Asset Management Orientation Handbook for Members of Council

Association of Municipalities Ontario

AMONTario
ASSET MANAGEMENT ONTARIO

Asset Management Orientation Handbook for Members of Council

How To Read This Handbook

This Handbook provides information to help new and returning members of Council understand what asset management is, why it matters, and the role of members of Council in asset management. Each section provides a one-page summary of a key asset management topic including specific actions that members of Council can take, followed by a more detailed overview, and links to additional resources for Councilors who want to learn more.

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WHY IS ASSET MANAGEMENT IMPORTANT TO COUNCIL?

Asset management provides the information needed for Council to make confident decisions about asset investments, service levels, risks, and long-term financial sustainability. A solid understanding of asset management fundamentals will support Council members as they navigate these decisions by relying on an evidence based, data-driven decision-making framework for identifying and addressing asset investment priorities.

At its core, asset management is about sustainable service delivery—providing services today in a way that ensures they can continue to be delivered in the future without placing undue financial, operational, social, or environmental burdens on future generations. Municipalities of all sizes across Canada are struggling to maintain and advance asset management programs, data and funding due to capacity constraints.

Asset management practices as outlined in this Handbook help Council balance community expectations with limited resources, understand the long-term impacts of decisions, and prioritize investments where they are needed most. They also support transparency, accountability, and more defensible decision-making.

This Handbook was prepared by AMO in collaboration with Asset Management Ontario (AMONTario). AMO is an administrator of the Build Communities Strong Fund – Community Stream (BCSF-CS) in Ontario. The BCSF-CS provides permanent and predictable federal government funding for infrastructure and capacity building to support asset management.

1

WHY ASSET MANAGEMENT MATTERS

Municipal infrastructure assets, such as roads, bridges, water systems, parks, and recreation facilities, are the foundation of the services residents rely on every day. Municipal Council is responsible for deciding what services are provided, their scope, and funding priorities. As a member of Council, your decisions ensure services remain safe, reliable, and affordable, both today and in the future. To make these decisions with confidence, there are a few key things that members of Council need to know:

- What assets do you own or operate?
- What services are residents expecting?
- What is the current state of the infrastructure (and can it provide these services)?
- What are the costs associated with maintaining the assets and providing these services, (and can we afford it)?

Good asset management practices provide the information needed to make these decisions with confidence.

Figure 1: Sustainable service delivery means balancing the specific levels of service that an organization wants to deliver with risks and costs.

Recommended Actions for members of Council:

1) Familiarize yourself with your municipality's key asset management related documents, including:

- Strategic asset management policy (to learn more, see **section 5**)
- Asset management plan(s)
- Other relevant local plans and documents (such as the Strategic Plan, Annual Budget, Official Plan, and Master Plans)

2) Use asset management information to support informed decisions that balance service levels, costs, and risks over the long term.

3) Ask questions to ensure that staff are incorporating asset management recommendations into budgeting and long-term financial planning:

- What is the condition of an asset?
- Are there any risks associated with deferring a project?
- Are our investment levels in line with the Asset Management Plan?

In Ontario, asset management planning is required under O. Reg. 588/17 and is also tied to eligibility for key infrastructure funding programs. Asset management plans must be Council approved and made publicly available. Council must also receive an annual report on asset management planning progress. However, asset management is more than a regulatory requirement—it is a practical decision-making tool that helps Council protect infrastructure, manage risks, and support sustainable service delivery for current and future generations.

Overview

Local governments exist to provide services (such as transportation systems, clean drinking water, flood protection, space for recreation, and more) to their communities, creating a foundation for economic growth and fostering a good quality of life. The goal is to deliver these services safely, reliably, and predictably, at a sustainable cost. Services are typically delivered to residents through and by municipal infrastructure **assets**, such as those represented by the icons below. To ensure that these assets can reliably provide the intended services, the assets need to be appropriately managed and kept in a **state of good repair**.

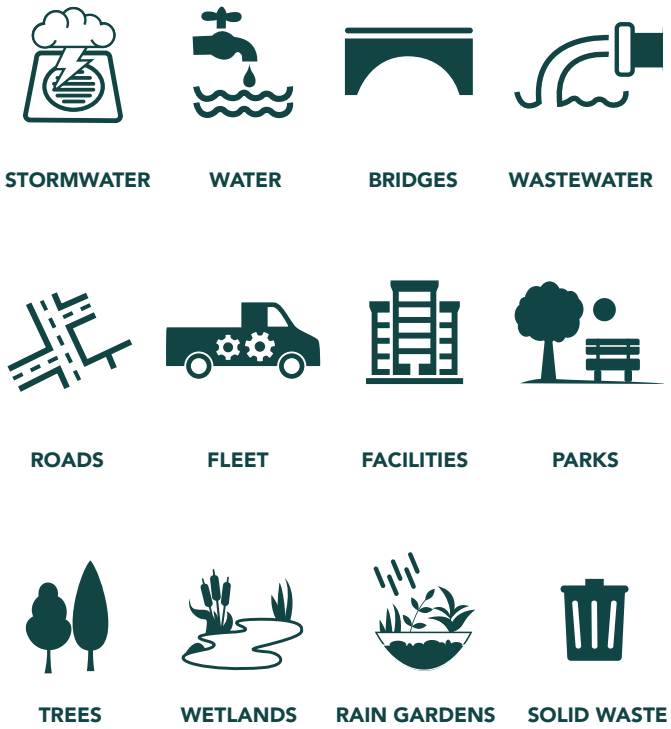


Figure 2: Common municipal infrastructure assets

KEY TERMS

Asset: "An asset is an item, thing or entity that has potential or actual value to an organisation." (ISO 55000)

Asset management: Asset management is the coordinated activity of an organization to realize value from their assets to achieve the organization's objectives (IAM). In a municipal context, asset value is linked to the ability to deliver services that meet community needs through sustainable service delivery.

Asset management plan (AMP): An asset management plan is a tool to communicate a municipality's current state and anticipated funding needs to the community and other levels of government. (AMO Asset Management Primer for Elected Officials)

Levels of service (LOS): A defined set of parameters for a particular type of assets (or service area) against which performance may be measured. Levels of service are divided into customer/community LOS and technical LOS.

Risk: Can be defined as physical risks (direct impact to infrastructure and assets), transition risks (e.g., changes based on low carbon economy), litigation and liability risks, reputation risks, and financial risks (rising costs of damages). Risk is assessed based on the likelihood of an event and the consequence of the event to create a risk matrix indicating high, medium, and low risks.

State of good repair: An asset is maintained in sufficient condition to deliver a service as intended.

State of infrastructure (or state of local infrastructure): A comprehensive evaluation of the assets that a municipality owns or operates, including inventory, condition, total replacement value, and age and remaining service life.

Sustainable service delivery: A process of providing services to the community in a way that fosters the economic, social, and environmental well-being, today and into the future. Sustainable service delivery is achieved by balancing asset lifecycle costs, asset performance (or expected levels of service), and risks.

For more terms and definitions, see the glossary at the end of this Handbook.

Members of Council make decisions about infrastructure in the face of limited financial resources and expectations that state of good repair is maintained across all municipal assets. Decisions must be made while also anticipating growth and managing social, economic, and safety risks. This is where **asset management** comes in. Asset management provides the foundation for members of Council to make evidence-based decisions that prioritize financial sustainability and manage **risk**, while still delivering the expected services. This balance is referred to as **sustainable service delivery**—a key concept in asset management.

Asset management is an integrated process that includes stakeholders from all across a municipality, working together to plan for and manage existing and new assets to maximize benefits, reduce risks, and provide defined levels of service to the community in a financially sustainable manner (more details about the roles and responsibilities of key stakeholders are included in **section 4**). A more formal definition comes from the Institute of Asset Management (IAM):

Figure 3: A breakdown of the Institute of Asset Management's definition of "asset management"

Benefits of asset management include:

- Better understanding of infrastructure condition and performance,
- Smarter prioritization of investments (over short- and long-term),
- Enhanced transparency and accountability,
- Efficient use of limited financial resources,
- Reduced risk of service disruptions.

Together, these benefits help members of Council to create and maintain vibrant and sustainable communities. Ultimately, asset management helps members of Council understand what services are being delivered, how well those services are being delivered, what risks exist, and what investments are required to sustain services over time. This improved understanding provides greater confidence when making difficult decisions and communicating these decisions to residents.

Other Key Considerations

Asset Management vs. Managing Assets

There is a key distinction between "asset management," which is an integrated process that happens at the strategic levels and informs decisions about all assets that a municipality is responsible for, and "managing assets," which is the day-to-day work of making decisions about individual assets that happens at the operational level. Both are important, but asset management sets the stage for the proper management of individual assets, as well as supporting prioritized decision-making about all assets.

Asset Management and the Budget Process

Asset management planning needs to be integrated with financial planning and the budgeting process to ensure that services can be delivered at the intended levels. Funding recommendations that are included in an approved **asset management plan (AMP)** should be reflected in the operating and capital budgets that are approved by Council. Learn more in **section 2** (principle 2: alignment).

Asset Management and Strategic Planning

Referencing asset management in your Strategic Plan illustrates Council's commitment to asset management and shows the important role of asset management in achieving municipal goals. The goals and priorities identified in your Strategic Plan should be reflected in the **levels of service (LOS)** that are described in your asset management plan, connecting organizational goals, community priorities, and asset outcomes. Learn more in **section 2** (principle 2: alignment).

For a good example of how asset management has been incorporated into a municipal strategic plan, see the **Town of Halton Hills**. Halton Hills has identified "infrastructure and asset management" as one of the Town's core strategic priorities, with specific objectives linked to resilience, growth, safety, and sustainable service delivery.

Regulatory Requirements

Asset management planning is a regulatory requirement under O. Reg. 588/17: Asset Management Planning for Municipal Infrastructure. More details about these regulatory requirements are included in **section 5**.

Asset Management and Climate Change

Changing weather patterns, including more frequent and severe storms, temperature fluctuations, and flooding can affect the performance, lifespan, and reliability of municipal assets. Integrating climate considerations into asset management planning, such as through risk assessments and lifecycle planning, helps ensure that infrastructure is resilient and able to continue delivering services under changing conditions. Understanding the impacts that climate change will have on specific assets will support informed decision-making about when to adapt, upgrade, or replace assets, and helps reduce long-term risks and costs associated with climate-related impacts.

