.

This has been well documented⁸ and published in a very revealing article “*Operationalizing Asset Management: It’s about People, Too*”⁹ by my friend and long-time strategic advisor, Dave Love. I encourage you to read this article as it does an excellent job of describing our capacity journey and the ‘aha moment’ that became part of the Courtenay AM solution.

The third “C” is Culture: Our role is delivering services most often based on equity rather than those offered by the private sector, where the motivation is market benefits. Consequently, discovering and embedding a positive corporate culture is vital in creating a work environment that fosters creativity, innovation, and other conditions necessary for Sustainable Service Delivery in a non-market workplace.

In 2014 we engaged Strategic Dynamics to facilitate the development of a Corporate Mission Statement and Core Values that would guide City employees in their interactions both internally and externally.

A Mission Statement defines an organization’s purpose, and the following became and is:

The City of Courtenay proudly serves our community by providing a balanced range of sustainable municipal services.

By the end of 2015 all employees had been asked for their feedback on working for the City of Courtenay, including their level of job satisfaction, what they thought our organization did well, and where they thought we could improve. An organization-wide employee survey, plus individual interviews and numerous focus groups identified their actual and aspirational culture and priorities.

Core Values define who we are as an organization, guide our decision making, help us recruit, hire, engage, manage and retain quality employees, and inspire good relations

with the people we serve. So, the next step was to codify *our own* Core Values – the highest priorities, deeply held beliefs, and fundamental driving forces of our organization.

We collectively learned that Core Values are not imposed, nor are they a ‘brand’ purchased externally as though a market commodity. This helped us *discover* who we are and wish to be, and the process of embedding and monitoring our Core Values continues to this day.¹⁰

They are:

- People Matter
- Be Accountable
- Depend on Each Other
- Pursue Excellence
- Celebrate Success

The final “C” is Council: The support and leadership of our elected officials has been key for Courtenay in developing an organization that strives to work collectively and cohesively on the path to Sustainable Service Delivery. They are, quite rightly, responsible for interacting with the public to identify which services are desired and the levels of service for which they are willing to pay. The following highlights some of the main actions that Council has undertaken over the last five years:

- **Summer 2015:** Adopted an Asset Management Policy that implemented organization-wide AM processes to meet the asset-intensive Sustainable Service Delivery needs of the City.¹¹
- **Fall 2016:** Adopted Asset Management as a Council Strategic Priority (extended to 2022).¹²
- **Spring 2017:** Approved a Human Resources Action Plan for building staff competencies. This was also a key aspect of the City transitioning

- 8 Our internal “Human Resources Action Plan 2017” and other documents provide detail on our capacity evaluation and strategic and functional re-organization activities and are available upon request.
- 9 AMBC Newsletter – Winter 2018 (Issue 22)
<https://assetmanagementbc.ca/newsletters/>
- 10 A follow up organization-wide employee survey was completed a few years later to identify progress and areas for continued improvement.
- 11 https://courtenay.ca/assets/City~Hall/Documents/2015-06-15_SR_Draft_AM_Policy.pdf
- 12 <https://courtenay.ca/assets/City~Hall/Council/Documents/2019-22%20Strategic%20Plan%20final.pdf>
- 13 At the 2018 AMBC Conference Duane Nicol, CAO of Selkirk, Manitoba presented their City’s Asset Management Bylaw. This appears to be the first AM Bylaw adopted by a local government in Canada.

from reactive to proactive maintenance of in-service capital assets.

- **Fall 2018:** Our resolution was adopted at the 2018 UBCM Convention, proposing AMBC develop a common communications approach to enhance asset management practices. This work is currently underway through a MAMP funded grant to AMBC.
- **December 2019:** Adopted BC's first Asset Management Bylaw aimed at Sustainable Service Delivery (<https://courtenay.ca/assets/City~Hall/Bylaws/General~Regulatory/Bylaw-2981-Asset-Management-November-2019.pdf>).¹³ This bylaw includes a requirement for the CAO and Council to consider Lifecycle Costs in all decisions related to the City's Tangible Capital Assets.

At the beginning of this article, I noted that my passion for Asset Management began over ten years ago and coincided with the 1st edition of the AMBC Newsletter. As I draft this article for the 30th edition, I am more convinced than ever, that Asset Management for Sustainable Service Delivery is the primary path that all local governments must strive to follow.

If Courtenay's experience along this path is any indication, the "4C's: Collaboration, Capacity, Culture, and Council" can provide local governments with the foundation to achieve Sustainable Service Delivery.

Case Study: Township of Spallumcheen: Informing our Residents – A Video

Doug Allin, Chief Administrative Officer, Township of Spallumcheen.



Overview

The Township of Spallumcheen embarked on its Asset Management program in 2017. Through significant support from senior levels of government, a comprehensive program was created based on the *Asset Management for Sustainable Service Delivery – A BC Framework* document.

The program includes the development of a strategy, policy, financial plan, and condition assessments, which

included components such as a forecast of asset replacement costs and timing.

The BC Framework suggests that a successful asset management program should include **regular and effective communication** with affected stakeholders, be they internal or external to an organization.

COVID-19 presented many challenges for communicating and engaging in-person – especially for small, rural communities. Capital infrastructure improvement projects, however, continued to occur. One of the Township's key projects, that was identified in the renewal forecast, was a road and culvert replacement of Back Enderby Road.

The Township explored several options to inform residents about upcoming construction and decided that mailed letters supplemented with a short, informational video would be an approach that was creative, met the needs of residents, and provided an alternative medium for accessing information during a pandemic.

Approach

At the time of video production, we were also at the height of uncertainty with respect to COVID-19. Many local government offices were closed, staff and elected officials were participating remotely, and in-person activities were at a halt. Producing a video was also going to need to adhere to physical distancing requirements. We took the following approach for the Back Enderby Road Video:

Expand the Narrative

It's not just about an upcoming construction project. We used this opportunity to put the capital improvement project within the framework of asset management. This rationale grounds municipal decision-making and shares information about how some decisions are made at "City Hall."

We also expanded the storyline by adding historical context and visuals, which were provided by the Armstrong Spallumcheen Museum and Art Gallery.

Explore the Landscape

Visuals are a top priority when it comes to video production. We fortunately had access to trained professionals, and they flew the project area, while capturing the beauty of the Spallumcheen Valley landscape. Our residents are proud of the area in which they live and seeing that from a birds-eye-view resonated with the community.

Put Residents at Ease

Providing residents with accurate, timely and detailed information about what to expect and the impacts to them during construction remained the primary objective of the video. By doing so in a way that was easy to understand and that was relatable, the message was well received.

Provide an Opportunity for Input

At the end of the video, we provided contact information and an opportunity to provide input and ask questions by clicking a link below the video on the Township of Spallumcheen's website. This open communication provided residents with an opportunity to engage if they needed to, which comforted many.

Results

The video saw over 540 views, was shared extensively online through various social media channels, and has now been nominated for a Community Excellence Award through the Union of BC Municipalities. The intangible results, however, exceed what could be measured. Mayor and Council were extremely pleased with the use of the landscape, the integration of history, and a message that was clear, easy to understand, and spoke with our community rather than at them. Most importantly, our residents overwhelmingly supported learning about the rationale behind the project in a format that really hit the mark.

Conclusion

COVID-19 has pushed communities to do things differently – including ours. Exploring the use of video would not have been an option for us as we had never experienced the value that it brought to our community. After sharing Township information through video and seeing its impact, it is an engagement tool that we will certainly consider for Spallumcheen going forward – even beyond a global pandemic.

Video Link: <https://spallumcheentwp.bc.ca/blog/back-enderby-road-project.htm>

A Case Study:

Infrastructure Report Cards – Turning Data into Information

Kristy Bobbie, Asset Manager, City of Prince George

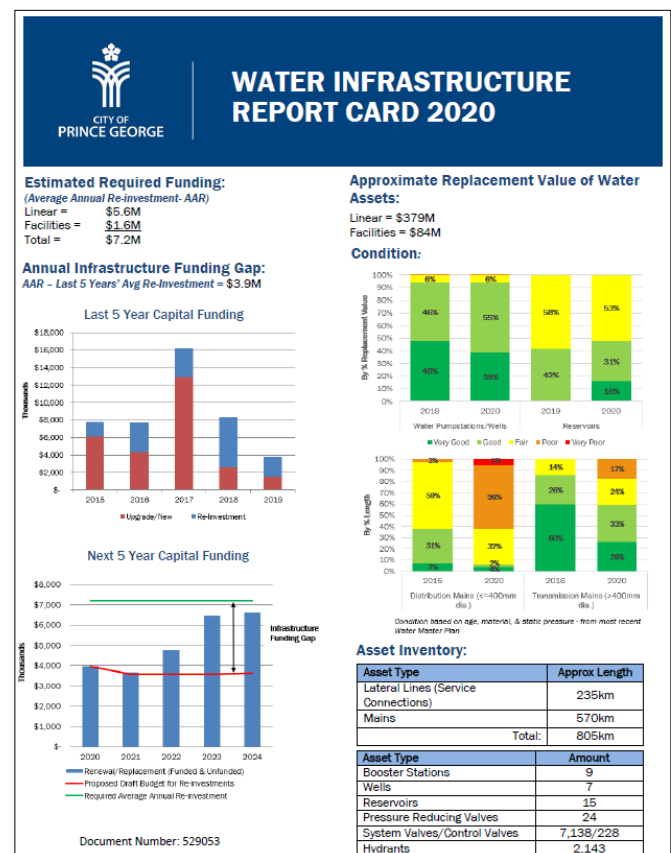
Our local government asset management systems have become more sophisticated, allowing us to collect important information more efficiently and accurately.

