



# Building Community Resilience Through Asset Management

A HANDBOOK & TOOLKIT  
FOR ALBERTA MUNICIPALITIES

# ! PREAMBLE

The infrastructure in our communities is the legacy of a multi-generational investment, made by local, provincial, and federal governments. Most of this infrastructure has not yet been through a full life-cycle, so collectively, we haven't had much experience with planning and funding the rehabilitation or replacement of it.

Increasingly, we are recognizing the value of the investment that has been made in our community infrastructure, and the risks we face by not managing for the long term. Attention is turning toward asset management as a process for making informed decisions to achieve the goal of delivering sustainable services, managing risks, and getting value for money.

There is a wealth of existing documents on asset management best practices, from within Canada and abroad, but small and mid-sized communities often struggle with knowing how to apply these best practices. They often report feeling as though these resources don't fit their context and that they don't have the staff resources to support implementation.

In spring 2015, Consulting Engineers of Alberta initiated a process of developing this handbook and toolkit, to support Alberta's small and mid-sized communities in implementing asset management. Alberta Municipal Affairs provided funding support, and Urban Systems Ltd. provided consulting support.

The development of this handbook and toolkit began with province-wide consultation through a written questionnaire and workshop, to clearly understand the context, challenges, and opportunities of the target audience. What we found during this engagement was:

- » **ASSET MANAGEMENT PLANS** Most small and mid-sized communities don't have asset management plans. Those that do have plans aren't using them to influence decisions like capital planning or budgeting, and still reported to lack confidence in understanding long term asset replacement needs.
- » **INFORMATION AND DECISION MAKING** Municipalities with more staff employed typically reported having a better developed asset inventory, but more difficulty in accessing information for decision making than municipalities with fewer staff members.
- » **UNDERSTANDING LEVEL OF SERVICE** Municipalities generally don't have a clear understanding of the concept of levels of service, or a consistent understanding of level of service they're aiming to provide throughout the organization.
- » **UNDERSTANDING RISK** Municipalities of all types and sizes lack a clear and consistent understanding of what their risks are.
- » **CAPITAL PLAN PRIORITIZATION AND IMPLEMENTATION** Grant availability influences capital priorities in all types of municipalities, with the greatest influence on villages.
- » **FUNDING** Villages and Towns are the most reliant on senior government grants. The majority of respondents from all types of municipalities do not recover the full cost of service from their utility fees. The majority of respondents have operational and capital reserves, but they are generally not sufficient to fund long term replacement.
- » **ASSET MANAGEMENT KNOWLEDGE** Smaller communities were less likely to have accessed asset management training, worked with a consultant, or know about existing asset management resources.

We also asked people about how the handbook and toolkit should be developed in order to be most helpful. We heard:

- » The process of implementing asset management can't be too onerous, and the description can't be too complicated.
- » There is desire for step by step guidance, but not prescriptive directions.
- » Materials need to be written in plain language and accessible to all levels of the organization.
- » The handbook needs to help build awareness of asset management with elected officials.
- » Tools should be editable and scalable.
- » The Alberta context is unique and important, and needs to be reflected.

Two demonstration projects with the Town of Elk Point and the Village of Boyle further informed the development of this handbook and toolkit. These municipalities are considered representative of the target audience of the handbook and toolkit. They were supported to develop asset management inventories and foundational components of asset management processes. The circumstances, challenges, and opportunities observed through working with these municipalities were taken into account during the development of this handbook and toolkit.

## ACKNOWLEDGMENTS

Thank you to the many individuals and organizations who provided input and guidance throughout the process.

- » All individuals, municipalities, and organizations who participated in the survey and/or workshop;
- » The Town of Elk Point and Village of Boyle for participating in the demonstration projects;
- » The Alberta Urban Municipalities Association for participating and providing feedback;
- » Alberta Association of Municipal Districts and Counties for participating and providing feedback;
- » Alberta Ministry of Municipal Affairs for funding support;
- » Consulting Engineers of Alberta;
- » Harold Johnsrude for providing project guidance;
- » Christina Parkins, Alberta Municipal Affairs, for project guidance;
- » Graeme Langford for project management and project guidance; and
- » Urban Systems for consulting support.

# USING THIS HANDBOOK AND TOOLKIT

## WHO is it for?

This handbook and toolkit is for staff and elected officials from Alberta's small and mid-sized municipalities.

## WHAT is the purpose?

The purpose of this handbook is to introduce asset management concepts - with a focus on implementation - to small and mid-sized communities.

This handbook will:

- » Provide an overview of the process of asset management, the objectives, and the benefits;
- » Identify the mindsets and key elements of asset management that enable success;
- » Describe information management for asset management and good decision making;
- » Show how staff throughout a municipality contribute to successful asset management; and
- » Suggest ways of implementing asset management through existing municipal processes.

**THE TOOLKIT** is focused on providing 'how to' information. It includes processes, examples, and a set of practical and editable tools and templates that can be used by any organization to get started with asset management using the information and resources they already have.



**Good news! We just found  
some more refundable pop bottles!**



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**Infrastructure tattoos**

# An Introduction To Asset Management





## WHAT IS ASSET MANAGEMENT?

Maybe you want asset management to help you answer questions like:

- » Which assets should we replace first?
- » How much money do we need to put into reserves for asset replacement?
- » How much should we be spending on maintenance?

Asset management can help to answer these questions, but it is also more.

*Asset management* is the **process** of **making decisions** about the use and care of infrastructure to deliver **services** in a way that considers current and future **needs**, manages **risks** and opportunities, and makes the best use of **resources**.

Asset management IS NOT	Asset management IS
A project or a single plan	A process
Tangible capital asset accounting	A forward looking practice
An end itself	A means to an end
About counting assets and doing condition assessments	About making good and informed decisions
About calculating infrastructure deficits that seem too big to do anything about	About taking action to make our communities more sustainable and resilient
Just about replacing assets	About making better decisions about assets and service delivery

“Asset management is a software program, right?”

**NOPE.** Asset management is a set of practices for making good decisions, and it's an ongoing process. Software can be a useful tool, but it's not going to replace the need for people to make decisions.

## WHY PRACTICE ASSET MANAGEMENT?

Simply put, it's the right thing to do. The residents and businesses in our communities trust and expect us to be good stewards of the services and infrastructure that they rely on every day.

How confident are you that everyone in your organization has a clear understanding of what level of service should be provided? Of the main risks to the performance of your infrastructure and services, and what you're going to do about it? Or of the trade-offs between level of service, cost, and risk? How confident do you feel that everyone in your organization would be on the same page with these things?

How confident do you feel that you're leaving the organization in a better position than you found it – more robust, resilient to unexpected changes, and more sustainable?