Asset Management and Growth

To ensure that new assets are affordable and sustainable over the long-term, growth-related decisions must be informed by asset management. A full understanding of growth-related infrastructure costs includes not only upfront capital investments, but also the ongoing operating, maintenance, and replacement costs associated with new assets. Integrating asset management and growth planning helps municipalities avoid creating future financial pressures, supports more efficient use of existing assets, enables and preserves housing, and ensures that growth contributes positively to long-term service delivery and community outcomes. Asset management should be informed by demographics and growth data and analysis, which can be found in municipal Housing Needs Assessments (HNAs), development charges background studies, Official Plans, and other planning documents.

What are Housing Needs Assessments (HNAs)?

Housing Needs Assessments provide data to support evidence-based decision-making at the local and community level. HNAs help a community gather critical housing data to guide decisions on the type and location of housing to build, as well as the infrastructure needed to support community growth. Municipalities over 30,000 population are required to complete a Federal HNA to be eligible for federal funding.

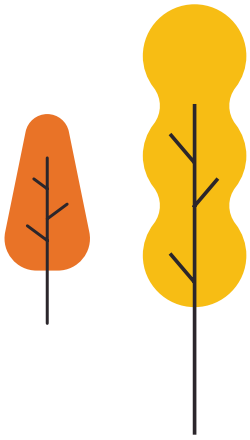
LEARN MORE

Asset Management vs. Managing Assets: **Managing Assets in the Context of Asset Management** from the International Standards Organization (ISO).

Regulatory Requirements: Ontario's asset management regulation, **O. Reg. 588/17: Asset Management Planning for Municipal Infrastructure** and it's amendment **O. Reg. 193/21**.

Asset Management and Climate Change: **Asset Management, Climate Change, and Green Infrastructure Case Study Series** by AMONTario

Asset Management and Growth: **Growing Wisely: Growth and Asset Management in Ontario** by AMONTario and AMO.



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PRINCIPLES OF ASSET MANAGEMENT

Asset management is guided by five core principles (adapted from ISO 55000):

Value:

Assets provide value by enabling community services; this "value" goes beyond financial to encompass everything that is important to a municipality.

Alignment:

Asset management helps to create alignment within an organization, ensuring that strategic priorities and community goals are incorporated into all municipal plans and activities.

Leadership:

Strong leadership from Council sets the stage for strong asset management.

Assurance:

Asset management gives assurance that assets will fulfill their required purpose (from Canadian Network of Asset Managers, **AM101: What is Asset Management?**).

Progress:

Asset management is a journey of continuous improvement and incremental progress.

Understanding these principles will help you to better understand the benefits of asset management and how it can be used to support defensible decision-making.

Recommended Actions for members of Council:

1) Understand these asset management principles and champion asset management in your municipality by:

- Increasing your asset management understanding and awareness through review of existing Plans and Policies
- Investing in asset management (build internal capacity)
- Supporting asset management training or professional development

2) Support alignment by promoting integration between asset management planning, budget processes, and long-term financial planning.

3) Request regular asset management progress updates (required annually). For examples, see **section 5**.

4) Ensure asset management is used for effective decision-making rather than simply a compliance document.

Overview

Effective asset management is grounded in five key principles that guide how municipalities manage infrastructure and make decisions.

1) Value

Assets provide value by enabling services that meet community needs. In this context, "value" goes beyond financial to encompass everything that is important to a municipality. In **Anatomy of Asset Management (Version 4)**, the Institute of Asset Management (IAM) recognizes "the 6 Capitals," which includes: financial, manufactured, intellectual, human, social and relationship, and natural capitals. This broader definition of value provides examples of the types of elements that a municipality can consider when defining "value" and also highlights the mainstream acceptance of perspective on value that goes beyond just financial.

As introduced in **section 1**, realizing value from assets is a key component of the definition of asset management. Members of Council need to understand which values are important to their municipality in order to make decisions that effectively support sustainable service delivery.

2) Alignment

Asset management works best when it is aligned with municipal priorities, including strategic plans, financial plans, housing needs assessments, and land-use planning, ensuring that infrastructure investments support broader community goals. Alignment, also referred to as "line-of-sight," ensures that municipal priorities, typically those articulated in the strategic plan, are reflected in key asset management documents, and the corresponding plans and processes.

Figure 4 provides a visual representation of this concept, with a focus on key documents. As figure 4 illustrates, the vision and goals that are established in your organizational plans are then reflected in your asset management policy, plan, and other supporting documents, ensuring that the vision is evident and accessible across the organization.

To learn more about strategic asset management policies and plans, see **section 5**.

While figure 4 focused on an organization's documents, figure 5 shows how this same concept of alignment applies to an organization's people and processes.

Figure 4: Maintaining line-of-sight: key documents

Creating Alignment

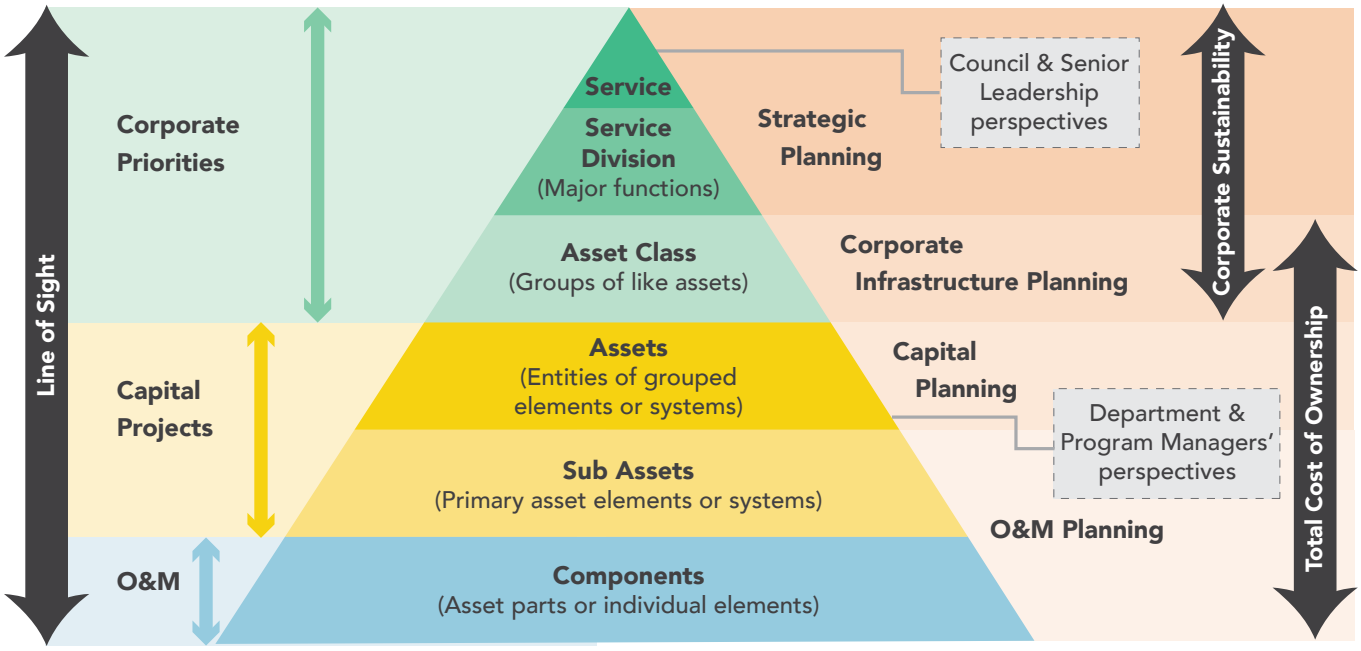

Figure 5: Maintaining line-of-sight: people and processes

The triangle shows the elements of an **asset management hierarchy**, and illustrates where responsibility falls for strategic, corporate infrastructure, capital, and operations and maintenance planning, as well as demonstrating how asset management priorities align with budget priorities.

Finally, figure 6 shows how alignment also supports integration and cohesion between a municipality's key plans, and annual budget.

Figure 6: Alignment supports cohesion between key plans and the annual budget

The annual budget, long-term financial plan, and asset management plan help realize the vision that is articulated in the strategic plan. Council familiarity with these documents helps ensure alignment, use of a common language, and progression towards common goals.

3) Leadership

Council and senior staff set the stage for good asset management by:

- Setting direction by establishing an **asset management policy** that articulates goals, establishes clear roles for staff, and meets regulatory requirements. Learn more in sections **4** & **5**.
- Engaging residents to determine expected levels of service and other infrastructure priorities.
- Creating a culture of asset management by supporting staff in building internal capacity, promoting asset management working groups or committees, and encouraging staff to work on asset management planning with cross-functional teams.

- Meaningfully engaging with asset management plans or other asset management documents that are presented to Council by reviewing recommendations in advance and asking the right questions.
- Encouraging integration between the asset management planning process and the budget planning process.

To learn more about the role of Council, see **section 4**.

4) Assurance

Members of Council require confidence in the information used to make decisions, and asset management can provide this assurance through reliable data, sound processes, a nalytics and transparent reporting on asset condition, performance, and risk. Starting in July 2026, Ontario municipalities are required to develop an annual asset management progress report for their Councils. This annual report is a good opportunity to build assurance through consistent updates on levels of service, risk, and financial sustainability. Council can request that priority metrics be included in these updates, and can use this opportunity to ask questions and build engagement with staff (to learn more about the annual reporting requirement, see **section 5**).

In turn, Council can provide assurance to residents that assets are performing as expected, and that Council is meeting regulatory and reporting requirements, and maintaining transparency and accountability. Regular public engagement and ensuring that asset management plans and updates are available and accessible to the residents will build public assurance.

5) Progress

Municipalities build asset management capacity over time, improving data quality, processes, and decision-making practices incrementally. "Progress not perfection" and "asset management is a journey not a destination" are common refrains among asset management practitioners.

Members of Council can endorse initiatives like asset management **maturity assessments** and the development of asset management roadmaps to support this iterative process and help drive progress. A maturity assessment is used to benchmark your municipality's capabilities and execution against key asset management elements (this can be based on a third-party model, like the **Institute of Asset Management (IAM) 10-box model**). The maturity assessment will show strengths, gaps, and priority areas for improvement. Staff can then use the results to build a roadmap: a prioritized list of initiatives, typically over five years, to act on those opportunities and track progress.