This information is used to make data driven decisions about the infrastructure we are responsible for operating and maintaining both now and in the future. There is a balance between too much data and not enough.

What will we do with all this collected data and how will we communicate with our stakeholders in a meaningful way, turning massive amounts of data into useful information where leaders can make informed decisions?

To answer these questions, the City of Prince George created one-page documents for each of its major asset categories. We refer to these documents as Infrastructure Report Cards (IRCs), and each one includes a section about:

- Asset Inventory
- Asset Condition
- Required Re-investment
- Replacement Values
- Historical & Future
- Infrastructure Funding Gap
- Funding



These sections were chosen based on some of the topic areas found within the Asset Management Plan (AMP) templates created by National Asset Management System (NAMS). The City is using this system to develop its AMPs.

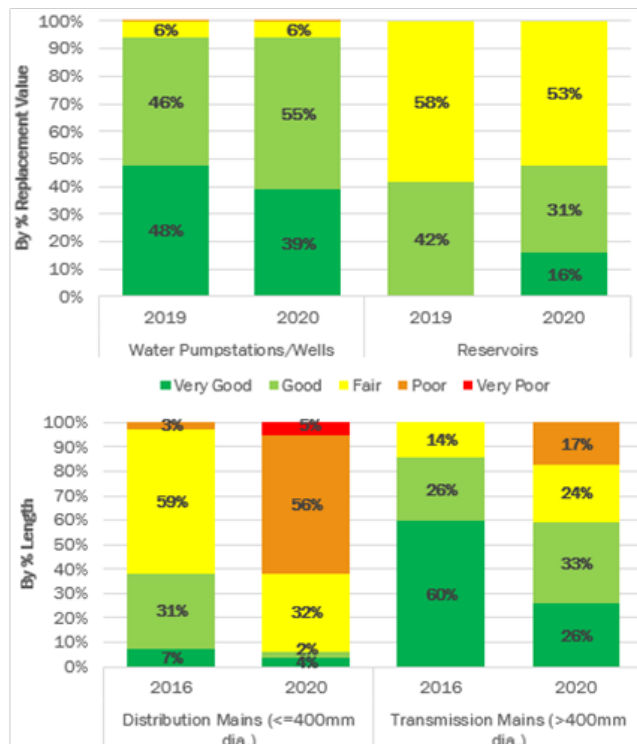
The City's Asset Management team developed the IRCs in 2018. Input came from our various areas, including; Finance, Infrastructure Services, Public Works, and the Senior Leadership Team. It was important to include these groups to create documents that are useful, not just for Council, but for internal decision making too.

The first step in asset management is, knowing what you have and how much it's worth. That's why a section about inventory is necessary. The City's major asset categories are stored in ArcGIS and used for the IRC inventory. We are currently developing asset data governance processes to keep the GIS database up-to-date. Below is the 2019 water network inventory reported to Council early in 2020:

Asset Inventory:

| Asset Type | Approx Length |
|-------------------------------------|---------------|
| Lateral Lines (Service Connections) | 235km |
| Mains | 570km |
| Total: | 805km |
| Asset Type | Amount |
| Booster Stations | 9 |
| Wells | 7 |
| Reservoirs | 15 |
| Pressure Reducing Valves | 24 |
| System Valves/Control Valves | 7,138/228 |
| Hydrants | 2,143 |

Condition:



We use Powerplan (formerly called RIVA) and BUILDER Sustainment Management System, to calculate replacement values for our linear and vertical assets. These estimates are based on historical work, contract unit pricing, engineers' estimates and RS Means cost data books (embedded in the BUILDER SMS software). The City's water network is currently valued at \$463M.

Condition assessments have been a big focus for the City over the last 5 years. This includes assessments on paved roads, bridges, civic buildings, utility buildings, sidewalks, parking lots, playgrounds, and some sewer mains. The data is stored in Cityworks, the City's Computerized Maintenance Management System (CMMS). Automatic GIS updates are being implemented, which allow a condition score from a Cityworks inspection to be written to the GIS condition attribute. In turn, Powerplan synchronizes with the GIS and picks up the new score.

Not all assets have been inspected for condition. Where there is no data, asset age is used as a proxy. As time goes on, these vertical bars will turn into trend lines.

The left-hand side of the IRC is dedicated to funding information. The City calculates the average annual re-investment (AAR) using Powerplan and BUILDER SMS. Powerplan calculates the AAR for the linear portion of the water network over a 100-year horizon. BUILDER SMS provides a 10-year work plan that is averaged to determine the AAR for the vertical asset components of the network (e.g. pumping stations and wells).

An average of the last five years' funding of renewals and replacements is determined and subtracted from the AAR to come up with the annual Infrastructure Funding Gap.

Estimated Required Funding: (Average Annual Re-investment- AAR)

Linear = \$5.6M
Facilities = \$1.6M
Total = \$7.2M

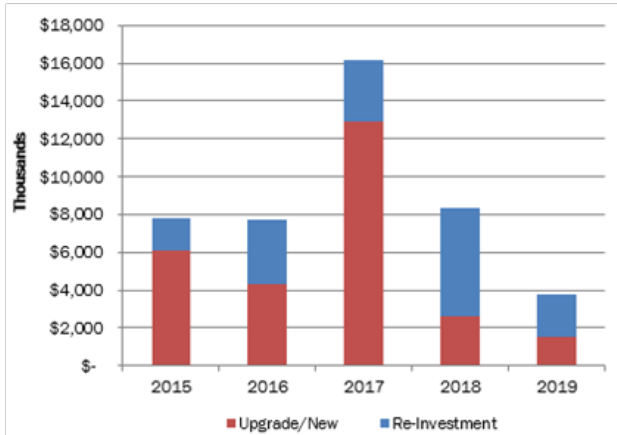
Annual Infrastructure Funding Gap:

AAR - Last 5 Years' Avg Re-Investment = \$3.9M

This provides us with a quick reference to see how we are performing from a re-investment standpoint. In this case, the AAR for the water network is \$7.2M minus the last 5-years' average re-investment of \$3.3M results in an annual gap of \$3.9M.

It's important for stakeholders to see how capital funding is being allocated for example re-investment into existing infrastructure vs. upgrade/new investment. The Last 5-Year Capital Funding shows the approved budgets for projects grouped into these two categories.

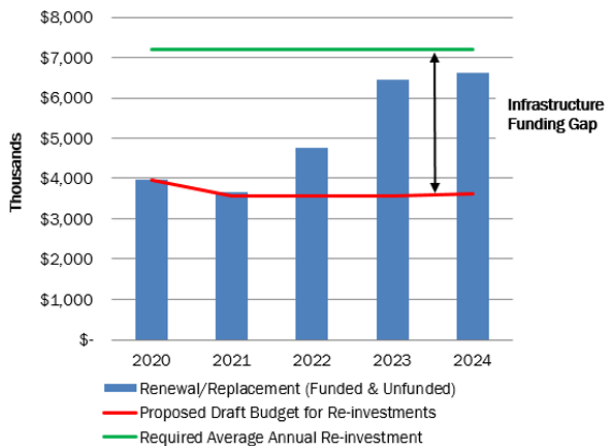
Last 5 Year Capital Funding



Upgrades and new assets are necessary, of course, but seeing an increasing trend in re-investment projects is a focus area for Council and the organization.

The last piece of the story is what's planned for the next 5 years and how the City is allocating funding for renewal/replacement projects compared to the AAR. The red line indicates the approved projects' budget and the green is the AAR. The difference between these two lines is the funding gap.

Next 5 Year Capital Funding



Eventually, as data becomes more accurate, the IRCs could include information about condition vs. re-investment trends so Council can see how the assets' condition is performing based on the amount of re-investment approved each year. There could also be a graph showing various budget scenarios and how the approved funding affects asset conditions over time.

We live in a world that has data overload. That's why it's so important to be able to use data in a meaningful and simple way to inform stakeholders about the health and future of our municipal infrastructure. It isn't always good news, but these IRC's help us move in the right direction.

