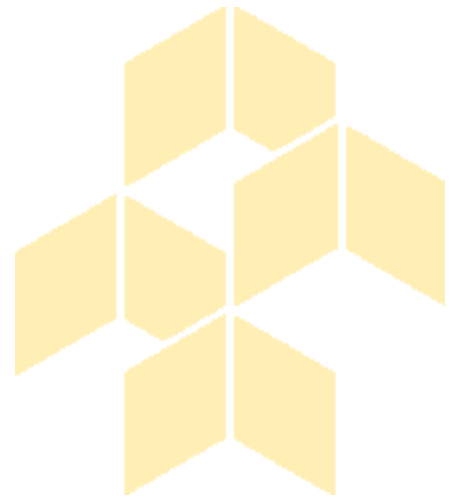




AGLG Perspectives Series Accessible Tools

Audit Topic 3 – Tool 2 (July, 2015)



ASSET MANAGEMENT FOR LOCAL GOVERNMENTS

Key Considerations for Local
Government Council, Board Members
and Staff to Help You Manage Your
Infrastructure Assets

*Relating to AGLG Audit Topic 3:
Learnings from Local Government Capital Procurement
Projects and Asset Management Programs*

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THE AGLG PERSPECTIVES SERIES

The office of the Auditor General for Local Government (AGLG) was created to carry out performance audits of local government operations and provide local governments with useful information and advice. Our goal is to help local governments fulfil their responsibilities to be accountable to their communities for how well they take care of public assets and achieve value for money in their operations.

The AGLG Perspectives series of booklets is designed to help achieve this. These booklets complement our performance audit reports by providing local governments across the province with tools and more detailed information relating to the topics we examine through our audits.

Some AGLG Perspectives booklets are written mainly for elected council and board members, others are directed more to local government staff and some are aimed at the full range of people who take an interest in local government in British Columbia.

THIS BOOKLET

The purpose of this booklet is to assist local governments with getting started in the management of their capital assets. The information contained here comes from the work the office of the Auditor General for Local Government has carried out in its audits of capital asset management as well as a review of current literature on the subject.

This is the second AGLG Perspectives series booklet prepared by the office. The booklets are intended as a tool for all local governments to help advance their asset management practices.

Readers may also wish to review the 2014 AGLG Perspectives booklet: Oversight of Capital Project Planning & Procurement: Key Considerations for Local Government Council and Board Members

We would like to thank those who provided valuable input in the development of this booklet including: Andy Wardell, District of North Vancouver, Doug Allin, City of Grand Forks, David Love, City of Courtenay, Wally Wells, Asset Management BC, and Rob Bullock, Executive Director, Government Finance Officers Association of BC.

How to Use this Booklet

We have divided this booklet into two parts:

- **Part 1** is written for local government elected officials, providing a basic introduction to asset management as well as information on their oversight roles and responsibilities.
- **Part 2** is targeted at local government staff, the practitioners across these organizations who are responsible for managing capital assets. It aims to help you get started with a holistic approach to capital asset management.

We encourage all interested readers to read the entire booklet. We present most of the information in a question and answer format, aiming to cover the key questions for local government elected officials and practitioners.

HOW OUR AUDIT WORK INFORMED THIS BOOKLET

We learned a great deal through recent performance audit work on asset management involving six local governments ranging in size from around 3,500 residents to more than 86,000.

We found that the overall the level of awareness of asset management was relatively high while the capacity to put it into practice was relatively low, primarily due to the lack of available resources and other priorities.

Most of the local governments we audited had only basic information on their capital assets and did not take an integrated, organization-wide approach to their management. And most did not follow a defined process in selecting and prioritizing capital projects for funding.

In assessing these local governments, we used AssetSMART, an assessment tool developed by Asset Management BC and designed for use by local governments of all sizes and stages of development of asset management practice. The tool examines five core capacities for asset management, including Awareness and Priorities, Organizational Systems, People, Information and Financing.

Our Sources In compiling this booklet, we reviewed a variety of asset management frameworks, practices and approaches, including the following:

- Asset Management BC (AMBC) and Asset Management for Sustainable Service Delivery – A BC Framework and AssetSMART
- BC Capital Asset Management Framework
- New Zealand Asset Management Support Group International Infrastructure Management Manual (IIMM)
- Institute of Asset Management Publicly Available Specification 55 (PAS 55)
- International Standards Organization (ISO) 55000

The information in this booklet is a compilation of principles and fundamentals laid out in a manner we hope is straightforward. We intend for this information to serve as a starting point for local governments of all sizes.

It's important for all local governments to manage their capital assets effectively, but the specific application of the principles and practices described in this booklet will vary based on a local government's size, complexity and resources.

ABOUT LOCAL GOVERNMENT CAPITAL ASSETS

People who live and work in B.C. communities use the capital assets built and maintained by local governments every day.

For many of us, the drinking water we rely on flows through water pipes that are local government capital assets. Roads and bridges built and maintained by local governments give us access to work, school or shopping. Local government-owned hockey rinks, playing fields and playgrounds are central to the daily lives of our children.

While the nature and extent of local government capital assets vary across communities, for all of us, these assets are foundational to our safety, economic health and overall well-being.

When community assets are lacking or not working as they should, communities may experience significant issues such as boil water orders, traffic congestion and a reduced ability to attract skilled workers and families to the area.

In many parts of the world, including British Columbia, pressures on local governments to do more with less have sometimes led to less investment in maintaining or replacing capital assets. The reality of limited resources makes it more important than ever for local governments to manage their capital assets effectively.

Each year, an increasing number of local governments recognize the need to improve their asset management practices. More and more are adopting an all-encompassing approach that considers asset life-cycles and full cost accountability and is used across the local government for infrastructure planning, renewal, investment and development.

