Association of Municipalities Ontario

Asset Management Outcomes Report

Canada Community-Building Fund

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Introduction

Local governments aim to provide safe, reliable, and sustainable services that promote economic development, create a cleaner environment, and build stronger communities in a predictable and cost-effective manner. This requires keeping infrastructure assets in a state of good repair. The Canada Community-Building Fund (CCBF) supports sector progress in asset management by providing permanent, predictable infrastructure funding that allows municipalities to plan for the long term, invest in priority projects, and build capacity for asset management (AM) and long-term planning.

Infrastructure Challenges

The Financial Accountability Office of Ontario (FAO) has estimated that 45% of municipal assets are not in a state of good repair, with a combined infrastructure backlog of $52.1 billion. The backlog is commonly referred to as an infrastructure deficit and is defined as the cost required to bring assets up to a state of good repair. Per the municipal Financial Information Return (FIR), between 2017 and 2021 total capital financing for municipalities in Ontario was around $54 billion (in 2021 dollars). CCBF funds accounted for about 7% of that amount, and nearly 40% of the $9.3 billion in federal and provincial funding allocated to municipalities during this period.

The significant costs associated with managing infrastructure assets is a major component of municipal capital budgets. Therefore, it is important for municipal governments to adopt a structured approach such as AM to determine infrastructure investment priorities for the benefit and sustainability of their communities. While Ontario municipalities have made great strides in adopting AM as a decision-making tool in the last few decades, municipal governments must continue to invest strategically in infrastructure through an AM lens to ensure residents' continued access to vital services.

Purpose of This Report

The Administrative Agreement under the CCBF requires AMO to report on sector progress in AM that includes demonstrating how Asset Management Plans (AMPs) are being used to guide infrastructure planning and investment decisions, and how the Fund is being used to address priority projects. This report explores progress the sector has made since 2017 in building internal capacity to adopt best practices in AM. The progress made helps municipalities identify and invest funds in local infrastructure priorities. AMO has prepared a separate project outcomes report on the results of 3,905 completed local infrastructure and capacity building projects funded in part by nearly $3.4 billion in CCBF funding during the period 2017-2021.

Methodology

To assess sector progress in AM during 2017-2021, AMO used multiple data sources and engaged several organizations to conduct independent research. AMO provided direction to municipalities to continuously improve and implement their AMPs according to the phased provincial AM regulatory requirements in Ontario. Each year, starting in 2017, AMO would collect and review the most recent AMPs. Additionally, all municipalities would report on, through an annual survey, the initiatives they have undertaken and outcomes achieved in improving AM capacity. That data was then shared with a technical working group established by AMO and was used to assess progress and develop capacity building initiatives.

Key Findings

During 2017-2021, Ontario municipalities have been focused on improving both the development and the implementation of their AMPs. Back in 2016, the large majority of municipalities found their AMPs to be unreliable and were reluctant to integrate findings of their plans in the budgeting process. By 2022, this had changed as more and more municipalities took advantage of available resources to collect data, train staff, and make use of guidance materials and templates.

Between 2017 and 2021, 80% of municipalities developed an improved AMP using better and more reliable asset condition and cost data. The other 20% are continuing to work towards the development of a new plan meeting requirements of the regulation. For example, by 2022 over 90% of municipalities used periodic inspection data to determine road condition and over half used inspection data for subsurface core infrastructure. In addition, 70% of municipalities reported that they are implementing their AMPs by integrating them with budgets and long-term financial plans, up from less than 20% in 2016.

During this period, municipalities undertook a variety of capacity building initiatives to adopt best practices in AM that would support better implementation of their AMPs. These initiatives include increased focus on training and hiring dedicated staff and establishing cross-functional teams across departments to promote coordination and collaboration within municipalities.

While significant progress has been made since 2017, momentum in gaining AM maturity must continue before it is fully embedded in the organizational culture of all municipalities. Of need is the ongoing improvements to inspection data quality and better integration of issues such as climate resiliency, changing demographics, and service expectations.