A Case Study:

When the Details Matter - Tackling Stormwater Risk, Levels of Service and Climate Adaptation in a Rural Northern Community

Lou-Ann Watson, Director of Public Works, Northern Rockies Regional Municipality, and Colwyn Sunderland, ASCT, Eng.L., Infrastructure Planning Engineer, Kerr Wood Leidal



At its heart, local government asset management is about carefully collecting and analyzing data to support planning decisions that

minimize the lifecycle costs of reliably providing the services our communities need and expect. Many aspects of asset management are simple and non-technical and are well suited to standardized forms and processes that achieve more efficient and effective service delivery over the lifecycles of assets. Efficiency is a core principle of asset management, so we shouldn't do more work than necessary to make good infrastructure planning decisions.

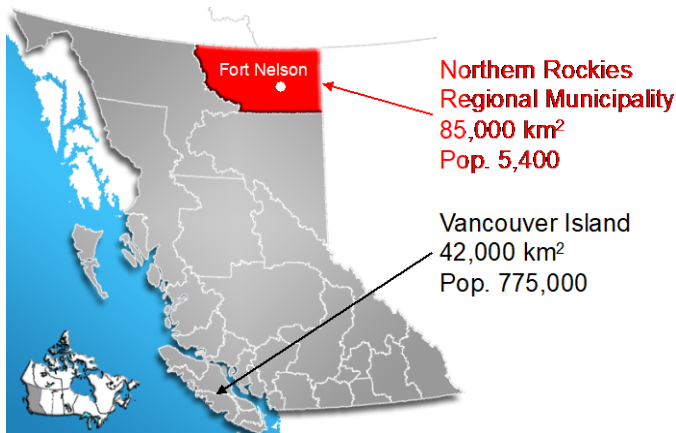
This case study illustrates how the application of asset management principles can also help to break down more complex and technical infrastructure planning problems into their essential elements and solve them when simple approaches fall short. It also demonstrates how asset management can help communities build resiliency in the face of climate change, using an integrated assessment and planning approach for risk and levels of service. This approach is described in the recent Federation of Canadian Municipalities (FCM) *Guide for Integrating Climate Change Considerations into Municipal Asset Management*.

A Not So Typical BC Community

The Northern Rockies Regional Municipality (NRRM) is a unique kind of local government in BC, formed in 2009 by the merger of the Northern Rockies Regional District and the Town of Fort Nelson, which was the only municipality within the large region. The resulting Regional Municipality has a combination of powers and responsibilities that enables more effective service delivery for Fort Nelson and the surrounding rural area, which forms about 10% of BC's total land area and has a substantial rural industrial

economy but is home to only 0.1% of the province's population.

Fort Nelson is in the sub-arctic climate region, and also differs from most other communities in BC due to its location east of the continental divide. Fort Nelson is one of the driest locations in BC, with an average annual precipitation of approximately 450 mm, most of which occurs as high-intensity storms in summer. Winters are typically cold and dry.



Source image: Wikimedia Commons

NRRM owns and operates a sanitary sewer collection and treatment system for the Fort Nelson townsite, and a storm drainage system for the townsite that includes a combination of storm sewers, open ditches and culverts.

Stormwater management is complicated by the fact that Fort Nelson is divided by the Alaska Highway and its drainage ditches, which function as a major drainage channel that collects the majority of stormwater from the northern portion of the townsite but is not owned or

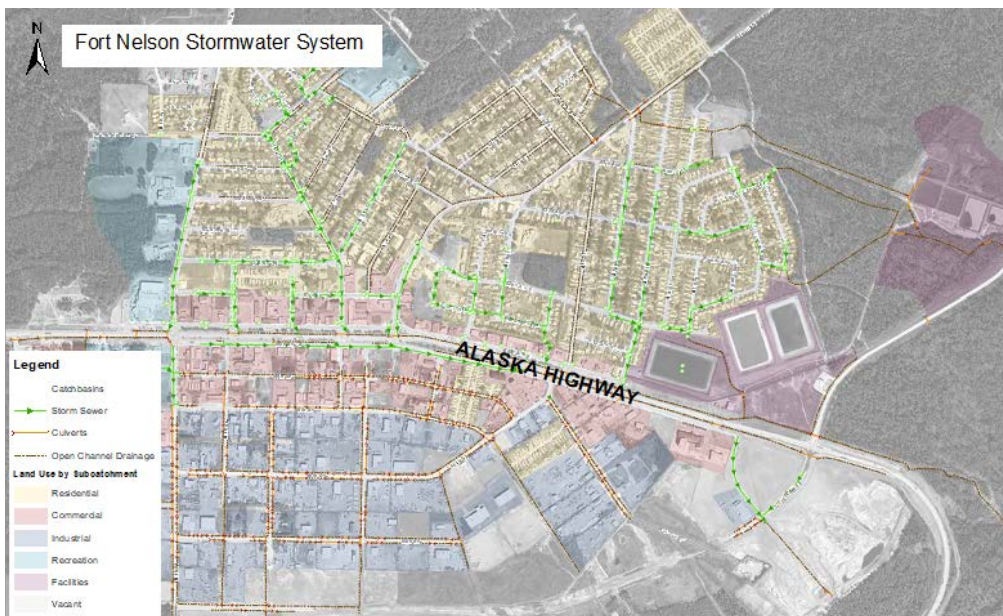
managed by NRRM. The drainage system is a combination of open roadside ditches and culverts, and storm sewers with curb-and-gutter and catch basins. The storm sewers are constructed mostly of corrugated metal pipe (CMP) and concrete pipe, and culverts are almost exclusively CMP. The drainage system discharges to major drainage channels that eventually reach the Muskwa River, including the Alaska Highway ditches.

The sanitary sewer system also plays a significant role in stormwater management, as many private dwellings have roof leaders connected to the sanitary sewer. This practice is common in northern communities, where sanitary sewers are installed below the frost depth and storm sewers are not, but the practice can lead to performance problems for the sanitary collection and treatment systems and adverse impacts on receiving water quality.

Early Adventures in Asset Management

NRRM began its asset management journey in 2013 with support from Kerr Wood Leidal (KWL). One of the key principles we adopted with the initial asset management plans was to start simple and build complexity only where and when warranted. Asset management plans completed in 2015 addressed roads, water, sewage and drainage, using readily available information about the assets and services. Master plans and hydraulic models for the drainage and sanitary sewer systems were completed in 2015 and 2016, respectively.

The 2015 stormwater modelling indicated that major drainage assets were substantially undersized to convey 100-year storm flows without flooding, which is a typical level of service for urban stormwater systems. Damage



from flooding is one of the leading causes of property insurance claims in Canada, so this finding wasn't taken lightly. The findings had major implications for flood risks to municipal assets and private buildings, and for the capital expense to improve the drainage system to mitigate them. However, the findings were highly uncertain due to limitations of the one-dimensional modelling methodology used for the initial master plan, a lack of data for calibrating the model, and the potential range of impacts of climate change.

One-dimensional modelling does not consider the capacity of road surfaces to convey storm flows. This approach generally works for design of new stormwater infrastructure (which is not usually designed to run completely full) but may not accurately represent the performance of existing infrastructure in a major storm where overland flows occur.

NRRM responded to the 2015 stormwater master plan findings by substantially increasing contributions to the capital reserve fund for stormwater, and by commissioning a *Sewerage and Drainage Climate Change Vulnerability Assessment Study* aimed at reducing uncertainty and improving accuracy of the stormwater modelling and recommended project scope.

The study was completed by KWL in April 2020 with partial funding through the Municipalities for Climate Innovation Program (MCIP), which is delivered by FCM and funded by the Government of Canada.

Balancing Cost, Risk and Level of Service in a Changing Climate

The *Climate Change Vulnerability Assessment Study* was focused on addressing two general scenarios that stormwater infrastructure in Fort Nelson must address:

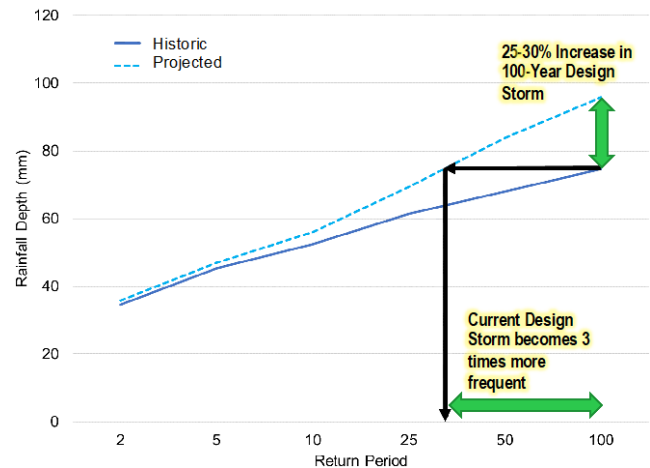
- Summer peak storm events, which produce the maximum storm flows; and
- Spring “rain on snowmelt” scenario, when storm sewers are typically plugged with ice and are assumed to have no function.