In addition to meeting community needs, effective asset management helps local governments meet their fiduciary responsibilities to taxpayers and helps ensure proper stewardship of public works, infrastructure, administrative accountability and public transparency.

ABOUT LOCAL GOVERNMENT CAPITAL ASSETS

Asset Management BC's Asset Management for Sustainable Service Delivery: A BC Framework



The above diagram summarizes the asset management cycle for BC municipalities. It starts with the assessment of your current practices and assets, proceeds to the planning phase, and then concludes with the implementation phase. The process, however, is continuous in that once you have implemented and reported, new information will be available where assessing your assets and policies starts over again. As noted earlier the extent of the work under each step will depend on the size and complexity of the local government. What is important is to focus on the principles behind good asset management. The diagram comes from an asset management initiative funded by the Union of BC Municipalities and developed in partnership with the Ministry of Community, Sport and Cultural Development and members of Asset Management BC.

THE 24 QUESTIONS

For Board/Council Members

- 1 What is asset management?
- 2 Why is asset management important?
- 3 What is the role of the council/board?
- 4 Is asset management affordable?
- 5 What are an asset management policy, strategy, plan and program?
- 6 How do we know if our asset management program and plans are being followed?
- 7 How can a council/board evaluate our asset management strategy?
- 8 What are the key risks to effective asset management?

THE 24 QUESTIONS

For Local Government Staff

- 9 What are the main steps in developing an asset management plan?
- 10 How do we know whether we have the internal capacity to develop our own asset management plans?
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- 23 Who maintains our asset management plan and how often does it need to be updated?
- 24 How does asset management feed into the capital project planning and procurement process?

Questions & Answers for Board/Council Members

WHAT IS IT & WHY DO IT?: ABOUT ASSET MANAGEMENT

1 What is asset management?

Asset management is the process of managing a local government's capital assets cost effectively. It involves analyzing the lifecycle and capacity of each asset and developing information on maintenance requirements, service levels and new asset needs.

While there are numerous definitions of asset management, we use Asset Management BC's definition as it clearly outlines the key components and was developed by and for B.C. local governments: "An integrated approach involving planning, finance, engineering and operations to effectively manage existing and new infrastructure to maximize benefits, reduce risks and provide satisfactory levels of service to community users in a socially, environmentally, and economically sustainable manner."

The key principles of asset management direct us to:

- Make informed, cost effective decisions around levels of service, identifying all revenues and costs associated with capital assets, including additions and deletions.
- Integrate corporate, financial, business, technical and budgetary planning for capital assets.
- Establish organizational accountability and responsibility for a capital asset inventory, tracking condition, use and performance.
- Consult with stakeholders where appropriate.
- Define and articulate service, maintenance and replacement levels and outcomes.
- Manage assets to be sustainable, minimizing their total lifecycle costs.

- Consider environmental, social and sustainability goals.
- Minimize risks to users and risks associated with capital asset failure.
- Pursue best practices where available.
- Report the performance of asset management programs.

At a minimum, asset management requires a local government to know the condition and performance of its core assets, enabling it to make sound decisions around their future repair or replacement. Core assets for a local government are those that are essential to the delivery of service e.g. a municipal water treatment system. The larger a municipality that large the number of core assets that one would expect to find.

A strong asset management program maximizes local government funds by targeting scarce resources to the most critical asset needs.

WHAT IS IT & WHY DO IT?: ABOUT ASSET MANAGEMENT

2 Why is asset management important?

In 2013, Asset Management BC estimated the replacement value of all local government assets in B.C. to be approximately \$200 billion, excluding land. This infrastructure has been growing at about three per cent per year, making capital assets a significant financial concern for local governments and their residents.

A sound approach to asset management brings numerous benefits to local governments, and assists them in ensuring that taxpayers get good value from each capital asset they pay for.

The recent Federal Gas Tax Agreement includes requirements for local governments to demonstrate strengthened asset management capacity and to report in the future on progress made in improving local government asset management.

The ongoing, steady state replacement of capital assets over long periods of time is a best practice and is the key to achieving the lowest lifecycle costs over the asset life.

Further, the strategic use of debt financing can help smooth funding requirements for major asset renewals or investments over time.

If a local government decides to not implement asset management practices, it risks deteriorating assets, poorly performing assets, asset failure, public health and safety liability, loss of financial and economic viability, and ultimately declining public confidence in the local government.

Well planned and maintained assets are essential to maintaining the services that a local government offers.

3 What is the role of the council/board?

Council and board members have both a leadership role and an oversight role. As elected officials, you can help ensure effective asset management by supporting staff in their efforts to develop and implement asset management planning.

Oversight of this planning by the council/board can help ensure that appropriate stakeholder consultation takes place and that asset management objectives are closely linked to the local government's overall objectives and priorities.

You should also review and approve new asset management policy and your local government's asset management strategy, as well as amendments and updates to these key documents.

Oversight also involves reviewing annual updates to the asset management strategy, as well as other documentation showing progress toward service, asset and financial sustainability.

WHAT IS IT & WHY DO IT?: ABOUT ASSET MANAGEMENT

4 Is asset management affordable?

The results that have been achieved by local governments that practice effective asset management demonstrate that good practices pay for themselves and the payback begins almost immediately.

Your local government's use of these activities to ensure that capital spending is focused on highest risk/highest need investments can result in significant cost avoidance.

Increased collaboration between engineering and finance departments, analysis based on condition assessments and a risk-based focus are asset management practices that can help local governments be more cost efficient.

For example, the City of Hamilton, Ontario undertook asset management activities that led it to install 317 sewer main linings at a cost of \$80 million rather than replacing the mains at a cost of \$240 million. For Hamilton, effective capital asset management practices led directly to immediate cost avoidance of \$160 million.