CCBF Investments in Asset Management Capacity Building Projects

During 2017-2021, municipalities in Ontario invested $28 million from the Fund to support 183 completed or ongoing AM capacity-building projects worth $73 million. These projects have helped municipalities to better implement as well as improve quality of their AMPs. Examples of these projects are found on the following pages.

City of Barrie

The City of Barrie invested $2.8 million in several projects worth $7.6 million to support its AM initiatives. This included updating transportation, water and stormwater departmental AMPs, condition assessments, and utilizing various software such as GIS to capture maintenance data.

City of Niagara Falls

The City of Niagara Falls invested $1.6 million in capacity building projects worth $2.8 million to complete a water distribution system servicing plan, and to assess its sanitary and combined sewer network using CCTV. The inspection provided recommendations to identify future state of good repair and wet weather flow reduction sewer projects.

Town of Ajax

The Town of Ajax invested $1.0 million in multiple capacity building projects worth $1.4 million to identify existing levels of service and establish future levels of service for all infrastructure assets. CCBF funding was also used to assess the condition of walkways and parks lighting, and to integrate the Town's computerized maintenance management system and geographic information system.

City of Guelph

The City of Guelph invested $434,000 in several projects worth $2.4 million to develop a stormwater management master plan and a strategy for replacing core infrastructure in its downtown core. The master plan was critical to gain a better understanding of the current condition of assets and future asset management needs. CCBF was also used to implement a decision support system used to analyze the impact of funding and priority changes on condition and level of services in real time.

City of Waterloo

The City of Waterloo invested $1.2 million in a capacity building project worth $2 million to develop its AMP and a customized AM system. The system operationalizes asset inventories, together with decisions about how the performance of assets are measured and the specific strategies for how different types of assets are renewed.

Township of Hornepayne

The Township of Hornepayne used over $22,000 from the CCBF to fund multiple projects worth just over $106,000. This included developing an AM policy and updating the asset inventory of its below ground infrastructure assets to gain a better understanding of the investments required rather than relying on traditional methods such as institutional memory.

City of Richmond Hill

The City of Richmond Hill invested $8.8 million in multiple AM capacity building projects worth $20 million. This included the development of its first corporate AMP along with its policy, strategy, and governance structure. Richmond Hill also integrated climate change with AM by developing an environmental management system that provides a framework to manage the environmental aspects of its business activities associated with its AMP.

Township of Springwater

The Township of Springwater invested $214,000 in to purchase AM software capturing all of its fleet assets and tracking maintenance and other lifecycle costs. This information helped Springwater include more assets in its AMP and minimize risk of asset breakdowns and the associated service disruptions.

What is Asset Management (AM)?

AM is a structured approach for managing infrastructure assets that involves proactively determining investment needs to meet pre-defined service levels. It helps municipalities manage community expectations, strategically prevent service failures, and make cost-efficient decisions with a long-term vision.

AM is not an activity. Rather it is a means to achieve desirable outcomes defined by strategic objectives of municipal councils such as providing safe and well-maintained infrastructure, balancing service delivery with fiscal sustainability, building climate change resilience, etc.

What is an Asset Management Plan (AMP)?

An AMP is a publicly available strategic document used as a tool to communicate a municipality's current state of infrastructure, potential risks to services and anticipated funding needs to the community and other levels of government.

What is Required to Develop and Implement (AMPs)?

The development of complete and reliable AMPs requires accurate data describing the current condition of assets, the associated funding required for the maintenance, rehabilitation, and replacement of those assets, and an understanding of the potential service consequences of asset failure.

Implementation primarily involves adopting AM as a decision-making tool by municipal councils and integrating findings of AMPs with budgeting and long-term financial planning. This requires leadership by municipal councils to embrace and foster an AM culture by:

- Engaging the community to determine and manage expectations regarding service levels;
- Establishing an AM policy that defines roles and responsibilities and guiding principles for staff;
- Providing a supportive environment for staff to build internal capacity and collect relevant data required to develop and improve AMPs; and
- Reviewing recommendations of AMPs to determine infrastructure investment priorities based on affordability of taxpayers and long-term financial sustainability of their communities.