### Benefits of Asset Management

- » Helps you confidently evaluate and communicate trade-offs between service, cost, and managing risk.
- » Provides you with a defensible way of prioritizing projects and resources.
- » Aligns the organization to focus on the things that matter most.
- » Helps you decide what infrastructure needs to be replaced or renewed, and how many years you can get out of it.
- » Helps you figure out how much you should be saving for future infrastructure renewal.
- » Helps you demonstrate accountability to residents and businesses in the community.



**True - but without infrastructure, many of those societal benefits that we enjoy today would be nonexistent.**

Asset management exists to enable good stewardship of infrastructure and services; to run the business today and prepare for tomorrow in a way that is responsible.



## Building Resilience

A **RESILIENT COMMUNITY** is one that can manage changes, undesired events and financial shocks while continuing to deliver important services without introducing significant impacts to revenues or spending.

What kinds of changes, undesired events, or financial shocks do you need to be prepared for? We can't predict the future, there are some common characteristics of Alberta municipalities that when understood, help us to identify how to build resilience.

What We Know	What This Tells Us About Building Resilience
<p>The roles and responsibilities of local governments in Alberta have evolved significantly over the last 100 years. Never before have local governments been responsible for so many services or owned as many assets as they do now.</p>	<p>Things will continue to change – including local government responsibilities for service delivery and asset ownership. Asset management can help us build resilience by always looking forward to think about what scenarios might unfold, and how we might prepare for these scenarios. Since roles and responsibilities of local governments will continue to change, asset management practices need to be adaptable to change. Rigid processes will not prepare us to be resilient.</p>
<p>Most community infrastructure has not been through a full life-cycle yet, so we need to learn and develop the practices and mindsets of managing it.</p>	<p>We are continuing to learn about how infrastructure will behave throughout its lifecycle, risks to service delivery, and best practices for minimizing lifecycle costs. Asset management practices need to be adaptable to these learnings.</p>
<p>Boom and bust cycles related to global factors have impacted people living in Alberta for as long as they've relied on trade for revenue.</p>	<p>Alberta's economy continues to be susceptible to boom and bust cycles. Boom times and bust times both pose challenges for local government service delivery – and asset management needs to include preparation for both scenarios.</p>

Building resilient communities, with sustainable services, is the ultimate goal of asset management, and should be at the centre of any asset management action, decision, or program.

## ASSET MANAGEMENT MINDSETS

**It's all about the services.** It's not about the pipes, the roads, or the buildings. It's about the services these assets enable. Good decisions begin with the service in mind.

**Asset management is a means to an end.** It is not a project that can be completed; it is a process for making better decisions and building resilience.

**Asset management is a team sport.** Making decisions requires that the right information reaches the right people at the right time. Working across disciplines and departments is required to make this happen.

**Asset management concepts are scalable in complexity.** The key elements and concepts of asset management are relevant to both the smallest and largest of communities. As service responsibilities and infrastructure networks increase, so does the complexity of decisions –and therefore the level of information needed to support making good ones.

**Begin where you are.** Every organization has the ability to incorporate considerations of service, risk, and cost into decisions, with the information you already have.

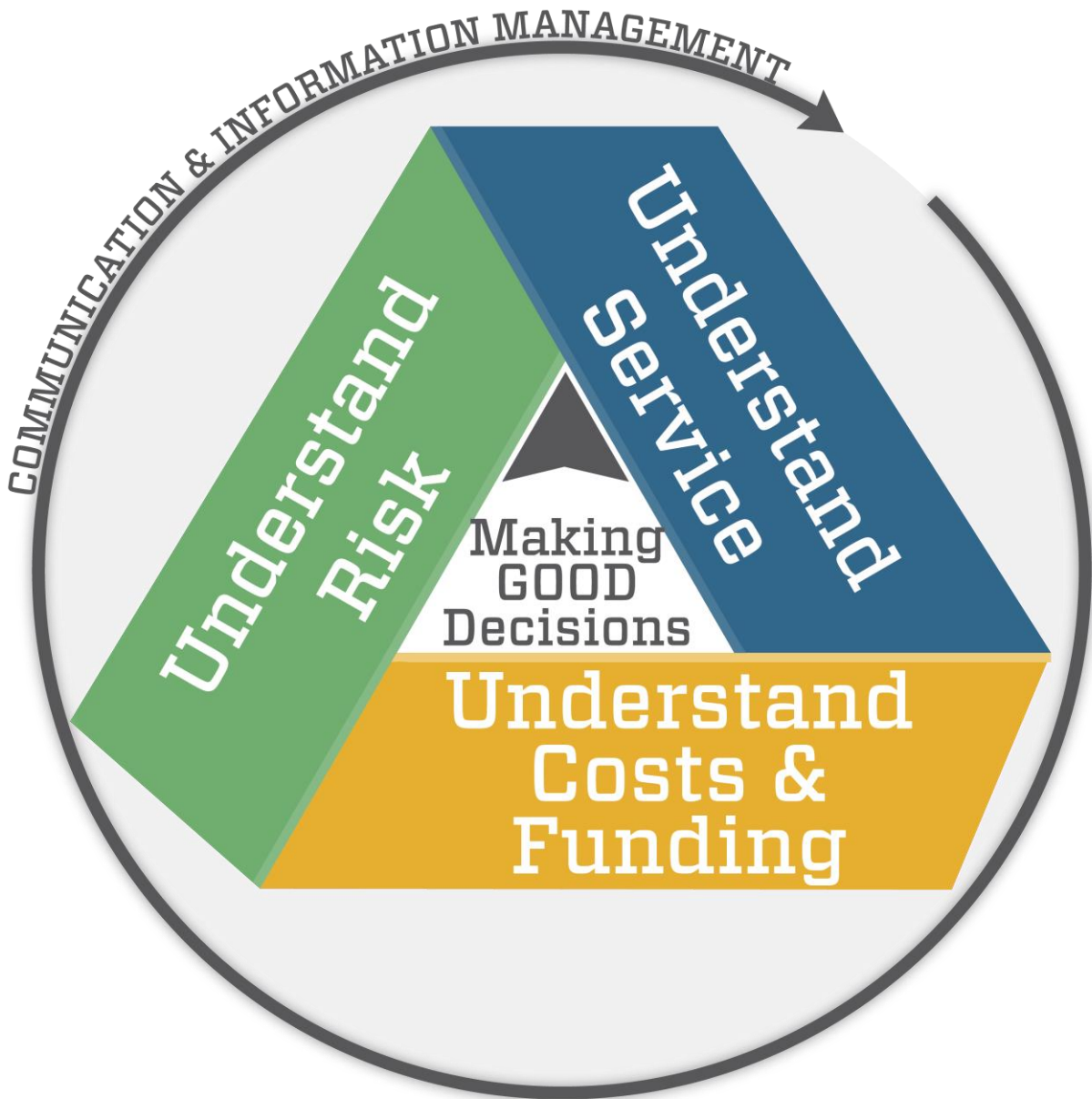
**Strive for continuous improvement.** Information, processes, and systems can be improved over time – in a way that is appropriate to the decisions that need to be made.