The snowmelt season usually occurs between late March and late April. During this time, the drainage system requires intensive maintenance to clear drains of ice. Melt water produced during the day, when temperatures are above freezing, then freezes overnight in catch basins and pipes, blocking them against the following day’s melt water.

Climate change in Fort Nelson will result in more intense rainfall events, warmer winter seasons, and more intense summer heat. These trends are anticipated to cause:

- Greater frequency and intensity of major rainfall events;
- Increased freeze-thaw activity in the winter and spring; and
- Increased risk of rain-on-snowmelt events earlier in the winter.

The intensity of extreme rainfall events is forecasted to increase at a higher rate than more frequent events. For example, the current 100-year rainfall will be equivalent to a 30-year rainfall in the future, and the future 100-year event will be almost 30% more intense than today. Co-incident weather events such as rain-on-snowmelt are more complicated to predict quantitatively but can reasonably be expected to increase in frequency and



intensity as the climate warms.

The Climate Change Vulnerability Assessment Study involved completing a two-dimensional drainage model that included surface flow over roadways, integrated with the existing one-dimensional pipe flow model. The new model was calibrated to flow and hydrologic parameters using flow measurements taken during storm events at several locations in the stormwater collection system in 2018 and 2019.

The calibrated, two-dimensional modelling was further validated with operating staff knowledge. The 2015 modelling predicted extensive surcharging of storm sewers and culverts in a 10-year storm that had not been observed by staff over a period well over 20 years; however, the new model correctly identified flooding locations and depths observed by staff. This empirical evidence confirmed the accuracy of the model within its uncertainty range, and also served to increase staff confidence in the resulting recommendations for capital planning, risk management and defining expected levels of service.

The improved drainage modelling enabled relatively precise definition of the levels of service provided by the system. There are few locations where the system is unable to provide typical urban stormwater levels of service, which are easily identified on maps produced using the model.



The new modelling clearly identified areas sensitive to surface ponding.

Levels of service for the stormwater system were defined in terms of capacity, regulatory compliance, public safety, and resiliency. The level of service statements were developed based on statistical analysis of historical weather data adjusted for climate change, and clearly demonstrate the strong linkage between level of service and risk for stormwater infrastructure.

| Service Area | Hydraulic Capacity | Regulatory | Public Safety | Resiliency |
|-----------------|--|---|--|--|
| Sanitary Sewers | 95% of the system can handle 100-year storm. | 99% of sewer system can handle 5-year storm. WWTP discharge exceeds permit during major peak flow events and occasionally during snowmelt season. | Up to 60 properties could be affected by a sewer backup during 100-year storm. | WWTP protected from runoff during major flooding, has emergency bypass system. |
| Drainage | 99% of the system can handle 100-year storm | No regulatory-driven level of service | Less than 1% of road network flooded during 100-year event | 99% of system protected from flooding risk for 100-year rain-on-snowmelt. |

The level of service was assessed at each location where the model indicated probable flooding or sanitary sewer backup under the 100-year summer rain and spring rain-on-snowmelt events. A combined risk and level of service matrix for all potential problem locations was developed.

Capital projects and O&M practices were identified and prioritized to address deficiencies at each location. A key finding of the study is that climate change will not necessitate advancing the timing of most capital projects, and most of the projects can be implemented at the end-of-life of the existing assets. Drainage improvements are largely targeted toward managing snowmelt runoff to avoid localized flooding. This includes provision of safe overland flow routes and/or maintenance management programs to maintain drainage service throughout the winter and spring seasons.

Small Project, Big Cost Savings

Based on the 2015 modelling, it was estimated that \$21 million in drainage system capacity upgrades would be needed within 20 years. Of this total, NRRM included \$4.6 million in its 20-year capital plan to address high-priority deficiencies out of sequence with asset renewal. The improved and calibrated modelling enabled the upgrade cost to be reduced to \$2.1 million, of which \$0.9 million is for projects to address low to medium risks that could likely be deferred.

For the sanitary system, the total cost of projects needed to address climate change is estimated to be \$3 million; however, all the projects are needed to address low to medium risks and can be completed when assets reach the end of their useful lives, at a net cost of \$0.5 million for upsizing the new assets.

At a total cost in the order of \$200,000, the Climate Change Vulnerability Assessment Study will enable NRRM to confidently reduce its 20-year capital program by at least \$2 million. This represents a return on investment of 1,000 percent for doing some careful technical analysis to support much better definition of levels of service and risks for sanitary sewer and stormwater systems in a small community. The detailed mapping and analysis of spring rain-on-snowmelt deficiency locations will also support changes in maintenance practices that may yield significant additional cost savings.

A Case Study:

The Evolution of Project Decision-making in Asset Management – City of Cranbrook

Mike Matejka, Manager of Infrastructure Planning and Delivery Division, City of Cranbrook

Asset Management seemed like a relatively simple and sure way to remove the guesswork and undue influence from the project decision-making process. Here would be a set of well-defined processes which would receive objective inputs about your existing assets and provide a clear list of what exactly needs to be done and when. Sounds too good to be true

For this article, we are going to focus on the primary linear infrastructure that is the cause of most of our public complaints and external pressures to improve and is likely our largest annual capital and operating budgets: roads, water distribution, and sewer collection.

The methodology and tools of the trade for deciding what infrastructure needs to be replaced have varied significantly over time, and the same has certainly been true for the City of Cranbrook.

The overly subjective approach:

For the City of Cranbrook, it was rumoured that one of our most sophisticated early project decision-making tools was a van. Not one of those vans that can provide detailed road condition and strength data using a suite of lasers and sensors. It was simply a van large enough to take the City's elected officials and decision makers on a tour around town to look at every road and decide which ones needed fixing.



Caption: The original project decision-making tool

While the act of getting eyes on every section of road in town is not inherently wrong, this process would have been very susceptible to subjectivity.

Are we comparing apples to apples? Are we considering the levels of services each road should have? Are we taking in to consideration the infrastructure condition under the road? Are we looking just a little more critically at the road in front of our mom and dad's house?

These types of questions are very difficult to answer internally without some sort of system or process in place. However, the biggest question we need to answer to our own stakeholders is: WHY?

- Why are you paving that road?
- Why aren't you replacing my water lines?
- Why is my friend's street being worked on when mine is in worse shape?

When it comes to decisions of this magnitude most of us want to have some facts and information to back up our decision. No matter how educated an opinion might be, it is always easy for naysayers to poke holes in the final decision. Being able to defend decisions made when we are spending taxpayer funds is critical, as openness and transparency is the best way to gain public confidence and get them on your side.

While the process of purely subjective decision-making may very well lead to good projects being selected a lot of the time, but it can also have some major risks and drawbacks.

The overly objective approach:

The best way to take the subjectivity, bias, and personal influence out of the decision-making process was to remove it completely. Harnessing the power of cold hard data, the City built a massive inventory of each segment of our linear infrastructure.