Another example is road paving where asset management can lead to resurfacing only the highest risk roads, rather than undertaking a regular paving program where all roads in a particular grid are resurfaced.

Research carried out as part of the Canadian Infrastructure Report Card in 2012 which included 26 local governments across B.C., showed that spending \$1 on preventative road maintenance and regular repair during the first three quarters of a road's estimated service life can eliminate or delay \$6 to \$10 in costs later in its life.

Please keep in mind that asset rehabilitation and replacement programs are always subject to local conditions such as traffic patterns, soil conditions and terrain. The examples cited here may or may not apply to your particular circumstance.

Programs like these can be scaled to smaller local governments and, as these practices evolve and mature, the cost savings can increase.

MAKING IT HAPPEN: THE MECHANICS OF ASSET MANAGEMENT

5 What are an asset management policy, strategy, plan and program?

An **Asset Management Policy** is the foundational piece of a local government's approach to asset management. It is always desirable for a local government's operations to be guided by consistently applied policy and documented procedures.

The asset management policy sets out direction and guidance for staff undertaking asset management across the organization in a systematic and coordinated way and in a manner that supports the local government's goals and objectives.

The policy should reflect the size and scale of the local government, ensure compliance with regulatory requirements, be based on solid asset management principles and be approved and supported by management and the council/board.

An **Asset Management Strategy** summarizes a local government's asset management plans to provide an overall corporate view of longer term financial requirements.

The strategy should:

- Adhere to a risk-based approach where critical assets are prioritized.
- Consider the costs and benefits over each asset's lifecycle and strive for financial sustainability.
- Include an appropriate level of stakeholder engagement, including potential users.
- Outline a set of objectives and key performance indicators related to maximizing asset benefits and information management.

- Identify functional and condition requirements for assets.
- Be reviewed regularly.

An **Asset Management Plan** is an activity plan that informs the local government's financial plan. It defines the activities required for a particular significant asset or asset group — maintenance, refurbishment and ultimate replacement – and identifies the associated costs.

Asset management plans are routinely updated through ongoing condition monitoring and should become increasingly accurate over time.

Major capital asset groups include transportation, drinking water, sanitary sewers, stormwater, buildings, parks and vehicles and equipment.

An **Asset Management Program** is an ongoing process a local government uses to identify asset needs such as maintenance, rehabilitation, replacement and financing.

Based on updated inspections and condition assessments at specified intervals, such a program is generally led by a local government's engineering department.

However, other staff also need to be involved. For example, finance must participate in the program as the required maintenance costs need to be provided for in the local government's financial plan. Assets also need to be properly accounted for in the local government's asset registry and financial statements.

MAKING IT HAPPEN: THE MECHANICS OF ASSET MANAGEMENT

6 How do we know if our asset management program and plans are being followed?

Asset management should be a transparent process that connects your local government's mandate, goals and objectives with daily activities across departments. These activities should be clearly linked to capital project selection based on asset age, condition and required service levels.

The project manager for each capital project undertaken by your local government should be able to trace the rationale for the project to a clear set of local government plans and objectives.

7 How can a council/board evaluate our asset management strategy?

There are a few fundamental questions you can ask of your local government's staff to help determine whether asset management is working as intended. These include:

- Do we know what levels of service our taxpayers demand?
- Is our local government delivering programs and meeting required service levels?
- Do we have buy-in from the public?
- Are we making investments in capital assets that support lowest costs over the full asset lifecycle?
- Is our local government making decisions in a transparent manner, based on clear and documented information?
- Do we know the age, condition, useful remaining life and current value of our major assets?
- Do we know the replacement costs of our assets?
- Has our local government cost out the full lifecycle of our key assets?
- Do we have an asset reserve fund?
- Are we taking full advantage of funds from outside sources as part of our asset renewal?
- Is staff from across the organization engaged in asset management practices?
- Are we moving toward service, asset and financial sustainability?

Based on the answers to these questions a council/board will have a good understanding of your local government's asset management status.

MAKING IT HAPPEN: THE MECHANICS OF ASSET MANAGEMENT

8 What are the key risks to effective asset management?

There are several risks your local government should be aware of in undertaking asset management activities.

Failure to get council/board buy-in early on

If your council/board does not support your staff in their efforts to advance asset management, it will be difficult to do so successfully. Staff can reduce this risk by carrying out some preliminary work and presenting information to your council/board around core asset inventory, age and condition, remaining useful life and replacement costs combined with some risk assessment. Drafting a simple, concise two-page asset policy can also help pave the way for your council/board to embrace their stewardship role and responsibility. It is also important for council/board to receive regular reports on the state of the assets and any significant issues.

Unclear roles and responsibilities

Elected officials have a stewardship responsibility and an oversight role, while staff are responsible for implementation and for reporting back to the council/board. It is important for both parties to understand and respect the distinction between governance and management and to maintain an appropriate balance of accountability.

Inadequate communication with residents

Local residents, as service customers and taxpayers, expect to be advised and consulted on how you are spending tax dollars. This is especially true with major investments in highly visible capital assets. It is important for you to take the time to engage and educate members of the community on what asset management involves, why it is important and the implications if your local government fails to proactively manage publicly-owned assets. This communication provides an opportunity for your local government to ask the community about their service level expectations and their willingness to pay the costs of meeting those expectations. The public can more easily understand decisions relating to affordability when you engage them in developing your plans. And don't forget to use the many modes of social media to connect with them.

MAKING IT HAPPEN: THE MECHANICS OF ASSET MANAGEMENT

8 (cont'd)

Failure to adequately consider levels of service

The targeted level of service for a given asset should drive investment decisions: to rehabilitate, replace, decommission, or do nothing. Levels of service should link to your local government's strategic goals, statutory or compliance requirements and community expectations. It's important to examine trends affecting levels of service such as demographics, rates of utilization and population growth. Levels of service should have key performance indicators attached to them in order to measure results. By focusing on levels of service, your local government will be taking a service-based approach to asset management. By reviewing a "full-blown" set of asset management plans, you will see what levels of service look like and what elements you may want to prioritize.