# Key Components of Asset Management







There are lots of ways of approaching asset management – but at even the most basic level, asset management is always about informed decisions with an understanding of service, risk, and cost.

The difference between an entry level approach to asset management and a mature, in-depth approach is not what content is considered, but increased data accuracy, levels of analysis, integration, documentation, and formalization of processes.

## UNDERSTANDING SERVICE

*Level of service is a measure of the quality, quantity, and/or reliability of a service from the perspective of residents, businesses, and customers in the community.*

**Infrastructure exists to support service delivery. What level of service does your community value and what are they willing to pay for?**

Understanding service means having a clear and consistent understanding of:

1. The types of services you provide;
2. The groups of residents, businesses, and institutions that you provide them to;
3. The level of service being delivered currently (your performance); and
4. The level of service you're aiming to provide (your target).

### Understanding service through a community lens

Infrastructure is not inherently valuable; it is only as valuable as the service it provides to the community. Rather than jumping straight to pipe breakage rates or pavement quality index, it's important to start with defining the service in terms that residents and businesses would understand – like water service outages, or driving comfort. This helps to ensure the priorities for limited resources are aligned with what the community values.

### Thinking critically about service levels

Sometimes we provide a certain level of service NOT because the community has indicated it is valuable to them, but instead because it's what has always been done. When was the last time you questioned things like:

- » How often the garbage should be picked up?
- » How wide the roads should be?
- » Which roads should be paved and which should be gravel?
- » How often landscapes in parks or public right-of-ways are maintained?



*All I'm saying is: do they really need a traffic light?*



**TOOLS AVAILABLE  
IN THE GETTING  
STARTED TOOLKIT:**

» **SECTION 2.1** How to define levels of service

## Benefits of understanding service

- » Staff can seek efficiencies with clear performance targets established.
- » Members of the community know what to expect and what they are paying for.
- » You need to be clear about what the community is asking for before you can figure out if you can afford it.
- » Staff and council can communicate clearly and consistently with the public about what service levels will be provided and why, and make aligned decisions.
- » Knowing where you're at and where you need to be makes it easy to find gaps and correct them.
- » Projects can be prioritized based on their impact to providing or sustaining service.
- » Actions such as cutting costs, making investments can be evaluated in terms of their impacts on services.
- » The consequence of risks can be evaluated in terms of their impacts on services.



**Even *with* the surplus, they said ‘no’ to your ‘escalator down the manhole’ idea.**

## LESSONS FROM THE TRAVEL AND HOSPITALITY INDUSTRY

If you've ever stayed in a hotel room, eaten at a restaurant, or taken a flight, you're probably familiar with the concept of level of service. As consumers of these services, we understand that a four star hotel will usually cost more than a two star hotel in the same city. We know to expect better service at a fine dining restaurant than at a food court in a shopping mall. And it's no surprise to us that people sitting in the first class seats on the flight get a piping hot meal with champagne, while the rest of the passengers are served water and pretzels.

These clear level of service standards are powerful. They help the customer to make decisions based on what they value ("Would I rather save the money? Or sleep on a bed that feels like a cloud?"). They align the expectations of the people delivering the service and the people receiving the service. And the focus of the business is on making investments that deliver services that the customer cares about.



## UNDERSTANDING RISK

*Risk(s) are events or occurrences that will have undesired impacts on services.*

$$\text{Risk} = \text{Impact} \times \text{Likelihood}$$

### What are the possible events that could impact your ability to deliver service to your community?

Some of these events will have a higher probability or greater impact than others – which make them a bigger risk. Often, with the right planning and actions, the likelihood or impact of these events can be reduced. To understand risk, you need to understand:

1. What your risks are and where they are;
2. The impact and likelihood of these risks;
3. What can be done to control or mitigate them and what resources are required; and
4. Whether they are worth mitigating or if they should be tolerated.

### Two Kinds of Risk in Asset Management

**ASSET RISK** An event where an asset failing to perform as you need it to. Examples of asset risks are a broken water pipe or potholed road surface.

**STRATEGIC RISK** Events or occurrences that impact your ability to achieve objectives. Examples of strategic risks include:

- » Possibility of reduced revenue
- » Dramatic increase in service demands
- » Changing demographics
- » Retiring workforce
- » Loss of critical data or information



Under 'consequence of non-maintenance' you've got: 'KABOOM!'

### Developing a common language

Different people within the same organization will have different perspectives, opinions, and language that they used to understand risk. This can complicate decision making. If you have a systematic approach to identifying and ranking risks, you can develop a common language and better decisions.

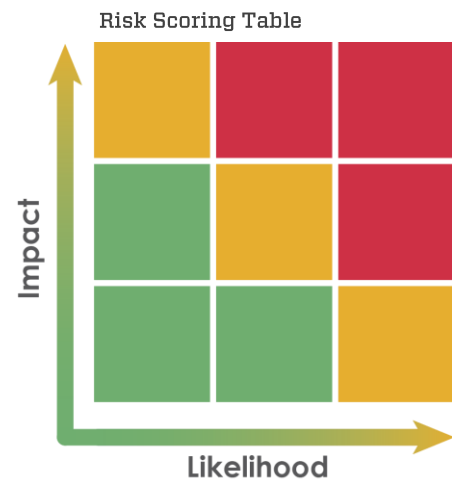
"We need to replace our aging assets"

Knowing how old our assets are can help us to estimate when they might fail. This is important information, but it doesn't show the whole picture of risk because it doesn't tell us anything about *what happens* if the asset fails.

## Scoring and mitigating risks: what impact will your actions have?

Risks are assessed by identifying the impact and the likelihood of the event, and then finding the corresponding level of risk. Doing this for each risk helps you to figure out which are your biggest risks and which risks are not as important to worry about.

There are many ways you can control or mitigate risks: capital projects (e.g. replacement of a water main) or operational approaches (e.g. having a plan to fix the water main very quickly after it breaks, or rely on an alternate water supply). Often, a single project will only reduce the likelihood of the event OR the impact of the event – but not both. You may need more than one approach to managing bigger risks.



### Risk tolerance

Risks cannot be entirely eliminated, and sometimes mitigating risks can be expensive. As an organization, you may decide that some risks are not worth doing anything about – they should just be tolerated. Tolerating risks is perfectly acceptable, as long as it is an informed decision to tolerate risk.

### Benefits of understanding risk

- » Develops a consistent language across the organization to describe possible events, their impact, their likelihood, and what should be done about them (if anything).
- » Helps you to identify top priorities, and check if you're spending your resources in the areas that are your biggest risk.
- » Helps you allocate limited financial and human resources.
- » Helps people agree on what level of risk is acceptable, what kinds of risks need to be managed, and what should be invested to manage these risks.
- » Contributes to building resilience of your community.



Paint the line a little lower ... it cost us a fortune in snow removal last year!