| Physical Details | | | | | | | | | | Cost Information | | | | | | Replacement Cycles | | | |
|------------------|--------------|----------|---------------|------------|---------------------------|--------------|------------------|----------------------|-----|------------------|-------------------|---------------|-----------------|-------------------------|----------------------------------|--------------------|------|------|------|
| Asset_ID | Location | Material | Diameter (mm) | Length (m) | Year Installed or Renewed | Service Life | Condition Rating | Revised Service Life | Age | Unit Cost | Replacement Value | Loss In Value | Remaining Value | Expected Remaining Life | Infrastructure Deficit (Backlog) | 1st | 2nd | 3rd | 4th |
| SAN1051[4D] | KINGSTREET W | AC | 150 | 49.69 | 1898 | 60 | 1.00 | 60 | 115 | \$ 426.75 | \$ 21,204 | \$ 21,204 | \$ - | 0% | \$ 21,204 | 2013 | 2073 | 2133 | 2193 |
| SAN1058[4D] | BACK LANE | AC | 200 | 52.40 | 1898 | 60 | 1.00 | 60 | 115 | \$ 446.25 | \$ 23,384 | \$ 23,384 | \$ - | 0% | \$ 23,384 | 2013 | 2073 | 2133 | 2193 |
| SAN1066[5D] | BACK LANE | AC | 200 | 60.44 | 1898 | 60 | 1.00 | 60 | 115 | \$ 446.25 | \$ 26,969 | \$ 26,969 | \$ - | 0% | \$ 26,969 | 2013 | 2073 | 2133 | 2193 |
| SAN1083[4E] | WOOTENAY STR | AC | 200 | 84.36 | 1898 | 60 | 1.00 | 60 | 115 | \$ 446.25 | \$ 37,648 | \$ 37,648 | \$ - | 0% | \$ 37,648 | 2013 | 2073 | 2133 | 2193 |
| SAN1097[5D] | 2STREET S | AC | 380 | 89.83 | 1898 | 60 | 1.00 | 60 | 115 | \$ 550.25 | \$ 49,427 | \$ 49,427 | \$ - | 0% | \$ 49,427 | 2013 | 2073 | 2133 | 2193 |
| SAN1111[5E] | BACK LANE | AC | 200 | 91.08 | 1898 | 60 | 1.00 | 60 | 115 | \$ 446.25 | \$ 40,644 | \$ 40,644 | \$ - | 0% | \$ 40,644 | 2013 | 2073 | 2133 | 2193 |
| SAN1119[4D] | WOOTENAY STR | AC | 450 | 37.64 | 1898 | 60 | 1.00 | 60 | 115 | \$ 995.75 | \$ 22,423 | \$ 22,423 | \$ - | 0% | \$ 22,423 | 2013 | 2073 | 2133 | 2193 |
| SAN1120[5D] | MALL ACCESS | AC | 450 | 99.21 | 1898 | 60 | 1.00 | 60 | 115 | \$ 995.75 | \$ 59,106 | \$ 59,106 | \$ - | 0% | \$ 59,106 | 2013 | 2073 | 2133 | 2193 |
| SAN1131[4D] | 3STREET NW | AC | 450 | 37.41 | 1898 | 60 | 1.00 | 60 | 115 | \$ 995.75 | \$ 22,285 | \$ 22,285 | \$ - | 0% | \$ 22,285 | 2013 | 2073 | 2133 | 2193 |
| SAN1151[5D] | BACK LANE | AC | 200 | 59.29 | 1898 | 60 | 1.00 | 60 | 115 | \$ 446.25 | \$ 26,456 | \$ 26,456 | \$ - | 0% | \$ 26,456 | 2013 | 2073 | 2133 | 2193 |
| SAN1188[5D] | BACK LANE | AC | 380 | 89.16 | 1898 | 60 | 1.00 | 60 | 115 | \$ 550.25 | \$ 49,060 | \$ 49,060 | \$ - | 0% | \$ 49,060 | 2013 | 2073 | 2133 | 2193 |
| SAN1209[5D] | BACK LANE | AC | 380 | 88.03 | 1898 | 60 | 1.00 | 60 | 115 | \$ 550.25 | \$ 48,437 | \$ 48,437 | \$ - | 0% | \$ 48,437 | 2013 | 2073 | 2133 | 2193 |
| SAN1233[5D] | BACK LANE | AC | 200 | 88.42 | 1898 | 60 | 1.00 | 60 | 115 | \$ 446.25 | \$ 39,456 | \$ 39,456 | \$ - | 0% | \$ 39,456 | 2013 | 2073 | 2133 | 2193 |
| SAN1235[5D] | BACK LANE | AC | 200 | 2.71 | 1898 | 60 | 1.00 | 60 | 115 | \$ 446.25 | \$ 1,209 | \$ 1,209 | \$ - | 0% | \$ 1,209 | 2013 | 2073 | 2133 | 2193 |
| SAN1236[5D] | BACK LANE | AC | 200 | 89.03 | 1898 | 60 | 1.00 | 60 | 115 | \$ 446.25 | \$ 39,729 | \$ 39,729 | \$ - | 0% | \$ 39,729 | 2013 | 2073 | 2133 | 2193 |
| SAN1329[5D] | 2STREET S | AC | 380 | 89.65 | 1898 | 60 | 1.00 | 60 | 115 | \$ 550.25 | \$ 49,332 | \$ 49,332 | \$ - | 0% | \$ 49,332 | 2013 | 2073 | 2133 | 2193 |
| SAN1346[4D] | BACK LANE | AC | 150 | 53.09 | 1898 | 60 | 1.00 | 60 | 115 | \$ 426.75 | \$ 22,655 | \$ 22,655 | \$ - | 0% | \$ 22,655 | 2013 | 2073 | 2133 | 2193 |
| SAN1356[5E] | 2STREET S | AC | 200 | 88.99 | 1898 | 60 | 1.00 | 60 | 115 | \$ 446.25 | \$ 39,711 | \$ 39,711 | \$ - | 0% | \$ 39,711 | 2013 | 2073 | 2133 | 2193 |
| SAN1421[5D] | 2STREET S | AC | 250 | 89.79 | 1898 | 60 | 1.00 | 60 | 115 | \$ 465.75 | \$ 41,821 | \$ 41,821 | \$ - | 0% | \$ 41,821 | 2013 | 2073 | 2133 | 2193 |
| SAN1423[5E] | BACK LANE | AC | 200 | 88.77 | 1898 | 60 | 1.00 | 60 | 115 | \$ 446.25 | \$ 39,614 | \$ 39,614 | \$ - | 0% | \$ 39,614 | 2013 | 2073 | 2133 | 2193 |

Caption: Does this look like a list of projects?

By using its age and expected service life to determine how long it has left, or how overdue the replacement was, we pressed the sort button and produce an indisputable list of clearly defined priority projects.

As an isolated process, this could potentially work for many asset types. For an IT department's fleet of office computers, you only get so many years out of them before they need to be cycled out. For assets such as pumps and lawn mowers, you only get so many hours of wear and tear before replacing or rebuilding. Simply replace the oldest ones first.

However, for assets like roads, water, and sewer, where they can all exist in the same right-of-way while having different levels of service, conditions, and risk criteria, the spreadsheet alone can leave you feeling less informed than when you were out looking for projects in the van.

For example, you discover that there is a critical section of sewer infrastructure that needs replacing, as it is 20 years overdue according to your spreadsheet. You take the replacement value from the spreadsheet and it is put into the budget! After looking at the asset information in the same section of road you find that the watermain may last another 20 years and the road was just overlaid 5 years ago and looks to be in great condition. Now this simple one-dimensional replacement of an asset on paper became a very complicated multidimensional project in the field.

- Can you risk-manage the overdue sewer main?
- Should you replace the water main with 20 years of service value remaining?
- Can you justify digging up a road in good condition?

A hybrid approach:

After realizing that both approaches have their risks and potential benefits, the City of Cranbrook realized it needed to incorporate both qualitative and quantitative criteria into its asset management analysis, but still have the ability to apply subjective reasoning at the end of the day.

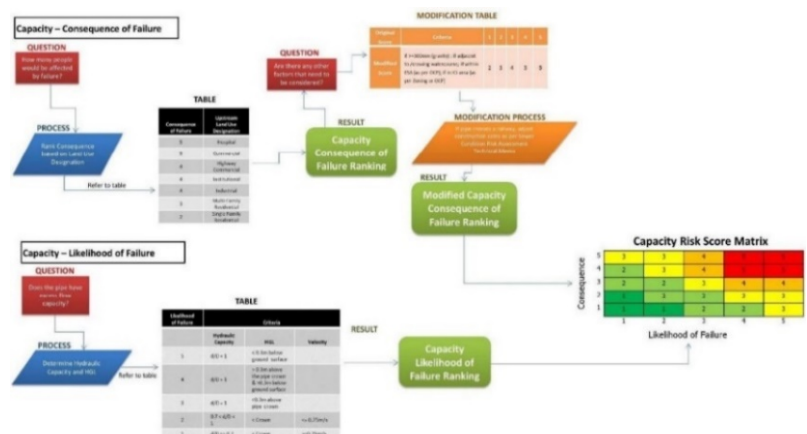
Like most municipalities across Canada, Cranbrook is working hard to get a handle on its aging infrastructure. Funding challenges, poor past installation methods, and the constant battle between proactive maintenance and reactive repairs have only made infrastructure management more problematic.

While some of those influences are outside of its direct sphere of control or would take more time to tackle,

City staff wanted to take some immediate steps to ensure existing funding levels were most effectively utilized through optimized project selection.

The result was the next evolution of its project decision-making process using more advanced asset analytics combined with a better way to visualize the interaction between major asset types in its roadways. The City of Cranbrook worked closely with Urban Systems Ltd. throughout this process to ensure that the resulting product not only used leading technology and best practices, but also incorporated the City's unique conditions and asset management strategy.

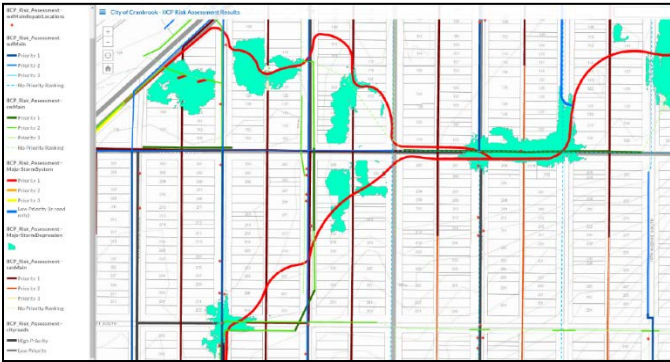
First, the condition, level of service, and risk criteria were applied to all of these assets to establish an updated priority list that included these critical factors. Spatial GIS analysis was utilized that included consequence of failure and service levels related to natural assets, critical land use areas, fire flows, emergency response routes, transit routes, localized flooding, and overland flow routes.