Trying to do too much too soon

Asset management can be as simple or as complex as your local government chooses. It's an evolutionary process that takes years to progress to an advanced state. It's wise to take it one step at a time, i.e. start small and continually build from there.

Failure to focus on highest risk assets first

Smaller local governments with limited capacity should start with small steps targeted at the areas of greatest risk. A good place to start is by focusing on gathering baseline information on critical, core assets, assessing the risks of their failure and then undertaking condition assessments of those key assets.

Operating in silos rather than sharing

Asset management is a highly integrated activity requiring staff from across the local government to interact and share knowledge and data. It requires a shift to a new business model based on sustainable service delivery. To succeed, your chief administrative officer must champion asset management, select the right group of staff from finance, planning, operations, information technology and engineering, give them the proper authority and make them accountable for action.

MAKING IT HAPPEN: THE MECHANICS OF ASSET MANAGEMENT

8 (cont'd)

Failure to properly identify and assess risks

Asset management is risk management and it requires assessing asset risk ahead of asset condition. The level of risk is the likelihood of failure combined with the consequences of failure, including service, technical, financial, environmental, social and legal consequences. Risk analysis allows you to target critical assets, take appropriate next steps and focus your resources on the highest risk areas. This can help avoid unnecessary costs and ensure the greatest possible return on your investments in capital assets.

Focusing too much on age rather than condition

Analysis based on asset age tends to inflate the need for rehabilitation or replacement earlier than necessary. For example, underground infrastructure is typically considered to have an 80 year useful life. However, these assets often last up to 100 years. By carrying out condition assessments, your local government may be able to avoid unnecessary expenditures. Condition data can also inform preventative maintenance activities.

Lack of a long term financial plan

One of the key principles of asset management is the link between asset management and the long term financial plan. In best practice terms, this means a minimum ten-year planning timeframe. Your long term financial plan should consider both the costs of depreciating assets at replacement value and revenue sources to match those costs, as well as key assumptions. It should compare short and long term asset renewal needs to revenues and include multiple financing options based on a range of service levels. To develop such a plan, your local government will need to know your costs, formulate a range of potential revenue strategies and plan for any expected revenue shortfalls. Taking such an approach will help your local government achieve service and asset financial sustainability over the long term. For smaller local governments there will be fewer assets to track and the financial plan will correspondingly be simpler. Again focus on the critical core assets.

MAKING IT HAPPEN: THE MECHANICS OF ASSET MANAGEMENT

8 (cont'd)

Over-dependence on outsourcing asset management

Outsourcing asset management activities may sometimes seem the only feasible approach for many smaller local governments, given capacity and resourcing limitations. However, depending on outside expertise should be a short term strategy only to get your asset management program going. Your local government's staff possess valuable knowledge about your assets and their condition, performance, risks and service levels. Developing internal capacity and corporate memory associated with asset management is important for local governments of all sizes.

Failure to track progress and measure results

It's important for your local government to set performance targets relating to the performance and "health" (capability or condition) of your assets and then measure outcomes. It's equally important to track the progress of your overall asset management system, including policy development, determining levels of service, information collection, condition assessment, financial management and team capability. Monitoring asset performance on an ongoing basis and reporting regularly should be part of your local government's asset management strategy, as it ensures accountability and supports continuous improvement.

Questions & Answers for Local Government Staff

GETTING STARTED: THE MAIN STEPS

9 What are the main steps in developing an asset management plan?

Asset management starts with raising awareness and understanding among people across the local government, making asset management a priority and then taking action. Key actions include the following:

- **Asset Information** – Know what you’ve got, where it’s located, its condition and its replacement costs. Start with your critical assets.
- **Future Demand** – Understand what could happen, when it may happen and how you can manage it.
- **Levels of Service** – Determine where you’re going and what you need. Identify any surplus or under-performing assets.
- **Option Analysis and Lifecycle Costing** – Assess your options and know their costs.
- **Option Selection** – Make decisions based on good information and financial sustainability.
- **Asset Management Practices & Systems** – Use planning tools.
- **Improvement Plan** – Show your commitment for the future.

Evaluate your internal capacity for doing this work, taking into consideration staffing, knowledge and skills, and roles and responsibilities. Identify staff who will be involved in asset management and equip them with training, direction and advice to effectively undertake these actions.

Integrate asset management culture and practices with your existing systems and processes, such as connecting finance activities with engineering and risk management activities.

Try using Asset Management BC’s AssetSMART self-assessment tool: select an asset, gauge your knowledge of that asset and your capacity to use that knowledge to make financial decisions, identify your desired capacity and then set a goal and develop an action plan to achieve it.

Remember to start with small steps – this is not an overnight exercise, it’s a multi-year proposition!

GETTING STARTED: THE MAIN STEPS

10 How do we know whether we have the internal capacity to develop our own asset management plans?

To be effective, your asset management approach must be integrated across the organization. This means asset management will involve various staff members. A key component to capacity building is learning to speak the same language – in particular, finance, engineering and operations staff need to understand each other's language, recognize that each party brings valuable information to the table and be willing to share that information.

As part of developing your strategy, you will need to identify roles and responsibilities for particular tasks, from planning and risk analysis through financial and technical to communication skills. Then assign these roles to specific individuals. There will need to be one person who has overall responsibility for asset management in terms of coordinating the integrated effort and reporting to council/board.

It can help to identify a “champion” within your local government, charged with leading staff across departments through the development and implementation of asset management activities. The implementation of an asset management strategy is likely to require some strong change management competencies to enhance the likelihood of success.