**TOOLS AVAILABLE IN THE GETTING STARTED TOOLKIT:**

- » **SECTION 3.1** How to manage risks
- » **SECTION 3.2** How to identify and assess asset risks
- » **SECTION 3.3** How to identify and assess strategic risks

## UNDERSTANDING COSTS AND FUNDING

**Cost:** *in asset management, the financial and human resources required throughout the lifecycle of the asset.*

### How well do you understand what drives your costs? Are you getting value for money?

To understand cost, you need to understand:

1. Replacement costs of current assets;
2. Capital costs of new assets;
3. The timing of capital costs;
4. Expected operating and maintenance costs for current and new assets;
5. Actual operating and maintenance costs for current assets;
6. Past and projected trends in operating and maintenance costs over time; and
7. Revenue sources for funding future capital and operational costs.

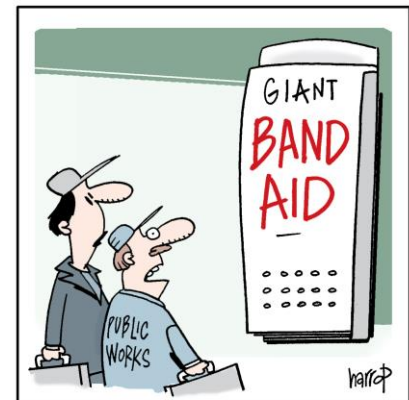
You need perspectives from finance, engineering, planning, and public works to properly understand risk. The purpose of understanding costs and funding is to help you identify if you're getting value for money, understand what level of service you can afford to provide, and what level of risk you should tolerate (see next section on understanding trade-offs).

### Minimizing lifecycle costs and maximizing value for money

The lifecycle cost of an asset is the total of capital, operations, and maintenance costs over the full lifecycle of the asset. As a steward of infrastructure, services, and tax-payer dollars, you aim to make decisions that minimize lifecycle costs and maximize value for money.

Total operations and maintenance costs over the life of an asset can often be much more than the up-front capital cost of the asset, but there are ways of minimizing total lifecycle costs. Effective ways of minimizing lifecycle costs of existing assets are:

- » Tracking operations and maintenance costs against each asset, so that you can make a decision to replace an asset when it becomes too expensive to repair or maintain.
- » Conduct regular maintenance to extend the life of the asset.
- » Investigate options for optimizations, retro-fits or upgrades that reduce energy requirements.



**We've got to budget more money for pipe repair!**

**TOOLS AVAILABLE  
IN THE GETTING  
STARTED TOOLKIT:**

- » **SECTION 4.1** How to understand costs and funding
- » **SECTION 4.2** How to develop an asset replacement plan





Lifecycle costs should be considered before an asset is even designed. Ways of minimizing lifecycle costs of new assets are:

- » Choosing energy efficient designs and equipment.
- » Selecting materials/designs based on total lifecycle cost, rather than up front capital cost.
- » Designing new developments to maximize efficient use of infrastructure such as roadways, storm and sanitary sewer, and water systems.

### **How accurate do your cost estimates need to be?**

Generally speaking, the closer you are to spending the money, the more accurate you need to be with your cost estimates. For the purposes of understanding potential costs of replacing assets over the long term, or identifying potential financial risks, it is impossible to be completely accurate and an educated estimate is good enough. For capital projects to be undertaken within the next few years, you should work to have a more accurate cost estimate of both the up-front capital costs, and the costs of ongoing operations and maintenance.

## ***Historic Cost vs. Replacement Cost***

*Accounting practices use the historic cost of assets, or the actual cost of acquiring the asset. Asset management practices use replacement cost, or the total cost of replacing the asset in today's dollars.*

### **Sources of funding**

Knowing costs is only half of the equation – you need to understand how you will pay for these costs. Some sources of funding are more reliable than others, and it is important to consider that in planning. You should have an understanding of expected revenue from:

- » Property taxes
- » Debt
- » User fees and charges
- » Grants
- » Development charges
- » Other

### **Benefits of understanding costs and funding**

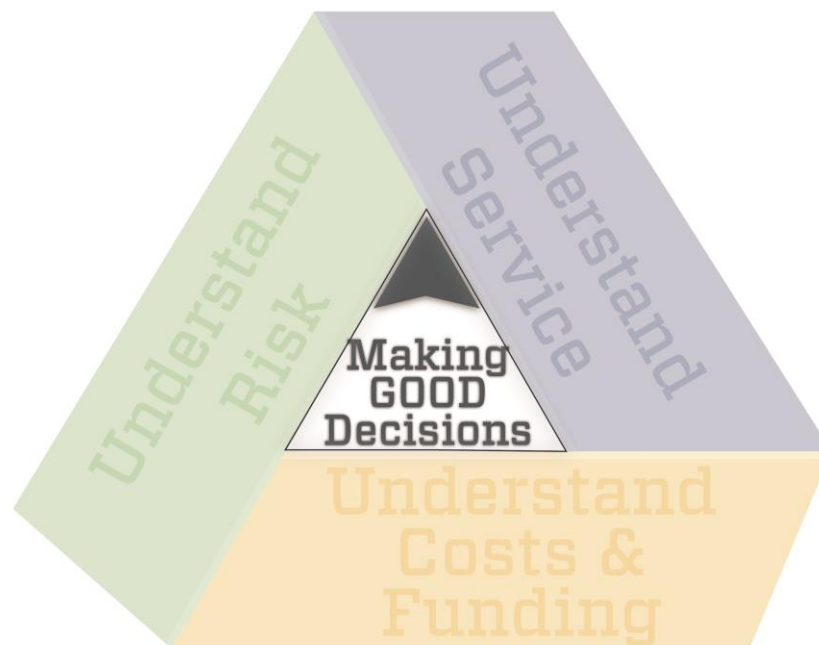
- » Understanding cost is fundamental to making good decisions about what level of service can be afforded and what level of risk should be tolerated.
- » Well understood costs can be clearly communicated with the community, so that people understand what they're paying for and what value they're getting.
- » Helps you make decisions about rate increases or decreases.
- » Costs need to be understood before they can be effectively minimized without increasing risk to services.
- » Helps you to figure out how much should be contributed to reserves and how reserves should be managed.
- » Informs decisions about use of debt and debt management.

## EVALUATING TRADE-OFFS AND MAKING GOOD DECISIONS

Service, risk, and cost cannot be fully understood in isolation – the three need to be brought together to understand connections and trade-offs.

What makes a decision a good one? Good decisions are informed with an understanding of service, risk, and cost trade-offs that is appropriately accurate and complete. They are aligned with community priorities and demonstrate good stewardship over community assets for future generations.

### Connecting service, risk, and cost to evaluate trade-offs



### Service and risk trade-offs

Accepting greater asset risks can mean that assets are not performing like they need to, and your level of service can decrease. An example of this connection is water mains that are allowed to deteriorate, resulting in more breaks, and more water service outages for the community.