LEARN MORE

Asset Management Maturity: Excellence and Maturity from the Institute of Asset Management (IAM) and Staying on Track: From Compliance to Impact Outcomes Document by AMONTario

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KEY ELEMENTS OF ASSET MANAGEMENT

Asset management is built on key elements that work together to support **sustainable service delivery**. In order to provide the needed direction and support, it is helpful for Council to understand the following elements of asset management:

- **People and governance:** Who is involved and what governance structure best aligns to your current business practices?
- **Asset inventory and data management:** What assets are we responsible for and what condition are they in? How is our asset data collected, where is it stored, and who is responsible for maintaining the data?
- **Levels of service definition:** What service outcomes are expected by the community?
- **Risk management:** What impacts asset performance and what happens if assets fail or performance declines? How can we mitigate the risk of asset failure?
- **Lifecycle planning and financial strategy:** How do decisions today affect our assets and services over time? What funding is needed over time?

Together, these elements provide a comprehensive picture of the **state of local infrastructure**, giving members of Council the information needed to make informed, evidence-based decisions about service delivery, investment, and long-term sustainability.

Recommended Actions for members of Council:

1) Ask for regular (annual) updates on the state of infrastructure (these updates can be included in the annual progress report required by O. Reg. 588/17; for more information, see **section 5**) .

2) Proactively set and communicate levels of service by:

- Understanding current levels of service targets and how these were set
- Talking to residents about levels of service expectations (and trade-offs) when necessary
- Using levels of service data and analysis to make decisions

Overview

The previous section addressed the key principles that guide asset management. This section addresses the processes and activities of asset management.

People & Governance

Asset management requires clear roles, responsibilities, and accountability across the organization. It is a coordinated effort that involves Council, senior leadership, and staff working together. Establishing a formal asset management governance structure that aligns to your current business practices helps to embed asset management within the organization and can help to avoid common challenges. A common governance structure is portrayed in the diagram below:

Figure 7: Example of a typical asset management governance structure (adapted from "**How to Develop an Asset Management Policy, Strategy and Governance Framework**" by the Federation of Canadian Municipalities)

CASE STUDY

The City of Thunder Bay recognized that effective asset management requires more than technical expertise, it depends on people, collaboration, and strong governance across the organization. To build a culture of asset management, the City invested in staff education, promoted the message that "everyone is an asset manager," and worked to align its asset management plan with its growth strategy, financial strategy, climate plans, and other corporate priorities. A Council-approved Strategic Asset Management Policy provides leadership and clear direction for integrating asset management into planning and decision-making, while cross-departmental collaboration supports consistent implementation across the organization. These efforts have strengthened organizational capacity, improved coordination between business areas, and helped ensure infrastructure investment decisions support sustainable service delivery, growth, and long-term financial resilience.

To learn more, see **Growing Wisely: City of Thunder Bay** and Thunder Bay's **Strategic Asset Management Policy** and **Future Ready Roadmap: Asset Management Plan Phase Three**.

LEARN MORE

Governance: Asset Management Governance – Terms of Reference by AMONTario and **How to Develop an Asset Management Policy, Strategy and Governance Framework** by the Federation of Canadian Municipalities

Asset Management Ontario, in collaboration with the Association of Municipalities of Ontario (AMO), developed a set of free, excel-based templates and accompanying resources to support municipalities in improving their asset management capabilities. These resources address all the key elements of asset management addressed in this section. Access these resources **here**.

KEY CHALLENGES: PEOPLE & GOVERNANCE	
Challenges Council needs to be aware of:	**How to mitigate this challenge:**
Lack of clear roles and responsibilities across departments, leading to silos	• Ensure that senior leadership establishes a formal governance structure that identifies clear roles and responsibilities • Ensure that senior leadership establishes an asset management steering committee with representation from senior leadership in all key departments • Encourage cross-departmental collaboration
Over reliance on consultants to make up for lack of staff capacity	• Be aware of resourcing and capacity challenges, and invest in building internal capacity over time through training/professional development as well as strategic hiring (including shared services when appropriate) • Require that all consultant engagements include clear documentation, training, and handover sessions, and that deliverables include usable tools, templates, and data, not just final reports. This process will help to ensure that staff can take ownership of the outcomes, and that data ownership remains with the municipality. To learn more about the role of consultants, see **section 4**.

A detailed overview of the roles and responsibilities of key stakeholders is provided in **section 4**.

Asset Information and Data

Reliable asset data forms the foundation for your asset management system and informs all infrastructure decisions. Key data points include:

- Inventory: what assets does the municipality own or manage?
- Condition: what is the current condition of the asset and how was condition determined (typically assessed using a consistent 5-point scale)?
- Age: how old is the asset and what is its expected service life?
- Current replacement value (CRV): what is the current value of the asset?

These asset data provide the information needed to assess the state of local infrastructure and fulfill regulatory reporting requirements; members of Council should expect staff to provide this information as part of asset management plan updates, annual progress updates, and periodically when new information becomes available.

Accurate, consistent, and accessible data is important. However, even if the data is incomplete, municipalities can use best available data, document gaps, and work to improve over time. Establishing a data governance policy (such as New Tecumseth's **Asset Management Information Strategy**) can help to establish clear responsibilities and processes and improve data completeness and consistency.

CASE STUDY

When West Perth embarked on a lifecycle modelling exercise, they discovered a need to improve their existing asset data. The existing data at West Perth had been captured over several decades and was stored across multiple systems, and was found to have gaps. They realized that their lifecycle modelling tools would not be able to be universally used with their current data. By refining asset inventories, condition information, and lifecycle assumptions, the municipality strengthened its ability to forecast future needs, costs, and risks.

Case study adapted from "West Perth's Data Update in Support of Lifecycle Modelling" by Asset Management Ontario. Read the full case study **here** (on page 6) to learn more about West Perth's data-driven approach to lifecycle management.

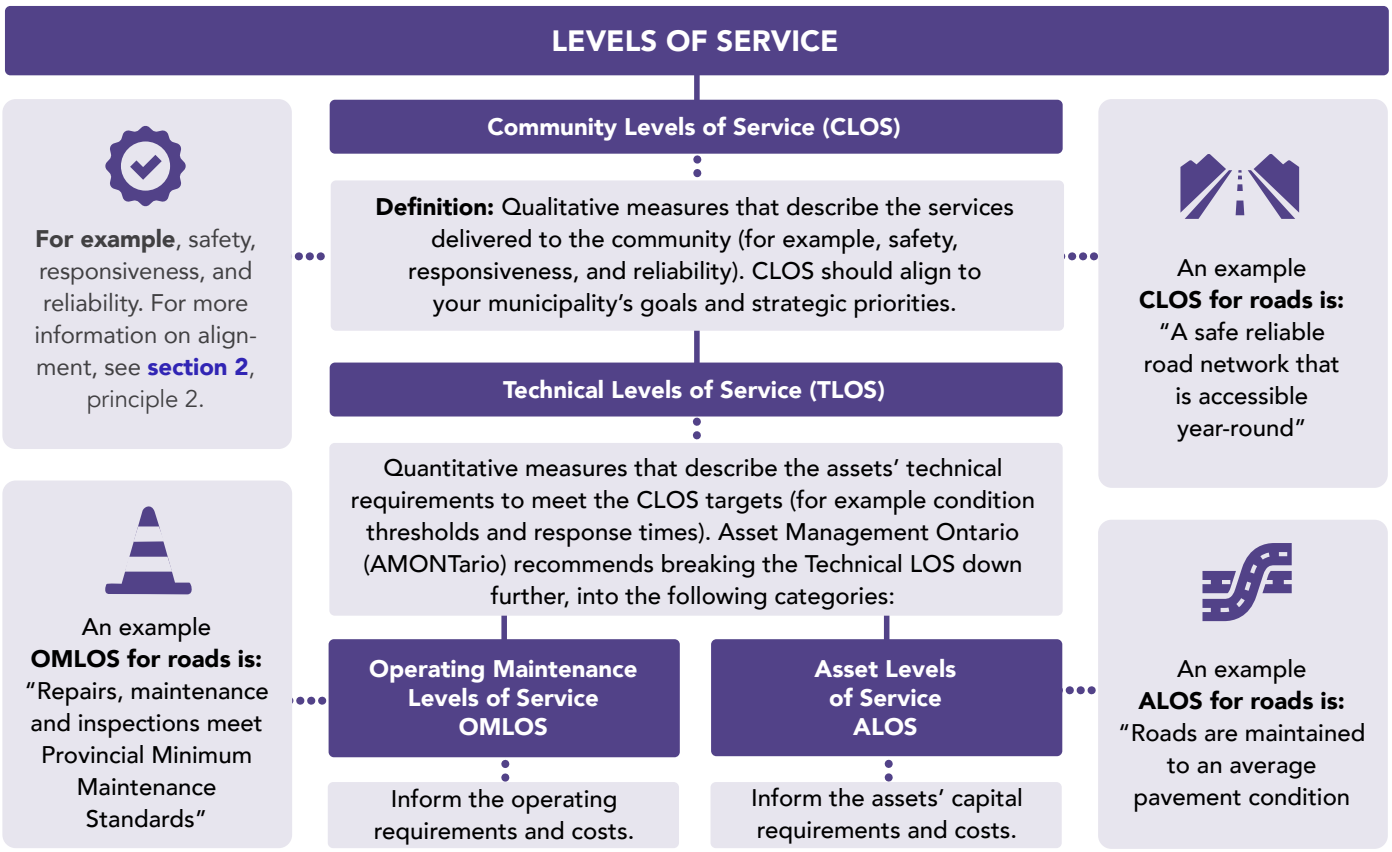
KEY CHALLENGES: ASSET INFORMATION & DATA	
Challenge Council needs to be aware of:	**How to mitigate this challenge:**
Poor data quality and data gaps	• Direct staff to identify and document data gaps • Allocate financial resources to conduct a data audit and/or gap analysis, and address identified gaps • Ask staff to establish a data governance policy • Utilize updates to existing studies, reports and plans (e.g., Transportation Master Plan) to obtain additional asset data

Levels of Service

Assets exist to provide services to residents, and members of Council play the central decision-making role in determining levels of service (LOS). Levels of service communicate expectations about what services are being provided now, about future targets, and how the services will be delivered.