AMO Support In AM Capacity Building

Technical Assistance for Municipal Staff

For the past five years, AMO has worked with Asset Management Ontario (AMONTario), a community of practice comprising AM practitioners across Ontario, to advance sector progress in asset management. Some of this work has been undertaken as part of the Federation of Canadian Municipalities' Municipal Asset Management Program, funded by the Government of Canada. Under this program, municipal staff and elected officials from about 100 municipalities across the province have received training and coaching on AM milestones - and namely leadership and governance, data gap analysis, establishing service levels, risk assessments and financial strategy based on whole lifecycle costing. Municipalities achieved these milestones by utilizing the materials and templates developed by AMONTario in alignment with the provincial AM requirements.

Direct Support to Small and Rural Municipalities

AMO engaged subject matter experts to provide direct support to small and remote municipalities that are not able to commit staff resources to comprehensive training programs. For example, the Municipality of Killarney benefited from this opportunity to improve their internal process to effectively develop long-term capital plans based on their existing asset database, while the Town of Marathon leveraged support to develop expertise in reviewing and coding defects based on the condition data for categorizing and identifying sewer assets for maintenance, repair, and replacement.

Support for Elected Officials

AMO delivered a dozen sessions with elected officials representing nearly two thirds of all municipalities in Ontario. This included sessions on AM at each of AMO's annual conferences. Additionally, through consultation with about 100 elected officials during 2021, AMO developed an AM Primer. This primer was developed to provide councils with a better understanding of their role in adopting a strategic approach to determine infrastructure investment priorities and is expected to be updated on a bi-annual basis.

Twelve municipalities across the province were profiled in a video series on AM community profiles. Each video showcases how different municipalities are making continuous progress in building internal capacity and adopting AM as a tool to assess infrastructure. Each video also speaks to the importance of the CCBF and how improved AM capacity has helped leverage CCBF funds on local infrastructure priorities. Examples are provided on the following pages.

Town of Cobourg

The Town of Cobourg has made AM a priority by incorporating in its strategic plan important initiatives such as hiring and training dedicated staff, as well as updating condition data on infrastructure assets. The Town has adopted a sustainable funding strategy for its stormwater assets through a stormwater rate charge that demonstrates its commitment to providing sustainable service levels.

Town of Petrolia

The Town of Petrolia has implemented a capital levy to help fund the replacement of its outdated essential infrastructure as the Town recognizes the importance of long-term planning and making informed strategic decisions to best provide and sustain crucial municipal services in the most practical and cost-effective way.

Municipality of Wawa

The Municipality of Wawa hired an asset management coordinator as a shared staff resource with three other small municipalities in Algoma district: the Township of Hornepayne, the Township of White River and the Township of Dubreuilville. This partnership with other municipalities helped to advance asset management programs, despite having limited financial resources and technical expertise.

Municipality of South Huron

The Municipality of South Huron has been proactively investing in infrastructure assets to minimize any service disruptions to its community. South Huron has implemented a dedicated capital levy to exclusively fund capital replacement and refurbishment projects. They have also established an operating budget dedicated to operationalizing asset management activities such as hiring and training staff, as well as regularly updating condition data on assets to identify priority capital projects.

Loyalist Township

Loyalist Township established an asset management governance structure to foster a culture of collaboration across departments and service areas such as finance, engineering and operations to create a line-of-sight between services, assets and staff accountabilities to facilitate municipal decision-making.

Municipality of North Grenville

The Municipality of North Grenville developed internal capacity in AM by establishing a multi-disciplinary team across different departments and invested in a specialized software for continuously improving its AMP. This has helped to determine service levels and proactively identify priority assets that need to be maintained, repaired, replaced, or newly constructed.