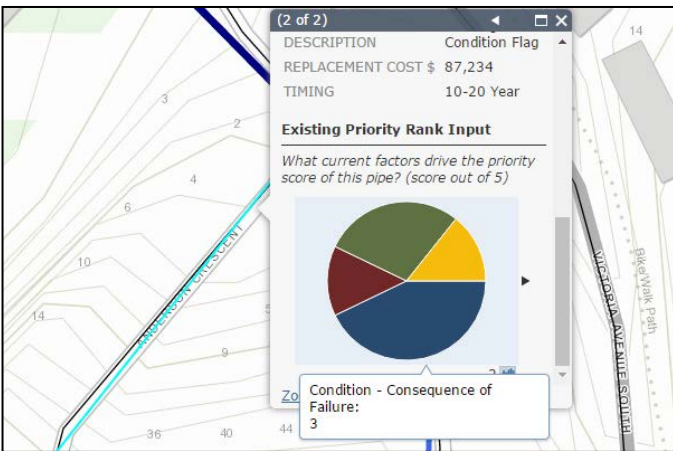
Caption: A visual model of the risk analytics

Second, this information was fed into our webapp platform for detailed interaction with current asset information. Where many similar projects would result in tables or individual maps displaying the resulting information, the webapp created by Urban Systems Ltd. allowed the user to upload and manage multiple layers of asset data at the same time.

Most importantly for the City's project selection process, it would allow the user to view and analyze the specific condition and risk factors that resulted in the asset becoming a high priority. As soon as an asset is replaced or an infrastructure model updated, this application will also be updated such that project decision-making can also be done in near real time using the most up-to-date information.



Caption: Integration of multiple asset layers to find combined priority projects



Caption: Example of factor ranking for prioritization

For example, if the risk is primarily a condition issue rather than capacity for a sewer line, perhaps it could be re-lined rather than replaced. If the water line is a high priority for flow capacity in a commercially zoned area, but the area is significantly underdeveloped, then perhaps the project can be deferred, or risk managed. Finally, if a road is in poor condition, but the underground utilities indicate they have another 10 years left, you might just need to live with a poor road until the overall street rehabilitation project becomes the priority.

The overall concept was simple, but the processes and multiple refinements are complicated and continue to be refined as the City uses the resulting information and analyzes its effectiveness.

Are we done Evolving?

Not even close. Selecting the best infrastructure replacement project can be like finding the ugliest wart on a frog, especially if you have one of those pesky infrastructure “gaps”. Even with the most refined data, there can often still be too many projects to choose from or too many competing variables and interests where objective decisions need to be made.

Perhaps this is based on ensuring capital projects are spread out in multiple areas of the City. Perhaps there is a balance between projects in residential vs commercial areas. Perhaps there are strategic growth or transportation network upgrades that become a priority factor. Many of these variables come into the next evolution of long-term strategic project prioritization that require more community and Council engagement, and more robust decision-making tools at your disposal.

No matter where you are when it comes to using Asset Management for project decision making, don't stop evolving, and don't stop looking for that next tool or resource that will help you make the best choice available.

Do you have a Story to Tell? A ‘Case Study’ is the best way to do it!

*Wally Wells, P. Eng., Executive Director,
Asset Management BC*

We are constantly told, “people love a good case study”. And why not? We are all in the same business, using our assets to provide services to our publics, residents, or visitors. So, when we do good things, why not help out your neighbors and tell them about our solutions?

Our local governments do great work and are very creative in solutions to many situations and issues. Why not write up what you do and we will publish it.

Case studies we publish are from local governments, public agencies (e.g. utilities), airport commissions, or port or harbour authorities, as examples. We do not publish information without your permission. It is your story. We require the name of the author or municipal contact. We can and will include information from outside agencies such as consulting services used by you as long as you agree.

In this issue, we have focused on case studies, including;

- Communicating asset management to the public and telling a story (qathet Regional District and Township of Spallumcheen)
- Climate change and Level of Service – Northern Rockies
- The asset management report card - City of Prince George
- Progress on asset management – Moving Forward – City of Cranbrook

Lets us publish your case study and boast about your great work. You deserve it.

Contact Wally Wells, Asset Management BC, e-mail: info@assetmanagementbc.ca

New BC & AB Director for CNAM

Wally Wells, P. Eng., Executive Director,
Asset Management BC



Jude Pillainayagam, MBA, P. Eng., Asset Management Engineer for the City of Coquitlam on the lower mainland of BC has been appointed to fill the vacancy on the Board of CNAM representing British Columbia and Alberta. Joel Shaw, after 7 years on the CNAM Board, decided to retire from the Board. Thank you, Joel,

for a job well done and representing us all well.

Jude has been at the City of Coquitlam since 2013 as Asset Management Engineer and is responsible for developing, implementing and championing asset management. He previously worked for the City of Surrey for 12 years, and Metro Vancouver. Jude is an asset management champion. He is an active participant on the AM BC Community of Practice, our 'think tank' group that helps drive the priorities of AM BC. He is the lead behind a regional community of practice for the Lower Mainland and is working very hard to see this group succeed. The COVID-19 virus, unfortunately, has put face-to-face workshops on hold for this year. He has been a long-time attendee at CNAM conferences and often been a presenter on many aspects of asset management.

Congratulations Jude. We know you bring a lot of enthusiasm, dedication and knowledge to the CNAM Board. We look forward to continuing our work with you including your new role as a Director of CNAM.

How to take meaningful steps in Asset Management

Federation of Canadian Municipalities (FCM)



FEDERATION
OF CANADIAN
MUNICIPALITIES

FÉDÉRATION
CANADIENNE DES
MUNICIPALITÉS

Canadian municipalities of every size and location struggle to make decisions about maintaining, replacing and repairing their infrastructure. With the help of the Municipal Asset Management Program* (MAMP), there's a path forward for planning sustainable infrastructure decisions.

Through grants, training and resources, MAMP helps municipalities like yours take concrete steps in their asset management journey, which includes learning from each other and sharing experiences. Across the country, 336 municipalities have completed projects with MAMP grants, and more than 2,000 municipalities have taken helpful training programs.**

The MAMP team recently partnered with Asset Management BC and the Union of BC Municipalities to deliver asset management training to local government employees and elected officials. Building on the longstanding work of both organizations, this initiative includes the development of new resources, a series of webinars and capacity building workshops to help increase asset management awareness and improve governance at the local level.

Municipalities are using MAMP tools to make progress on FCM's [Asset Management Readiness Scale](#) (AMRS). Numerous municipalities have begun their journey through its five competency areas, often with a focus on *Policy & Governance, Planning and Decision-making, and Data and Information*. Their successes can encourage municipalities like yours to join in:

- Nationally, out of 336 completed 12-month MAMP grant projects, 248 municipalities moved up on the AMRS and 22% of those that improved moved up two or more levels on the scale.
- There are 18 MAMP partners offering asset management training across Canada, including two in BC.
- To date, over 200 elected officials and municipal employees from BC have participated in asset management training from MAMP-supported partners, and 75% of them report an increase in their understanding of asset management.
- In BC, 33 municipalities have completed MAMP grant-supported projects. Most used the funds to complete condition assessments, asset inventories or asset management training.

* MAMP is an eight-year, \$110-million program funded by the Government of Canada. It's being implemented by FCM in partnership with municipal, provincial and territorial associations and other key stakeholders.

** The data in this article is from MAMP's launch to March 31, 2020.

Have a look at the experience of Trail, BC—a great example of how a municipality can advance its Policy and Governance competency and make progress on the AMRS.

Case study: Trail, BC



The municipal Council and employees in the city of Trail, BC, wanted to know where to invest in their infrastructure and how to plan for the future. They used MAMP's AMRS to chart their path forward.

The measurement tool allows a community to plot its path forward in each of five competency areas. Each of those is organized into five readiness levels, and to achieve each level, the municipality must complete three outcomes. In 2019, the Trail team achieved Level 1 in one of the most commonly tackled competency areas—Policy & Governance—by drafting its *Strategic Framework for Asset Management* and a formal *Asset Management Strategy Implementation Plan*, using a MAMP grant.

How they did it

Despite some typical challenges (e.g. employee turnover, multitasking), a few concrete steps helped Trail move its Policy & Governance skills forward:

- They drafted a formal *Asset Management Policy* that was adopted by Council. It committed the council and employees to considering asset management when making decisions.
- They hired a consultant with expertise in asset management and hosted 10 workshop-style meetings to discuss the benefits of asset management and help everyone understand its importance.
- The team assessed the current inventory of the city's assets.
- With the consultant's help, they assessed their decision-making practices.
- The consultant also ran a brief training seminar on how to prioritize assets and define the assets' criticality.
- The consultant helped them assess and connect their municipal budget with their actual assets to create their *Strategic Framework for Asset Management* based on best practices in asset management.
- From there, they were able to begin crafting a five-year playbook of how to move projects forward, such as their *Asset Management Strategy Implementation Plan*.