Strategic risks can have a big impact on your ability to deliver level of service, and small actions made today can help to maintain level of service in the future. An example of this connection is the strategic risk of having spikes in asset replacement costs if several assets are expected to reach the end of their useful life at the same time. This risk can be managed by making annual contributions to reserves to spread out the financial impacts of asset replacement.

Elected officials and community members should be informed of the connection between service and risk, so that decisions to manage or to tolerate risks are made while considering the impact to services.

## Service and cost/funding trade-offs

What level of service can you afford to provide – now and in the future? We all want the best – until we understand what ‘the best’ actually costs. Understanding the connection between service and cost in your community helps inform the decision about what is affordable. While businesses and residents in the community should be involved in deciding what level of service should be provided, the conversation should always be framed in the context of the cost of providing that service.

Municipalities are continually being asked to do more with less, and many are looking for ways to cut costs. If you have a good understanding of what level of service you need to provide, you can look for ways to reduce costs and find efficiencies that have a negligible or small impact on service levels provided.

Decisions about cutting costs or reducing funding should be made with an understanding of the impact on service levels.

## Risk and cost/funding trade-offs

Actions required to mitigate asset and strategic risks can have costs, and decisions need to be made about whether the cost of these actions is worth it or whether the risk should be tolerated.

This decision should be informed by an understanding of the costs and inconveniences that might be incurred by not mitigating the risk. Some examples of this connection are comparing costs of a complete road rebuild to the cost of doing minor maintenance and repair annually, or comparing the costs and benefits of proactively planning for succession planning to the costs and risks of losing key staff and organizational knowledge.

Another trade-off between cost and risk that requires evaluating is the relationship between cutting costs and increasing risk. Cutting up-front capital costs during construction may increase risk of operational problems or reliability. Cutting costs to operations and maintenance budgets may increase the risk of asset failure, and may also increase the total cost through expensive reactive repairs. Often, the impact of cutting costs on infrastructure replacement, maintenance, or repair are not seen until years later when the problems become much bigger and more difficult to deal with.

## CONTRIBUTED ASSETS: FROM LEGACY TO LIABILITY

Developer or industry-provided infrastructure that delivers a high level of service may seem like a gift to the community. However, this gift can quickly become a liability when ownership and responsibility is transferred to the municipality and operations and maintenance are unaffordable. Common examples of this are highly-landscaped areas, extra wide roads, and recreation centres or facilities. Standards for contributed assets should be defined considering ongoing responsibility for operations and maintenance.

## MANAGING RISK BY FUNDING AMORTIZATION: WHAT IS THE RIGHT AMOUNT TO FUND?

There is no single “right answer” to this question. This question needs to be considered uniquely by each municipality, in the context of long term financial plans; future projected costs, risks and growth; and what is considered a fair share between current and future generations.



## Evaluating trade-offs is everyone's job

Everyone within a municipality makes decisions that should be informed by an understanding of service, risk, and costs/funding. Everyone has a role to play in providing information for others to make decisions, and in seeking out the appropriate information to inform the decisions they make.

		INFORMATION NEEDED (SERVICE, RISK, AND COST)	DECISIONS TO BE MADE
SENIOR MANAGEMENT & STAFF	ELECTED OFFICIALS	<ul style="list-style-type: none"> <li>» The values and priorities of the community.</li> <li>» The level of service being provided to the community today.</li> <li>» The level of service the community expects and is willing to pay for.</li> <li>» The main risks to being able to deliver services.</li> <li>» Costs of service delivery, and how much revenue is required.</li> </ul>	<ul style="list-style-type: none"> <li>» What are priorities for service delivery?</li> <li>» What is an appropriate level of risk?</li> <li>» How much should be spent to deliver services?</li> <li>» How much should be saved to mitigate risk?</li> </ul>
	PLANNING & ENGINEERING	<ul style="list-style-type: none"> <li>» What it takes to deliver level of service (capital and O&amp;M).</li> <li>» Asset and strategic risks that may impact the ability to deliver services.</li> <li>» Costs of service delivery and risk management.</li> <li>» Financial projections, to identify what is affordable.</li> </ul>	<ul style="list-style-type: none"> <li>» What capital projects or O&amp;M activities need to be implemented to deliver the target level of services?</li> <li>» What actions need to be taken to manage risks?</li> <li>» When should assets be replaced and when should they be fixed?</li> <li>» What is the appropriate prioritization of projects to make best use of financial and human resources?</li> </ul>
	PUBLIC WORKS	<ul style="list-style-type: none"> <li>» Performance standards for assets.</li> <li>» How to identify and communicate risks to those planning capital projects.</li> <li>» How to prioritize operations and maintenance activities in alignment with organizational priorities.</li> </ul>	<ul style="list-style-type: none"> <li>» What operations and maintenance activities need to be conducted to effectively manage risks?</li> <li>» What O&amp;M activities should be prioritized to make best use of financial and human resources?</li> </ul>
	FINANCE	<ul style="list-style-type: none"> <li>» Estimated costs of capital projects over ten years.</li> <li>» Estimated costs of operations and maintenance over ten years.</li> <li>» Sources of funding and level of certainty.</li> <li>» Timing of funding.</li> </ul>	<ul style="list-style-type: none"> <li>» How will projects and activities be funded?</li> <li>» What is the appropriate amount of money to contribute to reserves?</li> <li>» How and when should reserves be used?</li> <li>» How and when should debt be used?</li> </ul>



**Easy enough to get something fixed in this town ... the mayor and the maintenance man are the same guy!**

# COMMUNICATION AND INFORMATION MANAGEMENT

Communication and information management are the foundation of asset management, because making good decisions requires that the right people have the right information at the right time.

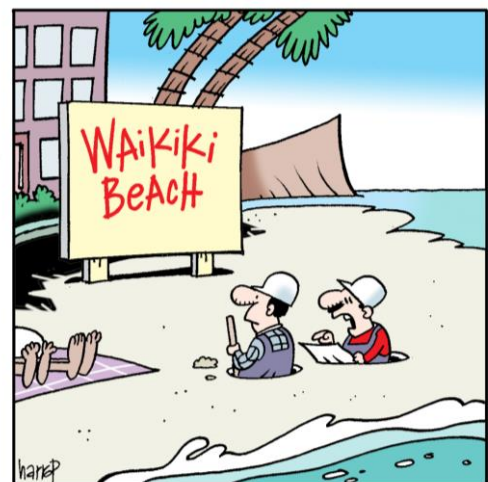
Achieving this requires a process of communication and ongoing information management – supported by a culture of teamwork. Asset management is not about having perfect information, but it's about ensuring decisions are informed by the best information available, and then working to improve information where appropriate. Approaching asset management as a team sport improves

## Communicating what matters for making good decisions

Communication is what ensures the flow of information for making decisions at all levels of the municipality. Asset management is a team sport, and everyone has experience and information about services, risks, and costs that needs to be communicated with others. Similarly, decisions and directions about services, risks, and costs need to be communicated throughout the organization to ensure that everyone is on the same page with what needs to be done and why.