Progress in Development and Implementation of AMPs

Baseline Status

The Administrative Agreement required Ontario municipalities to develop an AMP by December 31, 2016 in alignment with Ontario's Building Together: Guide for Municipal AMPs. Ontario municipalities met the requirement by developing their first AMPs based on available data on assets condition and costs, and limited staff capacity.

Many municipalities found their AMPs to be unreliable and incomplete. As a result, they were reluctant to integrate findings of their plans in the budgeting process due to lack of:

- Good data on costs, service levels, assets condition, and consequences of service failure;
- Financial resources to collect and maintain the required data;
- Adequate staff and Council training on key AM concepts; and
- Guidance materials on best practices, and easy to use tools and templates.

Starting in 2017, phased provincial AM requirements under O. Reg. 588/17: AM Planning for Municipal Infrastructure came into effect that require Ontario municipalities to develop an AM policy and an AMP that documents current and target service levels, demonstrates funding needs and gaps, and eventually, by 2025, provides a corresponding financial strategy to address those gaps.

Results from 2021 AM Survey

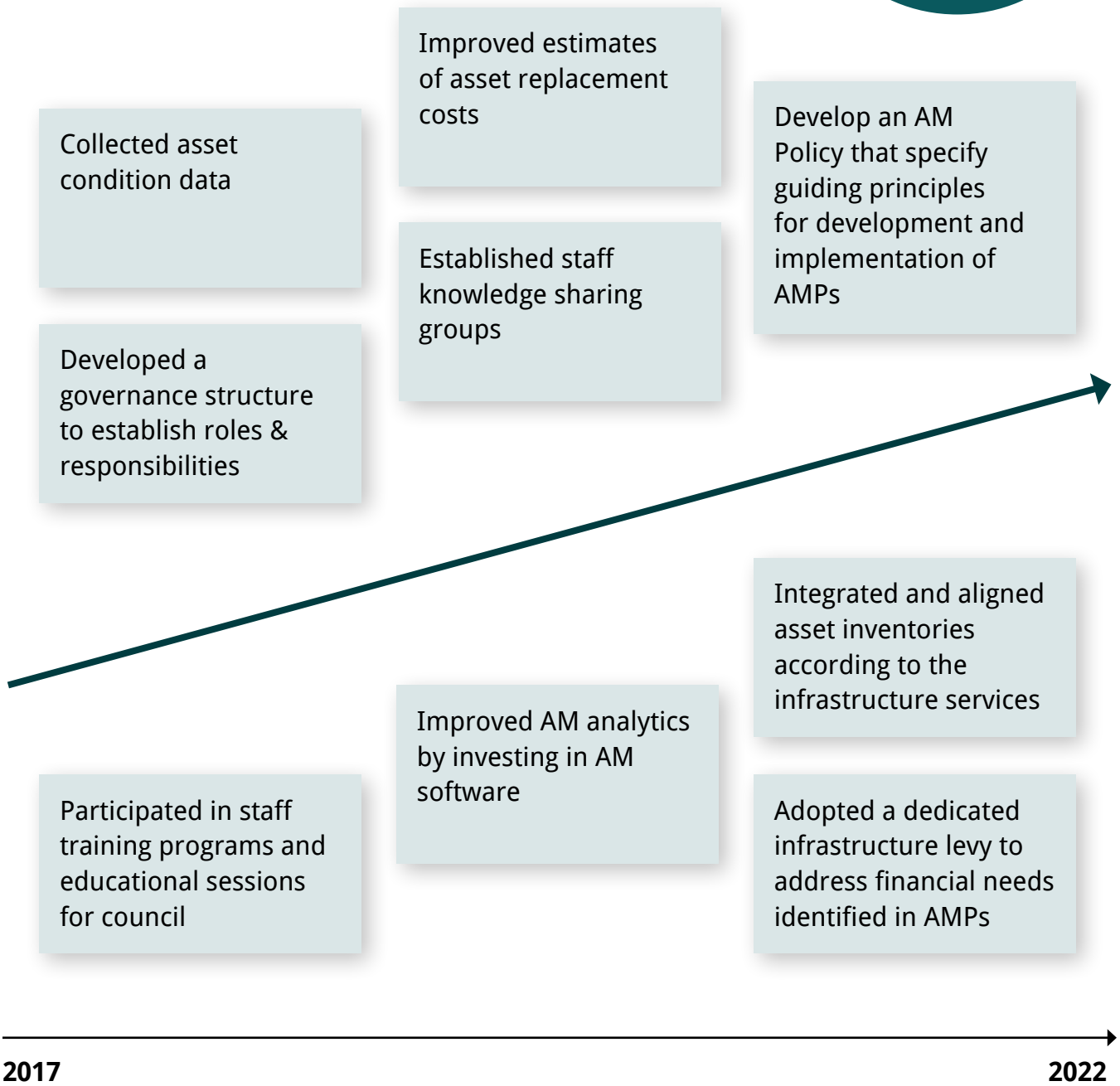
In addition to collecting data on an annual basis, AMO developed a mandatory questionnaire for municipalities to report progress made between 2017 and 2021 in improving the quality of plans, and to describe current or recent initiatives based on the provincial AM requirements. AMO followed up on this information with several municipalities to clarify data provided.