What they would do differently

The team says two changes would have helped them along this path:

1. **Focus on education earlier:** One employee completed a three-day seminar, offered by NAMS Canada, before the project started. That person also attained a Professional Certificate in Asset Management Planning, also from NAMS Canada, but that happened a bit late in the project and would have been more useful at the outset. It would also have been better if the entire asset management team and Council had received formal training on the benefits of the asset management system. That's a tough ask in a small community though, where most employees wear several hats and are unable to dedicate time specifically to training purposes.
2. **Focus on motivation:** Financial austerity means creative scheduling and multitasking for most city employees these days. That can make it tough to keep everyone focused on overarching goals. While the Asset Management Policy was a clear mandate to pursue asset management, the city would have benefitted from a 'soft' mandate—a terms of reference document, perhaps clarifying the potential benefits of the program and identifying staff responsibilities. This could have increased the motivation to move the project forward from that point.

Trail's asset management team is committed to moving through the AMRS. With the help of employees and the engineering consultant, it began rolling out its implementation plan in 2020.

Currently, they're benefitting from shared documentation from municipalities that have already been down this path. That's *precisely* the kind of peer-to-peer support that municipalities engaging with MAMP say is so effective: sharing lessons learned so everyone can improve their asset management more efficiently.

MAMP has incredible offerings for municipalities in similar positions. Wherever you are in your asset management planning, take advantage of our [training opportunities](#), grants, and [resources](#), including [case studies](#), guidebooks, and videos. You can also subscribe to [FCM Connect](#), a newsletter that keeps you up to date on the latest FCM offerings related to asset management and municipal priorities.

qathet Regional District - Making the Most of our Assets

Nancy Schmeister, Manager of Technical Services,
qathet Regional District



qathet
REGIONAL DISTRICT

qathet Regional District published this article in their local Powell River Living magazine in August 2020 as part of their ongoing efforts to be open and transparent about the roles and responsibilities of the Regional District. The impetus behind this article was to try to explain the work being done by qathet Regional District's Asset Management Department in a way that residents of the community could connect to. Nancy Schmeister, Manager of Information Technology and author of the article states;

"With budget season upon us and capital asset planning in full swing, we wanted to try to convey to readers that the asset management practices that we have in place and the planning that we do to ensure the public's assets are being cared for is no different than what each of us must do with our own personal possessions. Hopefully making that connection in a clear and simple way will help the public understand that it takes more than just properly operating and maintaining our assets to ensure that they are sustainable into the future."

We all have assets – things that we own, like a house, a car, a boat, a bike, clothing, a cell phone, etc. If we want these assets to work well, we must operate them correctly and maintain them regularly. However, managing our assets and ensuring that we can continue to receive the service we desire from our assets means going beyond just proper operations and maintenance.

Asset management requires that we have a good knowledge of what we own, where it is located, how old it is, what condition it is in, how critical it is to us, how much longer we think it will last, and how much it is worth.

We also need to ask ourselves whether our assets are even meeting our needs and the needs of our family. Do we own the right assets? Do we need to invest in something completely different? We must do financial planning so that we have the money we need to repair and replace our assets when they no longer are able to provide the services we desire or when the cost to maintain them outweighs their value to us. Are we putting enough money into savings each month or will we need to borrow funds?

For some of us, we need to factor into our financial plans, our desire to upgrade to the "latest and greatest" in technology or our aspiration to reduce our environmental footprint by replacing an asset with a "greener" version which may come at a potentially lower or higher cost, affecting our monthly savings contribution.

We must be sure that we are following all of the legislative requirements related to each asset we own, and we must be aware of the risks that are associated with the potential failure of our assets. We should be considering how climate change factors might potentially impact the assets that we own. Many of us have children and grandchildren and we want to ensure that we are managing our assets so that we can pass them on to these future generations in good condition and without any burden of debt. For some of us, we are even looking beyond our immediate family. We are making decisions about what we own based on its potential environmental and social impacts.

qathet Regional District manages a wide variety of assets on behalf of our citizens. To do this, we are asking all the same questions and working to balance all of the same factors.

For more information about what asset management is, why we do it, and further details on qathet Regional District's asset management program, check out our website; <https://qathet.ca/services/sustainable-service-delivery/>.



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We must be sure that we are following all of the legislative requirements related to each asset we own and we must be aware of the risks that are associated with the potential failure of our assets. We should be considering how climate change factors might









qathet
REGIONAL DISTRICT

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Working
Together

Natural Assets as Ecological Systems and Services: *What do you know or wonder about the EAP and MNAI missions?*

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

The Third Annual Vancouver Island Symposium on Water Stewardship in a Changing Climate will be delivered by video on YouTube as a series of three “watershed moments”. Join us on November 26, 2020 for a facilitated conversation with Emanuel Machado, MNAI Chair, and Tim Pringle, EAP Chair. Their focus is natural assets as ecological systems and services.

TO LEARN MORE AND REGISTER, visit
<https://civinfo.bc.ca/event/2020/Third-Water-Stewardship-Symposium-Reimagined>

Adapting to the COVID-19 Reality

In 2020, the COVID-19 pandemic has changed everything and created a new reality for everyone on Planet Earth. Until there is a vaccine, mass gatherings are not allowed. Thus, events such as the Third Annual Symposium must be reconstituted and delivered online rather than in-person.

We have chosen to be bold in how we leverage technology. We will not subject viewers to a day of staring at their computer screens! Under our pandemic response plan, three modules are being undertaken as a Video Trilogy Series. Each event is 90 minutes in duration, with delivery via YouTube on November 19, November 26 and December 3.

We are blending technology platforms to provide an experience that is equivalent to viewing an engaging TED Talk video, while allowing for interaction with those who are leading by example in British Columbia.

Cascading Content, Visual and Engaging

Watershed Moments, the video trilogy series, is cascading. Our focus is on the whole-system approach, connecting land and water, and restoring water balance in altered landscapes. The series will educate and create understanding.

The three videos, each 60 minutes in duration, are designed to be used as educational legacy resources that inspire action. Each is built around a “facilitated conversation” moderated by Richard Boase, District of North Vancouver. These conversations are much more

than talking heads in a studio setting! Inter-weaving of outdoor footage creates an engaging narrative.

In embracing virtual delivery, our goal is to engage and inform our online audience. Our desired outcome is to enhance their understanding of what it means to see the world around them as an interconnected system. We hope to point the way for making a difference through collaborative leadership.

The Watershed Moments trilogy series will be a compelling virtual symposium. We are using the YouTube platform to create a viewing experience that captures the passion, knowledge and wisdom of our team members in conversation.

On the day of each event, a Zoom feed will enable team members to interact LIVE via YouTube with the audience! Our vision is that the series will take on a life of its own as a legacy resource to inform, educate and create understanding.

ON NOVEMBER 26:

Natural Assets Support the Delivery of Core Local Government Services, While Doing So Much More

Two programs - the Municipal Natural Assets Initiative (MNAI); and the Ecological Accounting Process (EAP) – are facilitating the move from awareness to action that accounts for ecological systems and services. What do you know about the EAP and MNAI missions? Do you wonder whether they are the same, or different?

The two initiatives are outcomes flowing from the tireless determination of two pioneers, EAP Chair Tim Pringle and MNAI Chair Emanuel Machado, to transform how local governments view ecological systems and the services they provide. Development of both MNAI and EAP began around 2015.

Actually, translating policy objectives into tangible outcomes requires that local governments have a methodology and metrics for valuing ecological assets and services in an asset management strategy.

Emanuel Machado changed the local government conversation in BC. His philosophy and local government credibility continues to generate momentum for replicating the ‘Town of Gibson’s Model’ in other communities.

For three decades, Tim Pringle has worked hard to develop and evolve a guiding philosophy, pragmatic strategy, and meaningful metrics for valuing the services

provided by nature; and for establishing budgets for maintenance and management.

Once you have a number for better maintenance and management of ecological assets, what do you do with that number? Putting it into play requires an understanding of how local government processes work.

ON NOVEMBER 19, JOIN US FOR:

BC's Climate Reality, Inter-Regional Collaboration & Actionable Visions

What happens on the land matters to water bodies!

A dynamic team of five women provide their insider insights into an array of water-centric initiatives and programs underway in four Vancouver Island regional districts.

Regional water management initiatives are now into a second decade and ramping up. Actionable visions for land and water are driven by leadership that mobilizes people and partnerships, a commitment to ongoing learning and innovation, and especially a budget to back it up.

ON DECEMBER 3, JOIN US FOR:

International Year of the Salmon (IYS) – Will Lightning Strike Twice?

In British Columbia, the iconic salmon is the canary in the coal mine.

Did you know that the 'salmon crisis' of the 1990s galvanized federal-provincial action, cross-border collaboration, and pioneer research?