If your local government faces significant capacity challenges, there may be opportunities to partner with another local government. Otherwise, outsourcing may be the only viable option, using contracted resources to help your local government build an asset inventory and set up your asset management plan.

When you do draw on outside resources, it is critical that people within the organization develop the capacity to continue to maintain the inventory, policies and other aspects of asset management activities, including periodic reporting to your council/board.

11 Is federal Gas Tax funding available to help us with asset management?

The short answer is yes! The ten-year Federal Gas Tax Fund Agreement that took effect on April 1, 2014 provides for funding for local governments to improve local and regional infrastructure planning, including among other things, developing and implementing asset management plans.

In British Columbia, the Union of British Columbia Municipalities (UBCM) is a signatory to the agreement and information on gas tax funding is available on the UBCM website.

GETTING STARTED: THE MAIN STEPS

12 How do we make sure our policy is appropriate for the size of our local government?

Your asset management policy should be scaled to the size and nature (range and complexity) of your asset base, including the prevalence of critical or core assets. The focal point should be how asset management will benefit the organization, how it works and how it justifies asset management activities.

Take a staged approach, assessing how much information and details you'll need to support your objectives, resources and priorities. Management decisions will vary in complexity: there will be critical and non-critical decisions requiring differing degrees of analysis.

Overall, it's better to start at a simpler, higher level and break it down into more detail at a later point as needed.

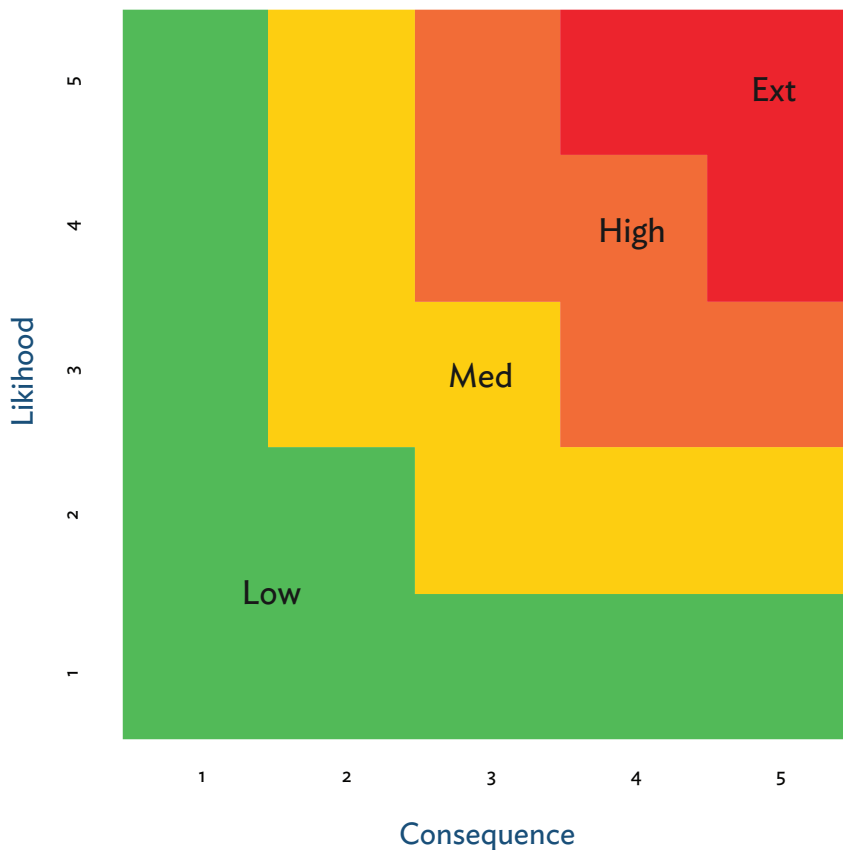
INTEGRATING THE KEY ELEMENTS: BUILDING YOUR POLICY, STRATEGY, PLAN & PROGRAM

13 How does risk factor into asset management?

By paying close attention to risk, your local government can make sure you devote available resources to the right assets at the right time.

Risk Rating Matrix

Score: 0-5 = Low / 6-10 = Medium / 12-16 = High / 20-25 = Extreme



A risk-based approach helps you prioritize your resources, optimize your budget, avoid unnecessary costs and achieve a higher return on your local government's investments in capital assets. By identifying and assessing the level of risk associated with each potential asset failure, you can target scarce resources to ensure vital services remain available and critical assets are appropriately inspected, monitored and covered by preventative maintenance.

Risk analysis is about determining the likelihood and consequence of asset failure, each rated for criticality from low to extreme. Consequences are typically classified as economic, operational, social and environmental and public health and safety. The risk rating diagram can give a good idea of the methodology used by many public sector organizations. As risk likelihood and consequence increase, the rating moves from low to extreme.

It's best to carry out risk modeling before assessing asset condition. In fact, risk assessment should direct how and when you assess condition. Assets with an extreme criticality rating should receive detailed condition assessment, engineering reviews and field monitoring.

INTEGRATING THE KEY ELEMENTS: BUILDING YOUR POLICY, STRATEGY, PLAN & PROGRAM

14 What is an asset lifecycle?

Every capital asset has a defined lifespan. Typically, the builder or manufacturer of an asset sets out an expected service life based on a routine inspection and maintenance schedule. In practice, an asset's lifespan depends to a great extent on how the organization manages the asset and the environmental conditions it's exposed to.

For example, a local government may choose to minimize maintenance spending on an asset such as a vehicle, thus reducing its expected lifespan. The same local government may choose to rigorously maintain a swimming pool so as to avoid premature failure and the associated costs.

Environmental conditions can have a similar impact. For example, acidic soil can decrease the lifespan of underground infrastructure.