From 2017 to 2021, about 80% of Ontario municipalities have improved their AMPs by increasing the scope of their AMPs to cover additional infrastructure asset categories and by using more accurate data to inform infrastructure investment priorities. AMO verifies this information by reviewing the AMPs.

In terms of better implementation of AMPs, Ontario municipalities reported that they have undertaken several capacity building activities between 2017 and 2021. These activities are illustrated on the following page.

Development and Implementation of AMPs

80%
of Ontario municipalities improved their AMPs since 2017

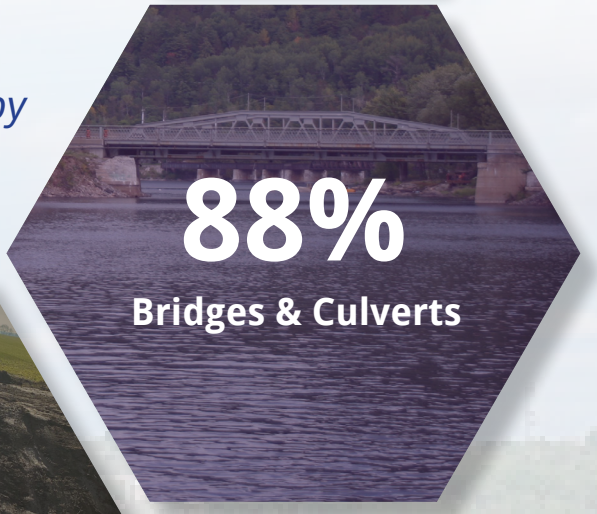


Improving Data Quality: Asset Condition

Determining the condition of infrastructure assets is the starting point in the development of AMPs that help distinguish between urgent and long-term investment priorities. Municipalities often rely on two methods to determine asset condition:
1) age of the asset or 2) assessed condition based on engineering assessments.
The later best reflects the true condition of the asset and its ability to perform its functions.

Almost all municipalities have collected condition inspection data for roads, bridges and culverts. This is important as nearly two thirds of the $3.5 billion in CCBF funds invested between 2017 and 2021 were for local roads and bridges. Around 50% of municipalities have collected condition inspection data for assets that are below ground such as water, wastewater, and stormwater. Inspecting subsurface infrastructure is more expensive and requires additional financial resources.

Collection of Condition Inspection Data by Asset Category



Improving Data Quality: Asset Replacement Cost

Replacement costs reflect the current total costs associated with the full replacement or reconstruction of an asset. An understanding of how municipalities estimate replacement costs reported in the AMPs is important as municipal funding needs are projected based on these estimates. When estimating replacement costs for different asset categories, Ontario municipalities typically use a combination of different methodologies.