Every organization will have their own ways of approaching communication – from formally written processes and documents, to informal conversations. What's the right approach? It depends on your organization, but usually a mix of formal processes and informal but regular conversations. Having a systematic approach makes sure that communication happens – even when everyone is busy. Documents like policies, strategies, and plans can be helpful to communicate information and decisions about direction, but you can't make the assumption that everyone has read it just because it's documented.



**I don't care *WHAT* the sign says... our map says that this is High River!**

## Information Management | An Ongoing Process

There is a perception that asset management requires a lot of detailed data about all of your assets – but this information can be time consuming and costly to collect. Just like asset management, information management is a process of continuous improvement. It's best to start by pulling together all of the data and information you already have to see what it tells you about your services, risks, and costs, and then to prioritize improving information where it's going to make the biggest improvement to your decision making.



### Collecting Information

Pulling together information<sup>1</sup> about assets to better understand services, risks, and costs, including:

- » What do we own and where is it?
- » What are the attributes?
- » When was the asset installed or put into service?
- » What did it cost?
- » What would it cost to replace?
- » What condition is it in?
- » How long will it last?

Include data, reports, drawings, and anecdotal information from people who work with assets on a daily basis.

### Consolidating and Organizing

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Information collected should be compiled and organized into a central hub for information, or an asset inventory. Organizations may have one inventory that includes all assets, or may have different inventory systems for different types of assets (i.e. one for water assets and one for parks assets). Each municipality should choose the tool(s) for information storage that is appropriate for them. Specialized software may be preferred in some cases, but an excel inventory and set of maps can provide the basis for effective asset management.

### 3 Storing and Accessing Information

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<sup>1</sup> In 2009, PS 3150 legislation required that all local governments begin reporting asset ownership on their annual financial statements. This inventory can serve as a good starting point for organizations pulling together asset information for the first time. Refer to the Getting Started Toolkit attached to this handbook for more information.



Information isn't valuable if it's not used. Information access requires that people know what information is available, how accurate it is, and what the limitations of the information are. Information often needs to be accessed by a different department than the department collecting it, so communication about information needs to happen within and across departments.

## Updating and Improving Information

As circumstances change over time, information needs to be updated. Information updates may be done on an ongoing basis, or may be completed as part of an annual process. Updates should reflect new assets, retired assets, refurbished or replaced assets, replacement cost changes, updates to operating costs to repair and maintain and asset condition information.

Updates may also be made to improve the accuracy of information, such as replacing anecdotal condition information with results from a condition assessment. Collecting more data or more accurate data can be very valuable in decision making, but it can be time consuming and expensive, so it's not worth investing in unless you know it will improve your decision making. When working with vendors or consultants, ask them (at the beginning of the project) to provide you information in a format that makes updating your inventory as easy as possible.



**TOOLS AVAILABLE  
IN THE GETTING  
STARTED TOOLKIT:**

» **SECTION 1.1** How to develop an inventory for asset management

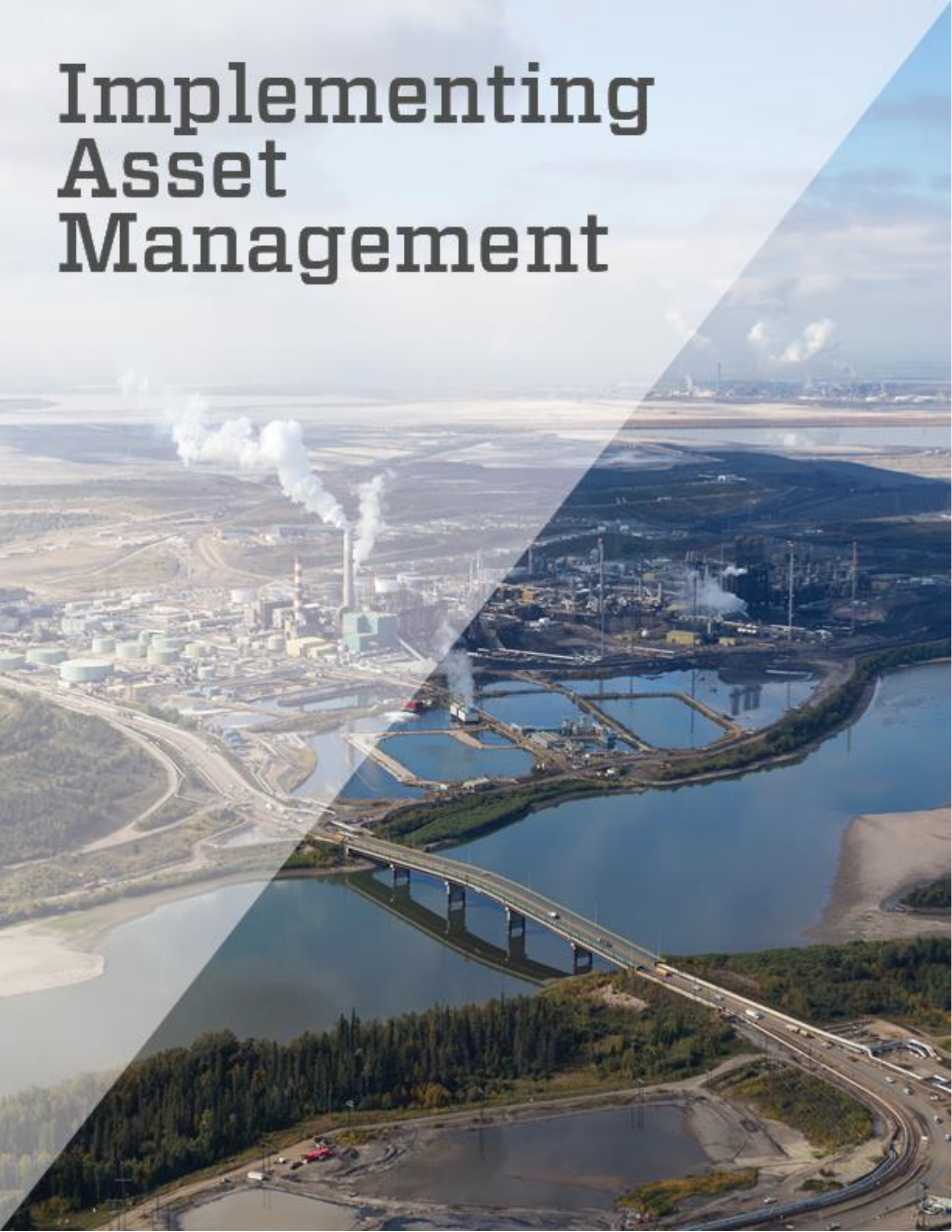
## SOFTWARE AND ASSET MANAGEMENT

Software systems are tools that can support management of information, but they can also cause problems when staff with specialized training are lost, or people who need information cannot access it. Basic asset management in small communities can be conducted with simple spreadsheets and maps. Think you probably need a software program to make sense of it all?