For the first time in decades, the stars are in alignment. Our federal and provincial governments have committed both money and time to the International Year of the Salmon. The program is multi-year and represents a 'once in a generation' moment.

With the International Year of the Salmon as a guiding vision, communities could build on what some have known since the 1980s and, in so doing, offset the neglect of past decades.



Asset Management BC offers Training opportunities

AM BC can help!

Advance your Asset Management Practice with Free Training

When it comes to implementing asset management practices, we know that most local governments in BC have done the basics, such as an inventory of their assets or a condition assessment. And while some local governments have taken it even further by defining levels of service or even putting an Asset Management Bylaw in place (kudos to City of Courtenay!), many are still struggling with taking their asset management practices to the next level. Heck, some of us are even trying to figure out what the next level is for our community.

Enter the '*Advancing your Asset Management Practices*' program. This unique, and yes free, training program was designed to address some of the softer sides of the asset management puzzle, such as: How do we set the level of service we provide our community? How do we create a culture of sustainable service delivery throughout our organization? Or how can we get our Council or Board on board? These are just some of the tough questions we've heard from you at conferences and workshops – and why we carefully crafted this program to help you find the answers you need.

Thanks to the generous funding provided by the Municipal Asset Management Program (MAMP), delivered by the Federation of Canadian Municipalities and funded by the Government of Canada, we are delighted to provide these educational programs at no cost to BC's local governments and First Nations. Check these out:

1. **Building Awareness for Elected Officials:** Help your Council or Board fully grasp the power they hold over the future of your community. Invite one of our keynote speakers to share a compelling online presentation with your Council or Board. Designed to help increase awareness and support for your asset management practices and the benefits of achieving sustainable service delivery through the asset management process. Presentations range from an introduction to asset management to using asset management as an effective, transparent, and engaging decision-making and communications tool. Presenters include former Mayor and asset management strategist Christina Benty; former

CAO, author, keynote speaker, FCM Asset Management award recipient Diane Kalen-Sukra; and strategic communications specialist Jan Enns.

2. **Working with Levels of Service (LOS):** According to management guru Peter Drucker, “You can’t manage what you can’t measure.” So how does that time-tested axiom work for local governments? Having a common understanding of the levels of service you and your Council/Board provide is critical to successful performance – and public acceptance. This series of custom webinars will help you identify your levels of service including processes, tool kits, and coaching to develop and implement a plan for your community. Working with your own data, using our Excel-based template, you’ll learn how to identify desired outcomes and performance measures, and develop strategies to address your gaps. Led by Colwyn Sunderland of Kerr Wood Leidal.
3. **Operationalizing Asset Management:** We often talk about ‘silos’ or capacity as reasons why our asset management efforts fall short. This unique cohort-based series of webinars tackles this human side of asset management in the areas of organizational culture, structure, and capacity. Using the Four C’s approach (collaboration, capacity, culture, and council/board), and working with your own data, you’ll identify challenges and opportunities for solutions to fully operationalizing asset management in your organization in this powerful peer-learning environment. Led by David Albrice of AIM Asset Insight Management Ltd.

You can select all three, but you best be quick, as seats are limited for the LOS and Operationalization streams. If you miss it, the learnings from the workshops and cohort will also become part of a series of new case studies to pay it forward and help others with similar challenges.

Simply read the Program Guide and send the Expression of Interest form to info@assetmanagementbc.ca

Visit assetmanagementbc.ca for the program details and guide. You will find the guide on page 1. Response is required by October 9, 2020

For more info, contact Wally Wells, Executive Director, Asset Management BC at info@assetmanagementbc.ca

Get your Natural Assets Project Moving - Funding Opportunity

Roy Brooke, Executive Director, Municipal Natural Assets Initiative (MNAI)

More and more local governments are exploring innovative approaches to working with nature to deliver



core services to residents and businesses. Now, there may very soon be another incentive to do so; the Municipal Natural Assets Initiative (MNAI) is seeking funding to help multiple local governments across Canada simultaneously develop their inventories at a substantially reduced cost to accelerate the process.

Inventories are the first step in local governments’ natural asset management journeys, and they tell communities what natural assets they already have or rely on, as well as their condition. The timing couldn’t be better. With COVID-19 shrinking municipal budgets, climate change creating more frequent and intense weather crises, and provincial governments starting to regulate asset management planning at the municipal level (see [Ontario regulation](#)), natural asset management is cost-effective, sustainable and attainable.

If your community is interested in developing your natural asset inventory at a nominal cost (~\$2,500) please read the additional details and fill out and submit the form. MNAI will use the information as part of a selection process (subject to funding confirmation) and the projects will start in the fall. Intake will be on a rolling basis. The Expression of Interest form is at:

<https://mnai.ca/media/2020/08/Natural-asset-inventories-project-fillable-form.pdf>

Completed inventories will help communities build the foundation for all other aspects of natural asset management, including valuations, modelling, planning and implementation steps. In the 11+ projects that MNAI has completed with communities to-date, the data show savings of up to \$414 million through the natural asset management approach. If natural assets are managed responsibly, they would increase in value and in their ability to provide beneficial services to humans and all other species.

To read about the inventory of projects that MNAI has completed, see the following links:

<https://mnai.ca/northwest-new-brunswick-flood-management/> and <https://mnai.ca/natural-asset-management-planning-logy-bay-newfoundland/>.

Stay Tuned for Asset Management BC 2020 Virtual Workshop Details

Like most events this year due to the COVID-19 virus, the 5th annual in-person Asset Management BC conference is cancelled. However, we have not forgotten about you. In November, we are bringing you four Thursday ZOOM sessions of inter-active webinars on varying subjects within the asset management sphere.

Each Thursday will be 3 two-hour interactive webinars with a Q&A and discussion period. Registration will be via ClivInfo. The detailed program is currently being finalized. Watch for a Special Addition of the AM BC Newsletter with program and registration details.

Mark your calendar for Thursdays, November 5, 12, 19, and 26, from 9:00 to 11:00 AM PDT - **STAY TUNED!!!**

What happens if you don't have enough Money? Using AM to manage COVID impacts on budgets

*Bernadette O'Connor, Principal Consultant,
Asset Management, WSP*



Many organizations are experiencing lower revenues due to COVID impacts on the economy. Some municipalities have already been hit hard and have undergone major budget cuts. Most municipalities are expecting lower tax and user pay revenues to have an affect on 2021 budgets and potentially beyond that. The degree of impact will vary, but for all it will mean making choices about what is not going to get done.



A community that is well progressed with asset management will find it easier, to identify the least risk options and make those decisions.

With budget preparations already started, it is an opportune time for those who have not already done this, to document their "*Operational Levels of Service*". This provides a robust method to identify acceptable trade-off options between level of service, cost of service, and risk.

Operational Levels of Service document the activities required to deliver the expected level of service. This is recorded in a spreadsheet format, along with;

- Frequency and cost of each activity
- A classification to indicate if the activity is needed for legislative compliance, safety, manufacturer's warranty, asset lifespan, or another driver
- Description of most likely impact on the customer experience, the risk-exposure of the organization, and the lifespan of the assets, if the activity is done less frequently



The combined cost of the activities at their current frequency (along with allowances for reactive work and admin activities) represents the operational budget required to deliver the level of service.

The impact descriptions provide support for decision-makers to actively manage what does not get done (or is done at less frequency) when there is not enough money. The information provides transparency for both short-term and longer-term consequences of an activity not being done or being done less frequently. It provides confidence that the available budget is being spent on the right things; that the things being cut from the budget are the most appropriate; and that risk liabilities (especially less obvious ones) are not being overlooked.

The activity to identify and document *Operational Levels of Service* can be done at a high level or a detailed level, right-fitted to the size of the community and the degree of the financial situation impact to be managed.

Upcoming Events

BC Water and Waste Association

November 3 – 4, 2020
48th Annual Conference and Trade Show
bcwwa.org



Union of British Columbia Municipalities (UBCM)

September 22 – 24, 2020
Annual Conference and Trade Show
ubcm.ca

Federation of Canadian Municipalities

October 20 – 22, 2020
Sustainable Communities Conference
fcm.ca

Asset Management BC

Thursdays, November 5, 12, 19, and 26, 2020
Webinar interactive presentations
5th Annual Asset Management Conference
assetmanagementbc.ca

Government Finance Officer Association of BC

May 26 – 28, 2021
Annual Conference and AGM
Victoria, BC
gfoabc.ca

Local Government Management Association

June 15 – 17, 2021
Annual Conference and Showcase
Kelowna, BC
lgma.ca

Public Works Association of BC

September 19 – 22, 2021
Annual Conference and Trade Show
Richmond, BC
pwabc.ca

Recreational Facilities Association of BC

April 26 – 28, 2020
Annual Conference
Penticton, BC
rfabc.com

COVID-19

Due to the COVID-19 virus and the requirements for physical distancing, all conferences in person have been cancelled for 2020. Most are moving to a 'virtual' conference. Check the Association website for details.

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