Levels of service statements are structured to provide information and support decision-making on how assets are providing services.

Levels of service are divided into the following categories:



Breaking the technical levels of service into these sub-categories is useful because the asset management regulation (O.Reg. 588/17) requires that the 10-year AMP include full lifecycle capital and significant operating costs for all assets. Establishing levels of service at this level of detail will support your municipality with compliance.

In addition to meeting the regulatory requirement, aligning your levels of service expectations with lifecycle costing is a best practice. This approach creates alignment within your asset management systems, creating clear links between community expectations and financial outcomes, and ensuring that the full costs of achieving and maintaining those service levels over an asset's life are accounted for. Aligning levels of service and lifecycle costing also strengthens financial planning, supporting the development of long-term capital forecasts, operating and maintenance budgets, and sets the stage for the integration of asset management processes with budgeting processes.

O. Reg. 588/17 requires municipalities to define current levels of service as well as proposed (or target) levels of service for the 10 years following the year during which their asset management plan is completed. For certain asset categories, there are legislated levels of service that all municipalities must report on in their asset management plans. More details about these regulatory requirements are included in **section 5**.

Your municipality's established levels of service are documented in your asset management plan.

CASE STUDY

To support transparent, evidence-based decision-making, the Township of Centre Wellington developed a clear framework that brings together Council direction, community feedback, staff engagement, legislative requirements, strategic direction, and balancing constraints to establish levels of service targets. These targets guide the Township's 10-year capital and 3-year operating plan, helping ensure infrastructure investments align with community priorities, available resources, and long-term sustainability. Annual reporting then measures progress against these targets, enabling Council to monitor performance, communicate results to the community, and continuously improve service delivery. By linking governance, planning, budgeting, and accountability through a clear levels of service framework, Centre Wellington has strengthened transparency and supported more informed infrastructure investment decisions.

To learn more, see **Growing Wisely: Township of Centre Wellington** and Centre Wellington's **Asset Management** page.

KEY CHALLENGES: LEVELS OF SERVICE

Challenges Council needs to be aware of:	How to mitigate this challenge:
Limited understanding of community expectations	• Meaningful public engagement to gather information about what services and service levels are important to the community.
Mismatch between desired service levels and available funding	• Undertaking a robust asset management process provides the necessary information to understand asset risks and full lifecycle costs and make prioritized decisions about where levels of service could be reduced without significant risk, and which investments are critical (versus those that could potentially be delayed). • Link service levels to funding during annual budget discussions. • Having a Council approved asset management plan can better position a municipality to apply for application-based grants and assists provincially in making the case for predictable and flexible allocation-based funding.

Risk Management

Risk can never be eliminated, only managed, so it is important to have a good understanding of the risks facing your assets, and the potential impacts to your intended levels of service.

As part of the asset management process, staff will assess how assets are performing, relative to the established technical levels of service, considering likelihood of asset failure and consequences of asset failure.

Completing this assessment across all asset categories and departments gives an accurate, comparable picture of risk across very different assets, such as roads, parks, and facilities. This approach is called **enterprise risk management**. This information can help you, as a member of Council, better understand and prioritize needs, and provide a higher level of confidence in your decision-making.

CASE STUDY

Dufferin County strengthened its approach to infrastructure risk management by integrating climate change considerations into its risk and criticality assessments. Rather than relying solely on historical data, the County adopted a more proactive approach that considers how climate-related risks can affect multiple services, asset classes, and community priorities over time. This approach helped improve the municipality's ability to identify critical assets, prioritize investments, and support long-term lifecycle planning and resilience. The case study highlights how risk-informed decision-making can help municipalities better prepare for uncertainty while supporting sustainable and reliable service delivery.

Case study adapted from "Dufferin County's Cross-Functional Approach to Risk" by Asset Management Ontario. Read the full case study **here** (on page 4-5) to learn more.

KEY CHALLENGES: RISK MANAGEMENT

Challenges Council needs to be aware of:	How to mitigate this challenge:
Lack of a standardized approach to assessing and prioritizing risk	• Adopting an enterprise risk management approach provides assurance that risk is being assessed using a consistent methodology across all departments or service areas
Limited data to support risk assessments	• Establish a data governance policy • Conduct a data audit and/or gap analysis and develop a roadmap to address the gaps
Tendency toward reactive decision-making rather than proactive risk mitigation	• Reactive decision-making is often a response to not having sufficient long-term asset information. Adopting an organization wide approach to asset management like the one described in this Handbook will provide the necessary information to move towards proactive, prioritized decision-making.

LEARN MORE

The Financial Accountability Office of Ontario's most recent report on provincial infrastructure "**Provincial Infrastructure: A Review of the Province's Infrastructure and an Assessment of the State of Repair**" provides information about the ownership of public infrastructure assets in Ontario, as well as the value, state of repair, and funding gap (also known as infrastructure backlog).

Lifecycle Planning and Financial Strategy

Lifecycle Planning

The costs associated with assets do not stop after they are built. Assets need to be managed over their full lifecycle, including design and planning, construction or acquisition, operation, maintenance, monitoring, rehabilitation, and disposal. This approach is also referred to as "whole lifecycle costing" and requires staff to understand all the activities that happen at each of these lifecycle stages and the associated costs.

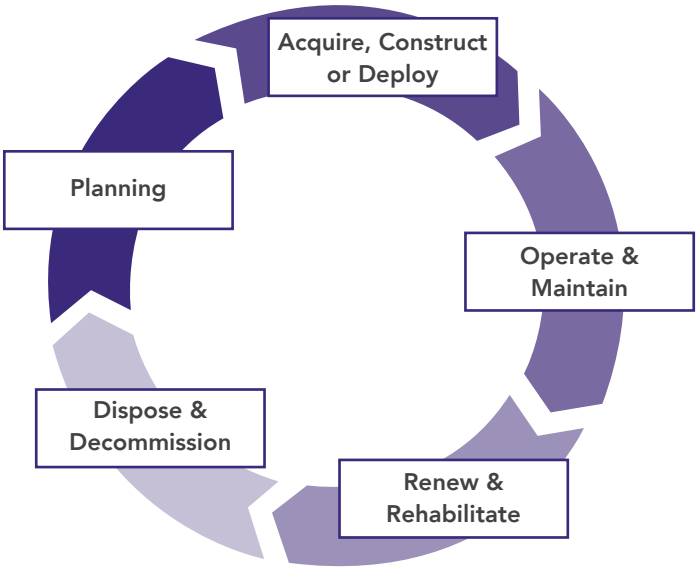


Figure 8: Typical asset lifecycle stages

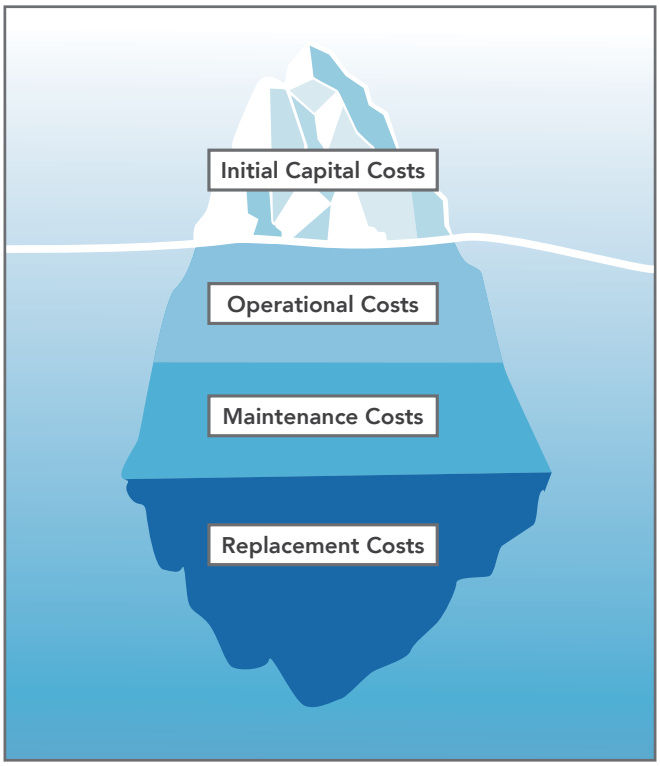


Figure 9: The relationship between initial capital costs and ongoing operational, maintenance, and replacement costs (adapted from "**Asset Management Primer for Elected Officials**" by the Association of Municipalities of Ontario)

In most cases, the ongoing operations and maintenance costs, as well as the eventual rehabilitation or replacement costs, far exceed the initial capital costs, but these whole lifecycle costs are often not considered when first purchasing or constructing the asset. The relationship between the initial capital costs and the ongoing operations, maintenance, and replacement costs is illustrated in figure 9.

Understanding the full scope of activities and costs across an asset's lifecycle helps to optimize performance and minimize long-term costs and supports proactive planning, particularly when this process is integrated with long-term financial planning (supporting both capital and operations and maintenance planning). The recommendations should also be aligned with Council's vision through their strategic plan. To learn more about the benefits of alignment, see **section 2**, principle 2.

In addition to these benefits, there is also a regulatory requirement to undertake long-term lifecycle management planning. Ontario's asset management regulation requires every asset management plan to include a lifecycle management and financial strategy. This strategy must cover full lifecycle activities, along with the associated costs and risks, needed to maintain an asset's proposed level of service over 10 years. What this requirement means is that for every asset type, staff need to understand what activities are necessary at each of the lifecycle stages in figure 8 to maintain the current and proposed levels of service. Staff then need to understand what each of these activities will cost over a 10-year period. In addition to complying with the regulatory requirement, the detailed understanding provided by this analysis provides valuable information for long-term financial planning. For more details about the Ontario Regulatory context, see **section 5**.

Financial Strategy

A financial strategy is required to outline the approach to funding the long-term lifecycle management plan. Each municipality must identify the annual funding that is projected to be available to undertake the lifecycle activities identified and maintain the desired levels of service. If a funding shortfall exists, it must also be identified, along with risks associated with not undertaking recommended lifecycle activities. This shortfall is known as an **infrastructure funding gap**. It is very common for municipalities in Ontario (and across Canada) to have a funding gap; key factors driving this gap are aging assets, rapid population growth, and competing priorities for limited municipal funds. Municipalities own and operate the majority of public infrastructure in Ontario (AMO's 2025 estimate of the current replacement value (CRV) of municipal infrastructure in Ontario alone is ~$1 trillion), and yet they have little revenue-generating authority to fund this work.