Here are some things you should consider before selecting a software system:

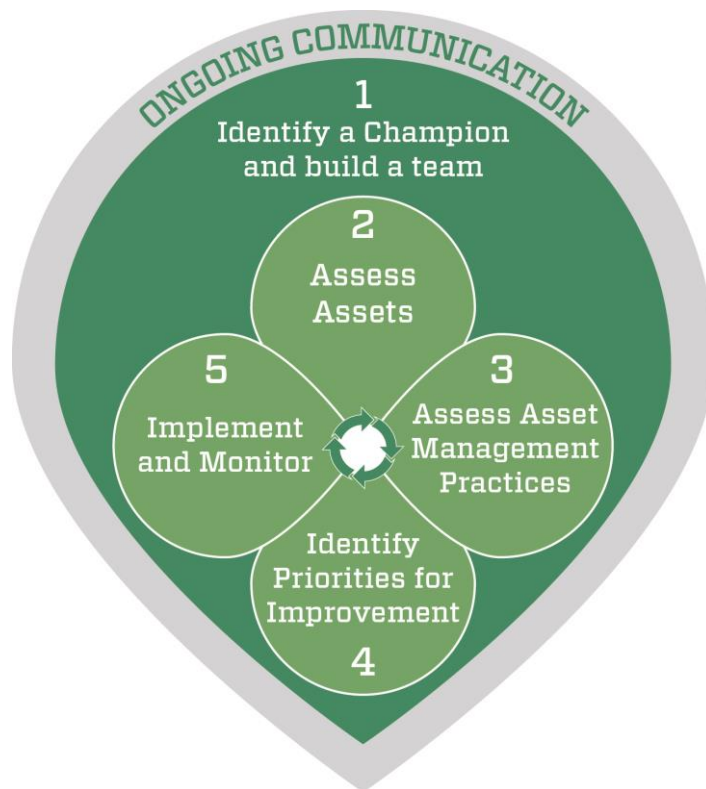
1. Know your information and communication needs clearly first. For example, if you want to be able to access information through GIS but you don't have GIS skills in house, you might be able to make use of an externally hosted service which could save you a lot of money.
2. Identify what existing software programs you have and whether they need to be linked to asset management software.
3. Think about who will have the training to access the system, and what you will do if those people aren't around.
4. Software needs to be maintained over time. Have a plan for who will be responsible for maintaining the system as the program changes.

# Implementing Asset Management



## WHERE DO WE START?

This is one of the most common questions about implementing asset management. You can start wherever makes most sense for your organization based on what's driving the desire to implement asset management and what you want to achieve. However, if you're still not sure where that might be, a potential pathway has been outlined below. This pathway shows you where to start, and is also a roadmap for continuous improvement.



1. **IDENTIFY A CHAMPION AND BUILD A TEAM.** The team should include someone who knows about finance, operations, planning, and engineering. The champion needs to be able to bring people together and keep it going.
2. **ASSESS ASSETS.** Bring together available information on your assets to get a high-level snapshot of what you own, the level of service you're delivering, asset risks, and costs. Compile it into a central inventory or location. Use the information you have as a start. You can improve it later.
3. **ASSESS ASSET MANAGEMENT PRACTICES.** As a team (and maybe even more broadly) assess your current practices related to understanding services, risks, and costs, and making decisions. You might already be doing asset management in certain areas, but calling it something else. AssetSMART is an assessment tool that can be used for this assessment.
4. **IDENTIFY PRIORITIES FOR IMPROVEMENT.** Based on your assessment of assets and asset management practices, select priorities for improvement. These might be capital or operational projects to mitigate risk or increase service, or they might be initiatives for improving understanding of service, risk, or costs and funding.



**5. IMPLEMENT AND MONITOR.** Implement what you've planned to address your top priorities. This might include capital projects, conducting maintenance, or developing policies, strategies, or plans.

### Engaging Council in Asset Management

Council has the final say in major decisions about service, risk, and cost – and therefore it is critical that council is informed and engaged on an ongoing basis about asset management. You may communicate with council information such as:

- » the benefits of asset management, in the specific context of your municipality
- » the need for asset management as an ongoing practice to inform decision making
- » a summary of the connections between services, risk, and cost at your municipality

Some municipalities choose to seek a council directive for building an asset management program before investing efforts. Other municipalities seek a council directive after doing some basic groundwork to understand assets, services, risks, and costs in order to highlight the importance of practicing asset management. Council directive may come later, in the form of an endorsed asset management policy. Whichever path you choose, the main objective is to have formal endorsement of building an asset management practice at your municipality.





## ■ POLICIES, STRATEGIES, AND PLANS

Okay, so you understand your services, risks, costs and funding. You know the connections and trade-offs between these three components, and you know the importance of evaluating these trade-offs to make good decisions that increase the resilience of your community.

But what do you actually *do*? Isn't asset management about creating policies, strategies, and plans? It can be, but as a municipality you probably already have several policies, strategies, and plans in place. The purpose of asset management is not to create additional work – it's to ensure that decisions throughout the organization are informed by an understanding of service, risk, and cost for the development of long term resiliency.

For asset management to be effective, it needs to be implemented. The easiest way to implement it might be to include considerations of service, risk and cost into your existing processes. On the other hand, you may decide that creating policies, strategies, and plans that are specific to asset management is the best way to make sure it gets done and gets the attention it deserves. In short, it's up to you and your organization to decide what will be most effective for you.

### Implementing Asset Management through Existing Processes and Documents

	SCOPE	EXISTING DOCUMENTS OR PROCESSES TO BE LEVERAGED OR MODIFIED
ASSET MANAGEMENT POLICY	<ul style="list-style-type: none"> <li>» Connection between community objectives and management of assets.</li> <li>» Principles to guide decision making about acquiring or replacing assets.</li> <li>» Corporate approach to funding and financing asset acquisition, replacement, and ongoing operations and maintenance.</li> </ul>	<ul style="list-style-type: none"> <li>» Financial policies</li> <li>» Debt and reserve policies</li> <li>» Service level policies</li> <li>» User fee policies</li> <li>» Development-related policies</li> </ul>
ASSET MANAGEMENT STRATEGY	<ul style="list-style-type: none"> <li>» Overview of current corporate assets, services, risks, costs, and funding.</li> <li>» Current status of corporate asset management practices.</li> <li>» Where you want to be.</li> <li>» Strategies to improve asset management practices to get to where you want to be.</li> <li>» Relationships or interdependencies with other corporate initiatives or plans.</li> </ul>	<ul style="list-style-type: none"> <li>» Corporate strategy/ Strategic Plan</li> <li>» Financial Strategy</li> <li>» Community Sustainability Plan</li> <li>» Department-level Strategy</li> </ul>