Full lifecycle costing considers the entire cost of the asset, including all planning, design, construction, acquisition, operation, maintenance, rehabilitation and disposal costs.

In asset management, it's important to always reflect the full lifecycle costs of each asset. This will lead to better-informed and more rational decision making.

If a local government only takes into account up-front acquisition costs of a capital asset, it may make inappropriate asset decisions, particularly where various options have significantly different downstream maintenance costs.

A simple gauge or standard for lifecycle costing developed by the Public Sector Digest is as follows:

- 0-25% through the asset's lifespan – minor maintenance
- 25-50% through the asset's lifespan – major maintenance
- 50-75% through the asset's lifespan – rehabilitation
- 75-100% through the asset's lifespan – replacement

These figures demonstrate the typical maintenance requirements associated with the percentage of life used through an assets lifespan; the older the asset, the greater the costs to keep it operating until the decision is reached to replace.

INTEGRATING THE KEY ELEMENTS: BUILDING YOUR POLICY, STRATEGY, PLAN & PROGRAM

15 How do we know which of our capital assets are core assets and which are critical assets?

Core assets are typically defined as those assets used in the delivery of statutory services: transportation, water, liquid waste, solid waste and protective services.

Critical assets are those with a relatively high risk of failure and major consequences when they do fail. These tend to be assets that have a particularly large influence on the health and safety of local residents and their failure may have significant financial or public health and safety impacts.

The identification and prioritization of critical assets is an important element of your local government's risk management activities.

The supply of safe drinking water through a water purification and distribution system is an example of a critical asset.

16 What information should we include in an asset management plan?

Your local government should work toward creating an asset management plan for each significant asset or asset group. Each plan should define the activities required to effectively manage that asset, including maintenance, refurbishment and ultimate replacement.

An asset management plan should include:

- A clear link to your local government's strategic plan.
- Up-to-date information on the asset or asset group, including an inventory, replacement value and physical condition of the asset.
- The desired level of service of the asset.
- Strategies intended to maximize the life of the asset and minimize renewal costs.
- A financial strategy comparing short term and long term renewal needs to available revenues.

The more significant and complex the asset, the more detailed the plan needs to be in order to achieve the desired level of service over the long term at the lowest possible cost to taxpayers. Smaller local government would focus on their critical core assets.

INTEGRATING THE KEY ELEMENTS: BUILDING YOUR POLICY, STRATEGY, PLAN & PROGRAM

17 What is an asset register and why do we need one?

An asset register – also known as a comprehensive asset inventory – is a recording system such as a spreadsheet or other software program that facilitates the storage of data relating to an asset or asset group.

Local governments should develop and maintain an asset register, including an assessment of the physical condition, functionality, utilization (capacity) and criticality of each asset. This information should be assembled and updated on an ongoing basis, usually annually.

Information in the register serves as the foundation for the local government's asset management activities and asset planning and decision making. The register helps inform scheduled maintenance as well as emergency response and public safety actions to be taken in the event of a failure.

Information generally included in an asset register tends to be on assets such as land, buildings, building mechanical systems and equipment, tracking items such as:

- ownership status (owned or leased)
- location and zoning
- structural types
- size (such as land area if applicable, square footage, vehicle capacity)
- age and history (past rehabilitation, repairs, maintenance activity, additions, renovations)
- value
- current use
- estimated service life
- significant issues such as environmental liabilities.

Where a local government is small it may be able to initially use an Excel spreadsheet as opposed to a full blown asset tracking system.

INTEGRATING THE KEY ELEMENTS: BUILDING YOUR POLICY, STRATEGY, PLAN & PROGRAM

18 Are there regulatory requirements we need to comply with?

Aside from the policies that your local government may adopt covering asset management activities, there are also some external requirements.

For example, the Public Service Accounting Board adopted a new accounting standard in 2009, called PS 3150. It requires local governments to amortize their tangible capital assets over their expected useful life. Amortization is the spreading out of the costs of an asset over time consistent with the service life of that asset.

In order to fully implement PS 3150, local governments have had to undergo a total revaluation of their tangible capital assets over recent years, as well as their estimated service lives. This has given local governments a better understanding of the condition of their tangible capital assets. The standard also enables local governments to estimate deferred maintenance and asset renewal costs that have accumulated over time, known as “the infrastructure gap.”

In addition to accounting requirements, local governments also need to meet other legal or regulatory requirements governing existing infrastructure such as elevators, swimming pools, roads and bridges. An example is provincial regulations governing mandatory maintenance of elevating devices.

Industry may also have specific policies that affect local government assets, so need to be accounted for.

Your local government’s asset management policy should include a section covering regulatory and compliance requirements and how the local government will adhere to them.

19 How do we know how well our assets are performing?

Your local government can assess asset performance based on how the asset is meeting parameters you have defined, for example, is the asset meeting user requirements? Are safety requirements met? Is demand outstripping capacity?

Assessing an asset’s performance is closely linked to levels of service you have identified for the asset as well as indicators of community priorities and, in some cases, legal requirements. Your assessment can include considerations such as safety, quality, quantity, capacity, reliability, availability and cost.

As part of an integrated approach to asset management, you will establish target levels of service for your assets and will measure their performance over time as they age and their condition changes.

Defined levels of service help you plan and make investment decisions. For example, as an asset nears its capacity, you will want to plan how to maintain/ add capacity by investing in a new asset or upgrading the existing asset.

INTEGRATING THE KEY ELEMENTS: BUILDING YOUR POLICY, STRATEGY, PLAN & PROGRAM

20 How do we track the age and condition of our assets?

Age and condition are typically identified through your monitoring activities.

Asset condition is linked to asset performance using considerations such as criticality, functionality and utilisation and is used to determine whether the asset needs to be repaired or replaced. It also depends on any deficiencies identified through inspection.