> Understanding the full scope of activities and costs across an asset's lifecycle helps to optimize performance and minimize long-term costs and supports proactive planning, particularly when this process is integrated with long-term financial planning (supporting both capital and operations and maintenance planning).

A persistent infrastructure funding gap can lead to a backlog of work to maintain existing infrastructure. Year-over-year this backlog of aging and deteriorating infrastructure accumulates; the total backlog is also referred to as an **infrastructure deficit**.

In addition to maintaining existing assets and attempting to address infrastructure deficits, growth pressures are requiring many municipalities to build new housing and the housing-enabling infrastructure that goes along with it with increasingly limited budgets. These pressures can be particularly acute for smaller municipalities with limited tax bases. These challenges demonstrate that asset management decisions have long-term impacts, emphasizing the need to consider both immediate budgets but also

CASE STUDY

The District Municipality of Muskoka recognized that effective lifecycle management is about more than maintaining existing infrastructure, it is about ensuring assets continue to meet the community's evolving needs. To support long-term decision-making, Muskoka evaluates lifecycle investments using multiple criteria, including asset condition, performance, risk, and capacity to meet current and future demand. This approach allows lifecycle activities to address not only asset renewal but also growth, changing service expectations, and opportunities to improve levels of service. By integrating lifecycle forecasting with long-term financial planning, Muskoka provides Council with a clearer understanding of future investment needs and the trade-offs associated with maintaining, renewing, or expanding infrastructure. This integrated approach has strengthened financial sustainability while helping ensure infrastructure investments continue to support a growing and changing community.

To learn more, see **Growing Wisely: District Municipality of Muskoka** and Muskoka's **2025 Asset Management Plan Update** and **2025 Asset Management Plan**.

long-term financial sustainability when making asset management decisions.

It is important for Council members to understand the funding methods available to them, through asset management planning and the annual budget process. Some questions include:

- Does the municipality rely predominantly on property taxation to fund asset investments, or do other significant user fees exist (such as water, wastewater, and/or stormwater fees)?
- What reserves and reserve funds are available for asset management use, how are they funded, and how are they specifically used to fund lifecycle costs?
- What grant funding is provided to the municipality (application based and allocation based) for capital purposes, and how are they typically used to fund projects?
- How are growth related asset management needs funded? Are development charges used?
- What is the municipality's policy on the use of debt funding? How much debt already exists in relation to the Provincial debt capacity calculation?
- How is each funding source projected to change based on recommendations in the asset management plan?

Understanding funding sources and setting clear policy or direction on how the funds are used (from an asset management perspective), can help Council members understand both asset management practices and any recommendations for funding increases through the annual budget.

KEY CHALLENGES: LIFECYCLE PLANNING & FINANCIAL STRATEGY

Challenges Council needs to be aware of:	How to mitigate this challenge:
Insufficient funding to deliver on proposed levels of service	• Having a Council approved asset management plan can assist in articulating the need for increased funding through the annual budget process. • Incorporating long-term achievable funding recommendations in the asset management plan can build available funding over time. • Developing policies or direction on the use of funding sources can assist with dedicating funding to asset management lifecycle costs.
Difficulty balancing funding to maintain current assets in a state of good repair	• Understanding the full lifecycle costs for all of your assets over a 10-year period supports long-term financial planning, making it easier to understand the needs of your current assets. Any new assets that are planned for the 10-year period should also be included in your lifecycle management and financial strategy. Having this information will then allow you to strategically address funding shortfalls and make prioritized decisions that will benefit your community over the long-term.

Asset Management and Long-Term Financial Sustainability

Long-term financial sustainability refers to a municipality's ability to manage its finances to meet its current and future spending commitments, and to avoid passing on significant costs for current services to future generations of taxpayers. Municipal long-term financial sustainability is guided by the following principles:

- Service continuity: ensuring public services can be delivered at the desired quality consistently over time and as population and business growth ebbs and flows
- Infrastructure stewardship: maintaining, rehabilitating and replacing assets so they remain in the intended state-of-good repair
- Revenue stability and diversity: having predictable, resilient revenue sources that keep pace with inflation, growth, and service demands
- Debt and reserve management: using borrowing and savings prudently to avoid unsustainable obligations
- Intergenerational equity: ensuring today's decisions do not create excessive future liabilities or degrade future service capacity

As these principles demonstrate, municipal long-term financial sustainability is inextricably linked to asset management. Furthermore, just like asset management, long-term financial sustainability benefits from alignment with key organizational plans such as the Strategic Plan, Official Plan, service or business plans, and asset management plans. Progressing towards long-term financial sustainability also requires the following financial policies: budget, user fees and charges, reserves and reserve funds, debt management, and investments.

Building on these key plans and policies, members of Council can expect staff to establish the following long-term projections, and explain how they interact with each other:

- Operating budget
- Capital budget
- Reserves and reserve funds (balance and contribution projections relative to policy guidelines; sustainability analysis)
- Debt (issuance and debt outstanding; debt servicing costs relative to policy limits; sustainability analysis by funding source)

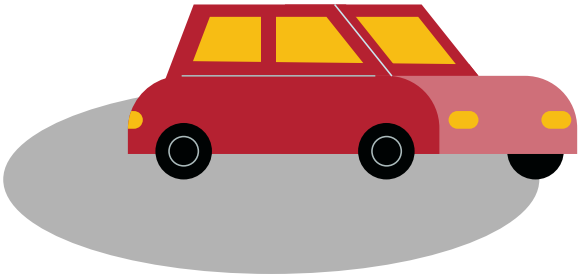
Having these plans, policies, and projections in place allows a municipality to promote long-term financial sustainability, improve transparency and accountability, and mitigate financial risk.

Financial sustainability requires long-term planning. It does not just happen, rather it's about managing and adjusting service levels, maintaining and replacing infrastructure, the population's ability to pay, and a range of cost and revenue impacts that are often beyond the control of local councils. It requires the recognition that service level and infrastructure decisions both typically have operating and capital dimensions, and that the key to financial sustainability is taking necessary steps to manage both short and long-term impacts and risks.

LEARN MORE

The Town of Petrolia spent several years developing a strategic long-term financial planning model, and then used their experience to develop a guide to support other municipalities. You can access that guide **here**.

The Federation of Canadian Municipalities (FCM) provides additional resources about how long-term financial planning supports effective asset mangement **here**.



4

ROLES AND RESPONSIBILITIES OF KEY STAKEHOLDERS

Local Council, staff, and residents each play a distinct role in supporting effective service delivery and decision-making. Key stakeholders play the following roles:

- **Council:** Council provides strategic direction, oversight, and approvals. This oversight includes approving asset management policies and plans, setting service levels, and making decisions about infrastructure investments and funding. Council plays a critical role in balancing community expectations with financial constraints.
- **Staff:** Leadership staff (such as a CAO or City Manager) are responsible for ensuring that asset management is implemented across the organization and aligned with strategic priorities. This role includes integrating asset management into corporate planning, decision-making processes, and municipal operations. Municipal staff translate policy into action. They develop and implement asset management plans, manage data, assess asset condition, and provide technical analysis and recommendations to Council.
- **Residents:** Residents influence asset management through their expectations, feedback, and willingness to pay for services. Public engagement helps define acceptable levels of service and informs priorities.

Clear roles and strong collaboration ensure effective governance and accountability in asset management planning.

Recommended Actions for members of Council:

1) Understand the important role that Council plays in asset management and support a culture of asset management by:
    - Making asset management a strategic priority;
    - Establishing a clear governance structure;
    - Ensuring that asset management is adequately resourced;
    - Promoting alignment between asset management planning, financial planning, and budgeting; and
    - Considering asset management information in all decision-making.

Overview

Successful asset management depends on collaboration between key stakeholders. Each stakeholder has a distinct role to play, but these roles are interconnected, as demonstrated in figure 10.

Figure 10: Key asset management stakeholders (adapted from "Asset Management Primer for Elected Officials" by the Association of Municipalities of Ontario)

Council

Council provides leadership in asset management within the municipality by setting direction and establishing relevant policies. To support robust asset management practices and alignment, members of Council can embrace a culture of asset management by recognizing that all stakeholders have an important role to play (i.e., everyone is an asset manager).

Council members are the asset management champions in the community. They articulate the needs (service requirements) of residents in order to make sure that these needs and expectations are being met. There are tools available to support public engagement, such as the **International Association for Public Participation (IAP2) Public Participation Spectrum**.

Council will also be required to play a role in meeting regulatory requirements by approving mandatory policies, plans, and annual reports. To learn more about the regulatory requirements and Council's role, see **section 5**.

Staff

Senior Leadership

Members of senior leadership direct the activities of operational staff and can play a role in fostering a culture of asset management. They are accountable to Council and responsible for the overall municipal operations. As an intermediary between Council and staff, a member of senior leadership (i.e. CAO or City Manager, if applicable) is typically a good fit to be the official Executive Lead named in the Strategic Asset Management Policy (to learn more, see **section 5**.)

LEARN MORE

Public Engagement: The IAP2 Public Participation Spectrum provides the types of public engagement available for initiatives like asset management planning. The level of participation defines the role you want the public to play in different components of the process. For example, "informing" the public is simply providing the public with information, however, "empowering" involves placing the final decision in the hands of the public. This spectrum can be used for something specific (like defining levels of service) to something more overarching (like presenting the overall asset management plan). Learn more **here**.

Further guidance can be achieved by establishing and participating in a formal cross-functional asset management Steering Committee, or collaborating with counterparts from other departments or services areas to ensure alignment. Senior leadership also ensure asset management recommendations are included in annual budgets for Council consideration.

Operational Staff

Operational staff develop and implement day-to-day asset management practices. Depending on their specific role, staff may be involved in the following ways:

- conducting background research,
- data collection and management,
- community engagement,
- risk analysis,
- level of service reviews,
- capital planning, and
- monitoring of practices.