### TOOLS AVAILABLE IN THE GETTING STARTED TOOLKIT:

- » SECTION 5.1 Sample asset management policy
- » SECTION 5.2 How to create an asset management strategy
- » SECTION 5.3 How to create an asset management plan
- » Implementing asset management through:
  - » SECTION 5.4 the budget process
  - » SECTION 5.5 community planning
  - » SECTION 5.6 communication and engagement



	SCOPE	EXISTING DOCUMENTS OR PROCESSES TO BE LEVERAGED OR MODIFIED
ASSET MANAGEMENT PLAN	<ul style="list-style-type: none"> <li>» Comprehensive information about assets, their condition, how they're performing.</li> <li>» Current level of service performance and desired performance.</li> <li>» Asset risks and strategic risks.</li> <li>» Capital and operational projects required to deliver service and mitigate risks.</li> <li>» Current costs and funding, and projected costs and funding.</li> <li>» A timeline for implementation.</li> <li>» Consequences of not following the plan.</li> </ul>	<ul style="list-style-type: none"> <li>» Long term financial plan</li> <li>» Long term capital plan</li> <li>» Department Business Plan</li> <li>» Utility or Transportation Master Plans</li> </ul>
BUDGET	<ul style="list-style-type: none"> <li>» Specific activities, their timing, and costs.</li> </ul>	<ul style="list-style-type: none"> <li>» Capital and Operations budget</li> </ul>
PUBLIC COMMUNICATION	<ul style="list-style-type: none"> <li>» Perception of service delivery performance.</li> <li>» What is being done to improve or maintain service levels?</li> <li>» The most significant risks and opportunities, and what is being done to mitigate them.</li> </ul>	<ul style="list-style-type: none"> <li>» Citizen surveys</li> <li>» Annual reports</li> <li>» Orientation of new staff and council</li> </ul>

### Do you need to have them all?

You need to have whichever ones will add value to the decision making in your organization. Municipalities should take a continuous improvement approach to implementing asset management. You might start by partially developing or modifying only the plans, strategies, or policies you think are top priority (in full or in part), and then moving on to the ones you think are next in priority level. The ultimate goal is that decisions throughout the organization are informed by an understanding of service, risk, and cost - not that a series of documents is produced. All of these documents need to be maintained and updated, so keeping it simple can be beneficial.

## WHAT DOES IT TAKE?

Minimum factors for success:

- » **A CHAMPION.** You need someone who can drive asset management forward. The department or title of this person doesn't matter, but they need to be good at bringing people together.
- » **A TEAM.** The champion will be supported by a cross departmental team. At a minimum, the team should include someone from finance, public works, engineering, and planning.
- » **SUPPORT FROM MANAGEMENT AND COUNCIL.** Since asset management is ultimately about decision making, it is very difficult to be successful in implementing asset management without support from management and council. You might not have this support from the very beginning, as some up-front work might be needed to frame the issue and build buy-in. You shouldn't invest much time or money in developing expensive plans or collecting data without senior support.

"We don't have the resources to implement asset management"

Asset management doesn't need to be expensive. Start small with free or inexpensive tools, and improve from there as needed. Ultimately asset management will save you money, so money spent on asset management should be considered an investment.

### What does it cost?

In building asset management practices, you might spend money on data collection and management, software programs, staff time, and/or consultants. All of these things can cost either a little or a lot – depending on how much infrastructure you have, the current state of your data, and what your needs are. Identifying what you need from asset management will help you understand how much it might cost.

Asset management processes are most effectively built through continuous improvement, so you may start at the entry level and make small investments over time to improve your systems and processes. The important thing is to get started.



We've got a little blacktop left, so we're going to pave the Mayor's office!



**THE BICYCLE.** *Costs basically nothing. Gets you moving, but not that fast.*

Use the tools in this toolkit to get started with incorporating asset management into decision making with the information you already have.



**THE BUS.** *Entry level option that gets you where you need to go.*

Invest in some training or some advisory support to help you understand where you're at and develop a tailored roadmap for moving forward with carefully selected initiatives.



**THE CAR.** *More options for going where you want, but costs more.*

Invest in data management tools, collecting condition data for critical assets or those near the end of their life. Develop or update infrastructure plans.



**THE HELICOPTER.** *Gets you wherever you want, quickly. Really expensive and special operations skills required. May be excessive if your needs are basic.*

Comprehensive system of complete and current data for all assets, integrated with financial systems and maintenance management systems. Detailed asset management plans for all asset classes and an integrated corporate level asset management plan.



## **GLOSSARY**

**ASSET** A physical component of a system that has value, enables services to be provided, and has an economic life of greater than 12 months.

**ASSET MANAGEMENT** the process of making decisions about the use and care of infrastructure to deliver services in a way that considers current and future needs, manages risks and opportunities, and makes the best use of resources.

**ASSET MANAGEMENT PLAN** A plan to identify asset management needs, establish longer term financing means, and regularly schedule maintenance, rehabilitation and replacement works for the long-term sustainability of the asset.

**ASSET MANAGEMENT POLICY** Principles and mandated requirements derived from, and consistent with, the organizational strategic plan, providing a framework for the development and implementation of the asset management strategy and the setting of the asset management objectives.

**ASSET MANAGEMENT STRATEGY** Long-term optimized approach to management of the assets, derived from, and consistent with, the organizational strategic plan and the asset management policy.

**ASSET CONDITION** The state of an asset, particularly regarding its appearance, quality, or working order.

**BUSINESS PLAN** A written document that describes in detail how a business is going to achieve its goals.

**GIS** Geographic Information System designed to capture, store, manipulate, analyze, manage and present all types of spatial or geographical data.

**LONG TERM CAPITAL PLAN** A multi-year plan (10+ years) that identifies the capital infrastructure projects and their cost to address the current and future service objectives.

**LONG TERM FINANCIAL PLAN** A plan that documents the process of aligning financial capacity with long-term service objectives.

**LEVEL OF SERVICE** The defined standard for the provision of a particular service. Components of defining these standards include: quality, quantity, reliability, responsiveness, environmental acceptability and cost.

**LIFE CYCLE MANAGEMENT** Retaining an asset as near as practicable to its original condition, 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.

**MAINTENANCE MANAGEMENT** Administrative, financial, and technical framework for assessing and planning maintenance operations on a scheduled basis.

**RISK** The degree of price volatility and/or chance of failure carried by an asset.

**TANGIBLE CAPITAL ASSET** An asset that has a material or physical form that can be assigned a price value.

**TOTAL ANNUAL AVERAGE LIFECYCLE INVESTMENT (AALCI)** Budget based on annual average of the total replacement value of an asset over its expected service life.

**USEFUL LIFE** The estimated lifespan of a depreciable fixed asset, during which it can be expected to contribute to a municipality's operations.