Asset condition assessment is an essential part of managing your assets. You measure the physical state of an asset is measured by inspection or testing and documenting results using a grade or value. For example: very good, minor defects, maintenance required, renewal required, unserviceable.

The Facility Condition Index (FCI) is an industry benchmark tool for building assets that's used to analyze costs of maintenance versus replacement based on current condition. The FCI is the ratio of deferred maintenance dollars to replacement dollars: the higher the ratio, the higher the need for replacement. An FCI of 0.1 means a deficiency of 10 per cent and is considered low, while an FCI of 0.7 is considered high, meaning a facility is in need of significant repair or replacement. For example, an older building in need of major renovations would receive high FCI ratio while a newer building subject to scheduled maintenance would have a very low ratio.

Similar indexes and ratings exist for pavement condition, sidewalks and gutters, pipelines and water and sewer infrastructure.

Assessing asset condition generally requires some planning and may require the involvement of a team. For example, when a water main breaks and requires repair, public works can deliver the cut out section of the main to engineering to enable a condition assessment, which can then be used to inform decisions and action.

Age and condition information also informs maintenance activities that can maximize the life of an asset.

It's important to keep in mind that asset condition is a more meaningful indicator of remaining useful life than is the age of the asset. You should never make asset replacement decisions solely on the basis of age.

Overall, this key information informs your local government's investment decisions on maintaining, upgrading or replacing your assets.

INTEGRATING THE KEY ELEMENTS: BUILDING YOUR POLICY, STRATEGY, PLAN & PROGRAM

21 How do we determine the current value and the replacement value of our assets?

The current value of an asset can be determined by reviewing information on its historical cost, age and condition as well as its performance history. Basing the valuation mainly on current condition and performance can be more meaningful than considering historical cost and age alone.

Your local government's asset register provides for the valuation of each asset. At a minimum, this information must meet the accounting requirements of the Public Sector Accounting Board (PSAB).

Local governments' long term financial plans should consider the replacement value of all core assets.

As for replacement value, all assets need to be replaced at some point, so it is important for you to financially plan for this eventuality. The best determinant of replacement value is current replacement cost plus a provision for inflation. Replacement value should include all associated planning, engineering, general contractor and other administrative costs. Current replacement costs can be identified using recent contracts, labour rates and supplier pricing lists.

OVER THE LONG HAUL: MAINTAINING ASSET MANAGEMENT OVER TIME

22 How do we determine whether we need an asset reserve fund?

Your local government should consider establishing an asset reserve fund as part of your overall financial plan. Such a fund can play a valuable role in ensuring sufficient and dedicated funding is available for asset rehabilitation or replacement as well as for new major capital assets identified in your local government's long term plans.

Having sufficient funding available to address asset needs on an ongoing basis is key to maximizing existing assets and minimizing risks associated with poorly performing capital assets.

It is desirable to establish a target funding level for your asset reserve fund. This is typically based on predictability or certainty of the remaining asset life, regulatory requirements, economic considerations such as inflation and interest rate trends and projected annual utilization of the fund.

Ongoing, steady state replacement of major assets is considered to be a best practice. If this is followed over the long term, it requires reserve levels that are reasonable and focused on risk and emergency response appropriate to each asset group.

For this reason, asset management plans supporting your local government's long term financial plan should be the key determinant of the target level for your asset reserve fund, augmented by the overall corporate and strategic use of debt financing.

In addition to establishing and maintaining a sufficiently-funded asset reserve, your local government should consider developing a long term 10-plus year) infrastructure investment plan to promote financial stability and flexibility.

OVER THE LONG HAUL: MAINTAINING ASSET MANAGEMENT OVER TIME

23 Who maintains our asset management plan and how often does it need to be updated?

Because asset management requires an integrated approach across the local government, it's important for people in virtually every department to share responsibility for the plan and participate in maintaining it. There does need to be one person who co-ordinates the process and takes overall accountability for reporting to the council/board.

This likely includes staff responsible for planning, engineering, finance, procurement, operations and maintenance. The key is to identify the individuals who should be involved and ensure they have organizational support, training and tools that they need.

These people also need to work together to prepare the information your council/board needs to make effective asset management decisions. For example staff might prepare a business case comparing potential different investments in assets aimed at addressing a particular service need.

This team should review your asset management plan at least annually and update it as required based on changes to asset condition, performance and service levels.

If a major asset fails between updates of the plan, then you may need to make an immediate update. At a minimum, asset plans should be updated at least once every four years.

24 How does asset management feed into the capital project planning and procurement process?

Sound asset management practices produce the data and information your local government can use to inform capital project plans and business cases, which then drive project selection and prioritization.

Project plans and business cases for all capital projects should link to your broader organizational objectives and levels of service as well as your asset management strategy.

The need for a particular capital project will often be based on the results of asset condition monitoring, information about current or projected future demand for the service the asset supports and the functionality of the asset.

Each capital project plan should outline associated risks and benefits, full lifecycle costing, a funding strategy, performance measures linked to levels of service and a procurement strategy.

For more information on capital project planning and procurement, you may find it useful to review the 2014 AGLG Perspectives booklet: Oversight of Capital Project Planning & Procurement: Key Considerations for Local Government Council and Board Members.

RESOURCES AND TOOLS

Asset management is a complex and evolving discipline. We encourage local governments to explore the numerous resources that are available. The following list includes just a few of the resources available to local governments.