(list sourced from Rural Municipalities Association of Alberta, **Asset Management: The Strategic Basics Workbook**)

Asset management is the responsibility of all staff; everyone is engaging in asset management even if they are not in a formal asset management role. In order to ensure that key elements of asset management (described in **section 3**) are being delivered effectively, staff from across the municipality must be involved. Building capacity internally can greatly assist in developing foundational asset management practices and minimize the need for external consultants.

Residents

Residents are the driver for asset management—they are the end-users of the services that are being delivered. They also contribute to paying for services through rates and taxes.

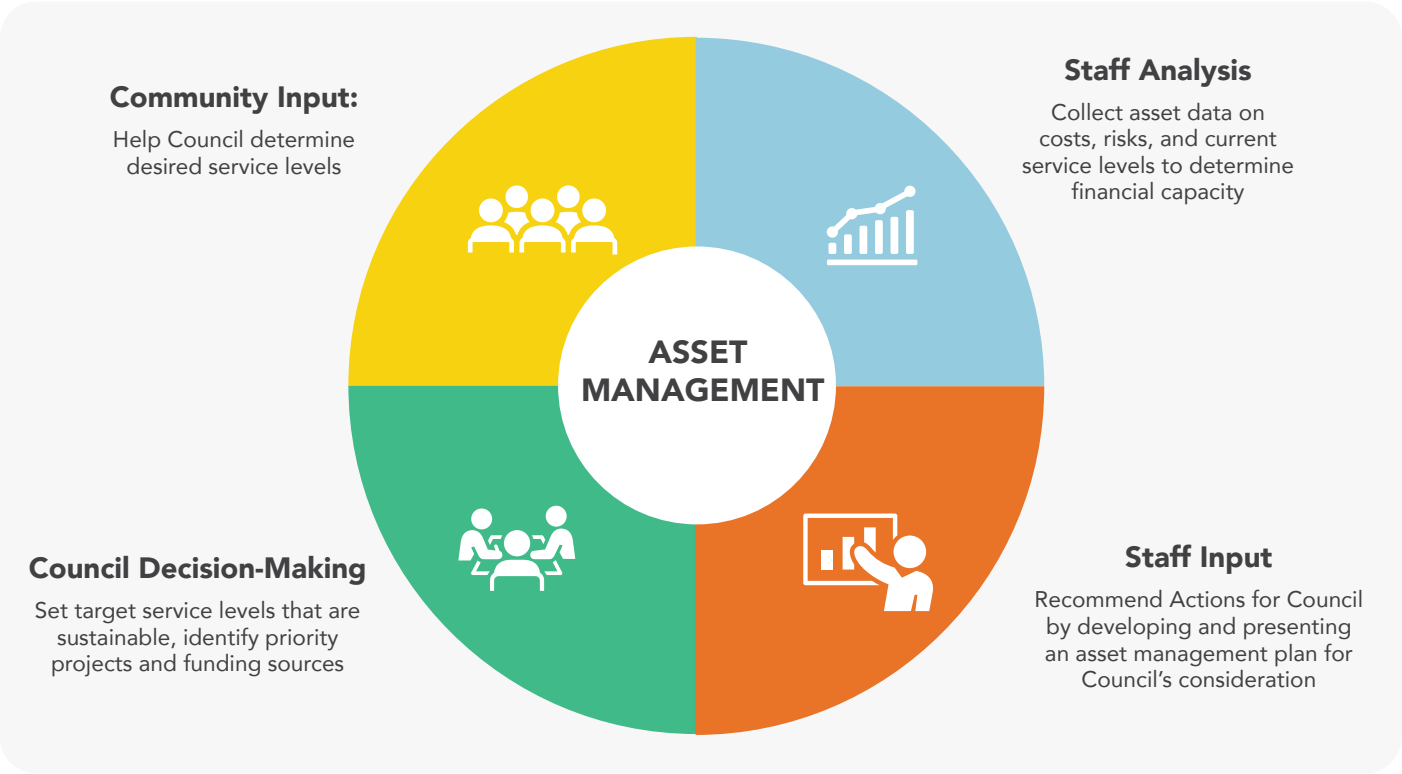


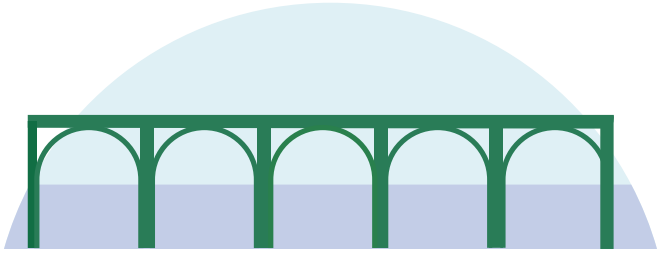
Figure 11: Roles of key stakeholders in the asset management process (adapted from "**Asset Management Primer for Elected Officials**" by the Association of Municipalities of Ontario)

The Role of Consultants

Many municipalities hire consultants to provide specialized knowledge related to aspects of asset management planning, or to prepare asset management plans or other documents when knowledge or capacity is lacking within the municipality (e.g., needs studies/assessments, establishing rates, etc.). This is a common and valid approach to accessing expertise that does not exist within the municipality. However, members of Council should prioritize building internal capacity when it is appropriate to do so. Relying too heavily on consultants can sometimes lead to challenges with staff taking ownership and action on asset management plans and embedding a culture of asset management within the organization. If you engage a consultant to complete an asset management plan, it is recommended to ensure that staff still have a role, as asset management Champions, in the development of the plan, and access to the raw and analysis data included in the plan, and that a thorough debrief is conducted when the plan is complete.

As explained in Asset Management: The Strategic Basics—Participant Workbook:

"When community members are unhappy, the elected official may be their first point of contact. Information and accountability are important to the relationship between the elected official and community members. Asset management helps to provide this information and demonstrate accountability."



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AN OVERVIEW OF THE ONTARIO REGULATORY CONTEXT

Ontario municipalities are required to comply with a provincial asset management regulation (Ontario Regulation 588/17: Asset Management Planning for Municipal Infrastructure) that includes policies, plans, and regular reporting, with Council playing a central oversight role.

This regulation was not developed overnight; Ontario's asset management requirements have been developed gradually through a series of milestones, culminating in the current requirements. Figure 12 provides a snapshot of the milestones and the current requirements.

Recommended Actions for members of Council:

1) Review and understand your municipality's key asset management related documents, including:

- Strategic asset management policy
- Asset management plan(s)
- Other relevant local plans and documents (such as the Strategic Plan, Annual Budget, Official Plan, and Master Plans)

2) Familiarize yourself with your municipality's state of compliance with the regulatory requirements as well as progress towards asset management goals and recommendations.

1997

Under the Development Charges Act, DC-eligible capital costs are limited to the 10-year historical average service level, ensuring consistent service levels from both new and existing development.

2002

Following the Walkerton Inquiry, O.Reg. 453/07, the Safe Drinking Water Act, 2002 requires municipal drinking water systems to include a financial plan for full cost recovery.

2009

The Public Sector Accounting Board (PSAB) of Canadian Institute of Chartered Accountants updates PSAB 3150, a standard requiring municipalities to track and report the infrastructure assets (Tangible Capital Assets) they own.

2012

The Ministry of Infrastructure published **Building Together: Guide for Municipal Asset Management Plans** to begin to promote standardization and consistency in municipal asset management.

2015

Ontario Regulation 428/15 issued, requiring Development Charges Background Studies to include an Asset Management Plan for DC funded infrastructure.

2017

Ontario Minister of Infrastructure passes O.Reg.588/17 under the Infrastructure for Jobs and Prosperity Act, 2015 with phased asset management requirements for municipalities, as shown in the following milestones (the timelines were amended by O. Reg. 193/21).

2019

Municipalities are required to develop a Strategic Asset Management Policy by July 1.

2022

Municipalities are required to develop an Asset Management Plan that includes all core infrastructure assets at current levels of service by July 1.

2024

Municipalities are required to develop an Asset Management Plan that includes all infrastructure assets (core and non-core) at current levels of service by July 1.

2025

Municipalities are required to develop an Asset Management Plan that includes all infrastructure assets, including current and proposed (or target) levels of service, lifecycle activities & costs, and a lifecycle management and financial strategy by July 1.

2026

Municipal Councils must conduct an annual review of asset management progress by July 1, including progress implementing asset management plans, any barriers to progress, and strategies to overcome these barriers.

Figure 12: Road to asset management regulation (adapted from "**Asset Management Primer for Elected Officials**" by the Association of Municipalities of Ontario)

Overview

Ontario Regulation 588/17: Asset Management Planning for Municipal Infrastructure came into effect on January 1, 2018, with the required reporting dates amended by **O. Reg. 193/21**. The intent of the regulation is to improve the way that municipalities plan for their infrastructure by promoting best practices and encouraging consistency and standardization in how municipalities conduct asset management planning. Recognizing that municipalities across the province were at different maturity levels with their existing asset management planning practices, Ontario Regulation 588/17 includes a series of phased requirements. The following diagram provides an overview of these requirements:

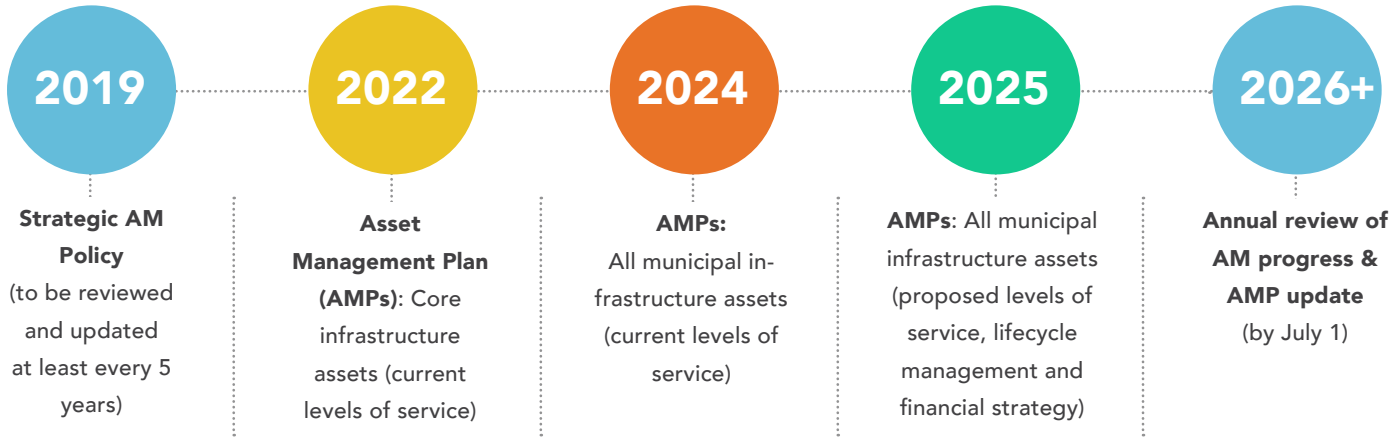


Figure 13: Key milestones in Ontario's asset management regulation.

As a member of Council it is important to know the following:

- **Annual review of asset management planning progress:** Beginning in July 2026, Ontario municipalities are required to develop an annual asset management progress report for their councils. The annual review must address:
  - The municipality's progress in implementing its asset management plan;
  - Any factors impeding the municipality's ability to implement its asset management plan; and
  - A strategy to address these factors.

  Beyond these requirements, this annual reporting requirement is a good opportunity for engagement between members of Council and staff. Staff can provide information about changes to the state of local infrastructure and progress on continuous improvement activities, and members of Council can use this opportunity to ask questions, to gain a better understanding of progress over time, ensure that asset management is being meaningfully integrated into municipal budgeting, financial planning, and overall decision-making.
- **Strategic asset management policy:** Every municipality was required to adopt its first strategic asset management policy by July 1, 2019. Municipalities must review and update the policy at least every five years.
  - The strategic asset management policy is where roles and responsibilities for asset management within a municipality are officially documented, and an executive lead is designated. Council should designate this executive lead, at a minimum. If your municipality has already developed a governance structure, ensure that that structure is reflected in the policy. For more on governance, see **section 3**.
  - The policy also needs to include an explanation of Council's involvement in the municipality's asset management planning; members of Council must ensure that they are aware of the expectations in their current policy.
  - The policy should align with Council objectives. Members of Council should thoroughly review the policy to ensure alignment.

- Integration with budgeting and financial planning can be included in the policy, setting the stage for alignment and integration across the municipality, if it is not currently included, consider this for your next update.

- **Asset management plan:** As of July 1, 2025, municipalities are required to have an asset management plan in place that meets all of the regulatory requirements and is approved by Council. Members of Council should familiarize themselves with their municipality's current asset management plan.

  Asset management plans are required to be endorsed by the Executive Lead of the municipality, approved by Council resolution, and made publicly available and posted on the municipality's website. The asset management plan must be updated at least every five years, which means a municipality can update their plan when required (when asset data or calculations significantly change), as long as it happens at a minimum, every five years.

  Understanding these plan requirements will help members of Council ask better questions, and have confidence that your municipality is in compliance with the regulation.

The Role of Council in Supporting Compliance

Council has a key role in ensuring compliance with this regulation. Opportunities to support compliance have been identified in the sections above, but fundamentally, members of Council are responsible for:

- Approving the asset management policy and plan
- Reviewing progress reports and ensuring accountability
- Using asset management information to inform decisions on service levels and funding

LEARN MORE

Regulatory Requirements: Ontario's asset management regulation, **O. Reg. 588/17: Asset Management Planning for Municipal Infrastructure** and its amendment **O. Reg. 193/21**.

Annual progress reporting: For context about how municipalities have been considering the annual progress reporting requirement, and links to municipal examples, see the outcomes report from Asset Management Ontario's workshop **Staying on Track: From Compliance to Impact**.

Asset management plans and strategic asset management policies: To see examples of municipal asset management plans, refer to the map developed by the Association of Municipalities of Ontario. While the focus of the **map** is asset management plans, many examples of strategic asset management policies are also available at the links.

6

EXAMPLE CASE STUDIES

The following fictional case studies describe common infrastructure challenges, and how asset management can support evidence-based, defensible decision-making that prioritizes sustainable service delivery (balancing levels of service, risk, and financial sustainability).

Case Study 1: Moving Beyond "Worst-First" to Risk-Based Decision-Making

High-Level Summary

Investment prioritization is based on multiple factors, not only condition. Focusing only on the worst-condition assets can lead to poor outcomes; risk-based decision-making generates the most value from investments by addressing both service delivery and community safety.

Scenario

The Township of Clearview Hills owns two rural bridges:

- **Bridge A:** Closed due to poor structural condition. It serves a small number of seasonal properties and a single farm, with low traffic volumes. While the closure has created inconvenience for nearby residents, an alternate route is available that adds approximately 10 minutes of travel time.
- **Bridge B**: In fair condition but deteriorating. It carries a high volume of daily traffic, including school buses, emergency services, and commercial vehicles. If load restrictions or closure become necessary, the nearest detour route would add significant travel time and disrupt key community services, goods movement, and emergency response.

Residents near Bridge A have been actively advocating for its replacement, citing inconvenience and longer travel times. The issue has become highly visible, with delegations to Council and local media attention.

At the same time, engineering staff have identified that Bridge B requires rehabilitation within the next 2–3 years. If not addressed, it may require load restrictions or closure, significantly impacting emergency response times, school transportation, and local economic activity.

Decision Context

A "worst-first" approach would prioritize replacing Bridge A because it is already closed and in the poorest condition. However, a risk-based approach considers:

- Likelihood of failure (Bridge B is deteriorating)
- Consequences of failure (Bridge B serves critical, high-volume traffic)
- Service impact (Bridge A has limited usage; alternatives exist)

Using this lens, staff recommend:

- Deferring replacement of Bridge A
- Prioritizing rehabilitation of Bridge B to extend its service life and prevent cost escalation and disruption

Outcome and Key Takeaways

Council ultimately approves the rehabilitation of Bridge B, supported by clear communication about risk, service impact, and long-term value.

Key lessons:

- The "worst" asset is not always the highest priority
- Risk (likelihood × consequence) provides a more complete basis for decision-making
- Proactive investment in critical assets can prevent more costly and disruptive failures
- Transparent communication is essential when decisions do not align with vocal public pressure

Case Study 2: Finding Cost Savings Through Proactive Lifecycle Management

High-Level Summary

Investing in timely maintenance and rehabilitation can significantly reduce long-term costs compared to deferring work and relying on full replacement.

Scenario

The Town of Maple Grove manages a network of local roads, many of which are reaching mid-life. Historically, the municipality has taken a reactive approach, addressing roads only when they are in poor condition.

Engineering staff identify an opportunity to implement a preventative maintenance program, including crack sealing and surface treatments, for roads currently in fair condition.

Council is presented with two options:

- Continue the current approach, focusing on reconstructing roads once they fail
- Invest in preventative maintenance to extend asset life and delay costly reconstruction

Decision Context

Initial reactions from Council raise concerns about spending money on roads that "still look fine."

However, lifecycle analysis shows:

- A relatively small investment in maintenance can extend road life by 5–10 years
- Deferring maintenance leads to accelerated deterioration and significantly higher reconstruction costs
- Over time, the proactive approach allows the municipality to treat more roads within the same budget

Outcome and Key Takeaways

Council approves a phased preventative maintenance program. Over several budget cycles, the municipality:

- Reduces the number of roads in poor condition
- Stabilizes its infrastructure backlog
- Achieves better overall network condition at a lower long-term cost

Key lessons:

- The lowest upfront cost is not always the lowest long-term cost
- Lifecycle management supports more efficient use of limited resources
- Proactive strategies can reduce infrastructure deficits over time
- Asset management helps shift decision-making from reactive to strategic

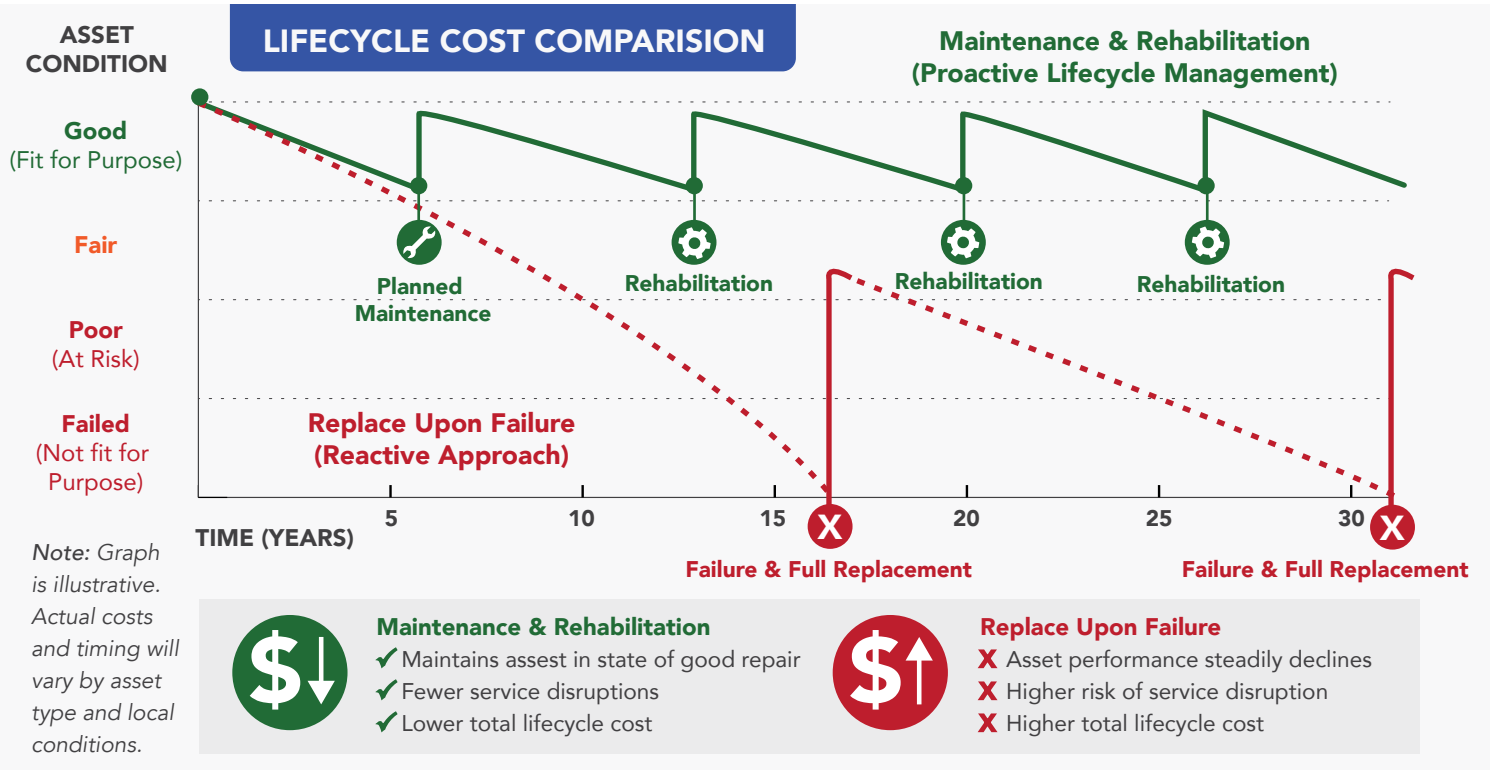


Figure 14: Example lifecycle cost comparison

Case Study 3: Avoiding Health and Safety Risks Through Timely Investment

High-Level Summary

Asset management helps identify and mitigate risks to health and safety, enabling municipalities to act before failures occur.