- Resources** **Asset Management British Columbia (AMBC)** has developed a B.C. approach to asset management, described in “Asset Management for Sustainable Service Delivery – A BC Framework.”
- Asset Smart Self-Assessment Tool**, also developed by AMBC, is a maturity framework for local governments to assess their capacity across five key elements of asset management.
- Capital Asset Management Framework (CAMF)** was developed by the Government of B.C. and is available on the government website.
- Public Sector Accounting Board PS3150 Standard** was issued by PSAB on accounting for and reporting local government tangible assets. PSAB is an independent board with the authority to set accounting standards for the public sector.
- The Institute of Asset Management (IAM)** is a United Kingdom organization mandated to advance asset management practices.
- The International Infrastructure Management Manual (IIMM)** is published by the Institute of Public Works Engineering Australia (IPWEA) and the New Zealand Asset Management Support (NAMS) Group (NZ).
- Publicly Available Specification 55 (PAS 55)** was published jointly by the Institute of Asset Management and British Standards Institution (BSI) in 2002-04. It was used as the basis for the ISO 55000 and has been widely adopted worldwide as a tool for improving physical asset management performance.
- ISO 55000, 55001 and 55002** were developed by the International Standards Organization (ISO) in 2014. They provide requirements, applications and guidelines for implementing asset management practices
- Public Sector Digest (PSD)** is a publishing, research and analysis group based in London, Ontario, with an Infrastructure and Asset Management Group mandated to advance asset management practices.
- Canadian Network of Asset Managers (CNAM)** is the association of public infrastructure asset management in Canada, which develops policy tools and technologies intended to improve the levels of service of public infrastructure assets.

RESOURCES AND TOOLS

National Asset Management Strategy, NAMS.PLUS is an asset management planning system and related practice notes produced by the Institute of Public Works Australia.

National Guide to Sustainable Infrastructure Management was developed jointly by the National Research Council and the Federation of Canadian Municipalities.

The Union of BC Municipalities (UBCM) represents and serves all local governments in B.C. The UBCM is one of three signatories to the Renewed Federal Gas Tax Fund Agreement and offers a range of programs and services through its Gas Tax Management Services.

Government Finance Officers Association of BC (GFOABC) represents local government finance officers in B.C. and provides resources to its members, including information and guidance on advancing asset management practices within local governments.

Ontario Municipal Knowledge Network has published tools to assist local governments with asset management planning.

Alberta Urban Municipalities Association (AUMA) has published tools to assist local governments with asset management planning.

Australian Asset Management Collaborative Group (AAMCoG) has published a series of asset management best practices.

Global Information System (GIS) technology can aid in developing asset registries, including location and condition of critical assets.

Facility Condition Index (FCI), a tool developed by industry associations to assess the condition of an asset. The FCI is the ratio of deferred maintenance dollars to replacement dollars.

CAPITAL ASSET MANAGEMENT TERMS

Terms **Capital Asset Lifecycle**

The life of a capital asset, from the point when a need for it is first established, through its design, construction, acquisition, operation and any maintenance or renewal, to its disposal.

Capital Asset Management

An integrated approach involving planning, finance, engineering and operations to effectively manage existing and new capital assets to maximize benefits, reduce risks and provide satisfactory levels of service to community users in a socially, environmentally, and economically sustainable manner.

Capital Asset Register/Inventory

A spreadsheet, database or software system that stores capital asset data. The inventory is an itemized record of assets owned.

Capital Asset Reserve Fund

An account, or several accounts, that set aside financial resources to meet infrastructure requirements as articulated in an organization's long term financial plan.

Core Capital Assets

Core assets are those assets used in the delivery of statutory services, which include transportation, water, liquid waste, solid waste and protective services.

Critical Capital Assets

Those assets that have a higher consequence of failure and can potentially have a more significant impact on meeting the organization's objectives.

Current Value

The current value of a capital asset, taking into account its current condition and depreciated value.

Deferred Maintenance

The practice of postponing maintenance activities on infrastructure as a cost saving measure.

Facility Condition Index (FCI)

The ratio of deferred maintenance dollars to replacement dollars. The higher the ratio, the greater the need for extensive repairs or replacement.

Facility Condition Assessment

A process conducted to provide information about current building deficiencies. It is used to identify action needed and estimated costs associated with bringing a facility up to required standards.

CAPITAL ASSET MANAGEMENT TERMS

Full Lifecycle Costs

Information including the estimated total capital cost, the estimated annual cash-flow and accrual portion of total capital cost, multiple-year operating cost implications, including costs in areas such as maintenance and repair, staffing, operations, accommodation, debt service, amortization and lease expenses and an indication of whether the organization is able to support the expenditure in future years' operating budgets.

Levels of Service

Customer levels of service focus on outputs the community receives from a particular capital asset or a local government overall. Technical levels of service focus on sustaining infrastructure at the lowest lifecycle cost over each asset's useful life and regulatory requirements.

Local Government

Includes all municipalities and Regional Districts in British Columbia.

Maintenance

All actions necessary to sustain the service level of a particular asset, excluding rehabilitation or renewal.

PS 3150

A standard issued by the Public Sector Accounting Board related to accounting for and reporting of a local government's tangible capital assets.

Performance Measures

Specific indicators used to demonstrate how the local government is doing in relation to delivering target customer and technical levels of service. They are used to track progress toward asset and financial sustainability. Sometimes referred to as key performance indicators (KPIs).

Replacement Value

The current replacement cost of an existing asset based on market research and adjusted for inflation.

Steady State Investment

Steady state investment is the amount required to ensure physical assets to continue to operate as they currently exist. It includes maintenance and like for like renewals. It does not include upgrade of the asset for the purpose of delivering significantly higher levels of performance.

Useful Life

Either the period over which a tangible capital asset is expected to be used or the volume of goods and/or services the asset is expected to produce or support. Useful life is used in the calculation of depreciation. For example, in straight-line depreciation, an asset depreciates over its useful life.

AGLG CONTACT INFORMATION

The AGLG welcomes your feedback and comments.
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