Scenario

The Municipality of Lakeshore Valley operates a water distribution system that includes several aging watermains. One section, installed in the 1970s, has experienced an increasing number of breaks over the past five years.

While repairs have been completed as needed, staff note that:

- Break frequency is increasing
- The watermain serves a hospital, school, and dense residential area
- A major failure could result in prolonged service disruption and potential public health concerns

At the same time, other capital pressures compete for funding, including facility upgrades and road improvements.

Decision Context

Council must decide whether to:

- Continue reactive repairs as breaks occur
- Proactively replace the high-risk watermain segment

Asset management analysis highlights:

- High consequence of failure (critical services, vulnerable populations)
- Increasing likelihood of failure based on asset condition and break history
- Potential costs associated with emergency response, service disruption, and reputational impact

Outcome and Key Takeaways

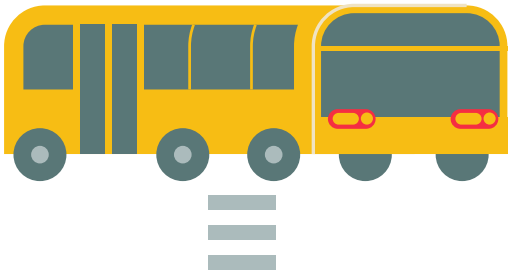
Council approves the proactive replacement of the watermain segment, prioritizing it over lower-risk projects.

As a result, the municipality:

- Reduces the risk of major service disruption
- Improves reliability for critical community services
- Avoids higher emergency repair costs and potential liability

Key lessons:

- Not all risks are visible—data and trends are critical for early identification
- Health and safety risks should be a top priority in decision-making
- Proactive investment can prevent emergencies and protect vulnerable populations
- Asset management supports defensible, transparent decisions in complex situations



7

ASSET MANAGEMENT GLOSSARY

Asset: "An asset is an item, thing or entity that has potential or actual value to an organisation." (**ISO 55000**). In the municipal context, asset value is in their ability to deliver services that meet the community needs while preserving the environment for current and future generations. Examples of municipal assets include roads and bridges; water, wastewater, and stormwater systems; municipal vehicles; recreation facilities and community centres; green infrastructure (like parks, street trees, forests, wetlands, rain gardens, etc.) and more.

Asset Class: Similar asset types having similar design characteristics and operating in a similar fashion to provide a distinct and critical service function.

Asset Data: The information required to identify and manage an asset throughout its lifecycle. Having complete and accurate data stored in the proper formats in the asset register is important for confident and accurate decision-making.

Asset Hierarchy: A method of structuring asset information and attributes to ensure consistency across your organization and services. The hierarchy should be service-focused.

Asset Lifecycle: The phases or stages of life for an asset, typically defined as: design/planning, construction/purchasing, operating, maintaining, and renewal/disposal. (Asset Management Ontario "**Lifecycle Management: Through a Climate Change Lens**").

Asset management: Asset management is the coordinated activity of an organization to realize value from their assets to achieve the organization's objectives (**ISO 55000**, 2014 (3.3.1)). In a municipal context, asset value is linked to the ability to deliver services that meet community needs through sustainable service delivery.

Asset management champion: Someone internally who is key to advocating for and supporting momentum on asset management planning progress. This champion can be a subject matter expert or someone in leadership, but crucially they support asset management at an organizational level, they support collaboration and consistency, and promote a culture of asset management.

Asset management plan (AMP): An asset management plan is a tool to communicate a municipality's current state and anticipated funding needs to the community and other levels of government. (AMO **Asset Management Primer for Elected Officials**).

Asset Management Policy: An asset management policy outlines the principles and framework for developing an asset management plan. It is a statement of the community's expectations through council on how assets will be managed to deliver services (**AMO**).

Asset Management System: An overarching system including the entire collection of processes, documents and tools that supports your asset network (Asset Management Ontario, "**Asset Hierarchy and Attributes: Through a Climate Change Lens**").

Asset Performance: An assessment of how effectively assets are able to provide their intended services, considering factors like condition, reliability, and capacity.

Asset Register: A centralized source of asset information (including attributes for all existing assets) that contains all information necessary to facilitate decision-making for any activity type. It should be centralized and accessible to everyone involved in operating, maintaining and planning for your assets (Asset Management Ontario, "**Asset Hierarchy and Attributes: Through a Climate Change Lens**").

Cross-Functional Team: A multidisciplinary team of stakeholders who bring unique insights, skills and knowledge to particular project, program, or working group. Participants in the team can be internal to your organization, or external, with stakeholders from other organizations, such as other municipalities, conservation authorities, universities/colleges, or other major stakeholder groups that have unique insights invaluable to broader body of work that team is undertaking (Asset Management Ontario and NAMS Canada, "**Collaboration & Cross-functional Teams**").

Current replacement value (CRV): A valuation method that determines an asset's value based on the total cost to replace it today.

Decision Support System (DSS): These are tools to help facilitate strategic decision-making, commonly in the form of dedicated software systems, but can also be excel templates, SQL databases, or any other combination of technology and systems to facilitate consistent, reliable, and repeatable steps in your decision-making process (Asset Management Ontario, "**Asset Hierarchy and Attributes: Through a Climate Change Lens**").

Enterprise Risk Management: A structured, continuous process across an entire organization to identify, assess and respond to threats and opportunities related to the achievement of objectives. (Institute of Internal Auditors, "**The Role of Internal Auditing in Enterprise-wide Risk Management**")

Financial Strategy: Identifies the best manner to allocate funds for the operation, maintenance, repair, rehabilitation, and replacement of the asset (**Asset Management Ontario, "Climate Change & Prioritized Decision-Making**").

Green infrastructure: : In Ontario, GI is defined in the Provincial Policy State¬ment as "natural and human-made elements that provide ecological and hydrological functions and processes. Green infrastructure can include components such as natural heritage features and systems, parklands, stormwater management systems, street trees, urban forests, natural channels, perme¬able surfaces, and green roofs." (**Provincial Planning Statement**, 2024, pg. 44.)

Infrastructure deficit: The total physical backlog of infrastructure that is in poor condition, in need of repair or replacement, and the associated costs.

Infrastructure funding gap: The difference between the funding available and the funding needed to maintain assets to an established service level.

Levels of service (LOS): A defined set of parameters for a particular type of assets (or service area) against which performance may be measured. Defined LOS allow for an assessment of the balance between good service, acceptable risk, maximum value, and affordability. Levels of service are divided into customer/community LOS and technical LOS.

Lifecycle Management: A method that provides an estimate of the total operating, capital, and maintenance costs for an asset over its operating life (**Asset Management Ontario, "Climate Change & Prioritized Decision-Making**").

Maintenance (deferred and preventative): Maintenance refers to the necessary activities (repairs, routine upkeep) to ensure that assets can provide the desired level of service. Deferred maintenance refers to postponing necessary activities due to limited time, budgets, or staffing. Preventative maintenance is a proactive approach that helps to prevent unexpected failures by detecting and fixing minor issues before they escalate into significant problems. A preventative maintenance approach requires a robust asset management system in order to be able to understand the desired condition and performance of your assets, and capacity to regularly monitor your assets.

Maturity assessment: Tools and scales that help to assess an organizations current level of experience with the various topics and concepts in asset management. Some examples of maturity assessment tools are the FCM's Asset Management Readiness Scale and the IAM's Asset Management Maturity Scale and Guidance (Asset Management Ontario and NAMS Canada, "**Collaboration & Cross-functional Teams**").

Risk: Risk is the effect of uncertainty on your objectives (ISO 31000), and risk management is the response to that uncertainty. Can be defined as physical risks (direct impact to infrastructure and assets), transition risks (changes based on low carbon economy), litigation and liability risks, reputation risks, and financial risks (rising costs of damages).

Risk Assessment: Risk is assessed based on the likelihood of an event and the consequence of the event to create a risk matrix indicating high, medium, and low risks.

Risk Tolerance: The acceptable level of risk an organization is willing to take (also referred to as risk appetite) (Asset Management Ontario, "**Asset Hierarchy and Attributes: Through a Climate Change Lens**").

Road Map: This is an outline of the major initiatives, programs, and projects an organization will undertake, along with approximate timeframes and resource requirements, to provide a measurable outline of an asset management system's progress. It is a useful communication tool when reporting to stakeholder groups and steering committees on progress within your asset management program (Asset Management Ontario and NAMS Canada, "**Collaboration & Cross-functional Teams**").

State of good repair: An asset is maintained in sufficient condition to deliver a service as intended.

State of infrastructure (SOI; or state of local infrastructure): A comprehensive evaluation of the assets that a municipality owns or operates, including inventory, condition, total replacement value, and age and remaining service life.

Sustainable service delivery: A process of providing services to the community in a way that fosters the economic, social, and environmental well-being, today and into the future. Sustainable service delivery is achieved by balancing asset lifecycle costs, asset performance (or expected levels of service), and risks (Asset Management Ontario and NAMS Canada, "**Collaboration & Cross-functional Teams**").

Whole lifecycle costing: Involves calculating the total cost associated with an asset across its entire lifecycle, from capital planning to end of life.