Inflating historical costs is the most convenient and cost-effective method. However, it is also the least accurate as it assumes that aging assets will be replaced with new assets with identical physical dimensions, capacity and materials. It does not consider other factors such as change in growth requirements, service expectations, use of emerging technologies, and building climate change resiliency.

of municipalities continue to use historical costs to estimate replacement costs for at least some of their assets.

of municipalities, mostly with population under 10,000, report relying almost exclusively on historical costs to estimate replacement costs.

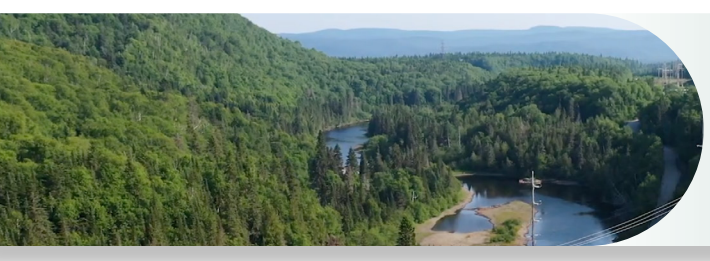
of municipalities have reported using more accurate estimation techniques for some of their assets.

As AM practices in the sector continue to mature, and with a publicly available data inventory on standardized cost estimates and information on recent construction projects for different geographic regions across Ontario, the sector can make more progress in this area.

Improving AM Implementation: Informing Budgeting Process

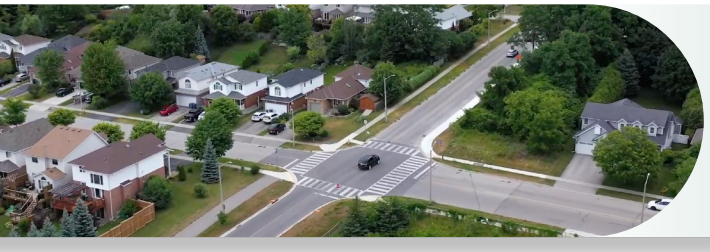
In 2016, only 16% of municipalities reported that they rely on their baseline AMPs to determine infrastructure investment priorities. To successfully adopt and implement AMPs, it is important to use findings and recommendations in AMPs to inform the annual budgeting process and to integrate AMPs with long-term financial plans. As municipalities were continuously improving their AMPs during 2017-2021, around 26% of all municipalities have reported that they extensively use AMPs when budgeting, and another 50% of municipalities are in the process of integrating their plans with budgeting and long-term financial planning. The following graphic illustrates the distribution of responses by different population groups:

AMP Integration with Budgets & Long-Term Financial Planning



Municipalities under 10,000

Municipalities 10,000 - 50,000



Municipalities above 50,000

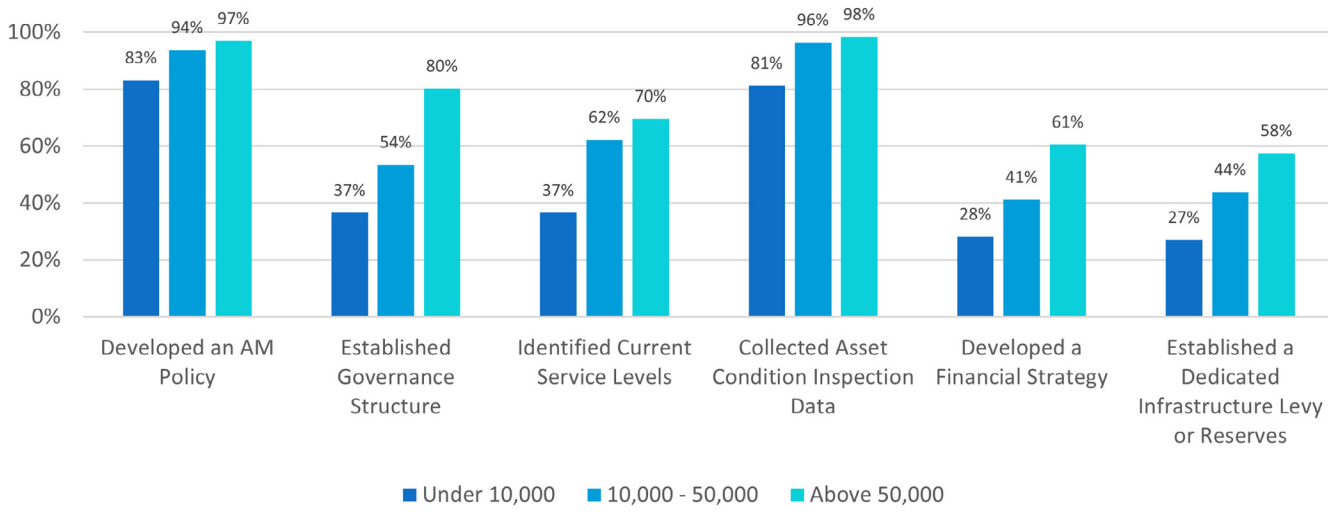
No | Yes, but to a little extent | Yes, but somewhat | Yes, extensively

Building Internal Capacity: Initiatives Undertaken

Since 2017, municipalities across Ontario have reported that they undertook a variety of initiatives to build internal capacity to develop and implement AMPs and address funding needs based on the investment priorities established in the AMPs. These initiatives include adopting an AM policy that provides key guiding principles for staff in alignment with strategic objectives of councils, in establishing a formal governance structure that defines staff roles and responsibilities, collecting condition assessment data, and identifying current service levels provided to their residents to determine future fiscal sustainability. Some municipalities have developed financial strategies that leverage the CCBF, adopted a dedicated infrastructure levy, and established capital reserves to plan for future priority investments.

The following graphic illustrates the distribution of these initiatives by different municipal population groups. We note that larger municipalities with more staff and financial resources are more likely to undertake such initiatives.

2017-2021 AM Capacity Building Initiatives



Research Report on State of Municipal AM in Ontario

AMO engaged PSD Citywide, a private sector consulting firm, to develop a research report on the state of AM in Ontario. This study, based on a sample of 84 AMPs, suggests that AM sector progress has been steadily improving over the last decade, especially with regards to completing asset inventories and the overall acceptance of AM practice by municipal staff and councils.

The report notes:

- Traditionally, smaller and remote municipalities have had limited condition data on their assets compared to larger municipalities. This was largely due to a lack of resources and capacity. However, in the past five years, smaller municipalities have made significant progress in collecting more condition data.
- The practice of AM has become more widely accepted and encouraged within municipal level governance. Councils and senior staff have begun leveraging AMPs as valuable resources to communicate complex infrastructure deficits and to support short- and long-term planning and decision-making.

- Over the last five years, Ontario municipalities have begun to implement more reliable replacement cost methodologies.
- In recent years, elected official support for AMPs has increased, both as a communication tool and its usefulness in addressing the infrastructure backlog as AMPs offer clear and concise public messaging.
- The momentum in AM maturity must continue for the value of AM to be fully realized. While Ontario municipalities' asset inventories are more complete, the management and governance of these inventories must be prioritized to ensure greater data quality and the consolidation of all asset inventories into one single registry used across the organization.
- AMPs are living documents that should be updated regularly as additional asset and financial data becomes available.

Additional Insights

To complement the findings of PSD's report, AMO engaged AM Ontario (AMONTario) a centre of excellence for public sector AM practitioners across Ontario – to provide insights on the adoption of AM practices and the implementation of AMPs. This involved interviewing dozens of municipalities of different sizes across Ontario. AMONTario's report provides an integrated framework for sector engagement based on three interrelated pillars: performance guidance, resourcing, and capacity-building. Each of the pillars identifies key findings, themes, opportunities, and recommended actions.

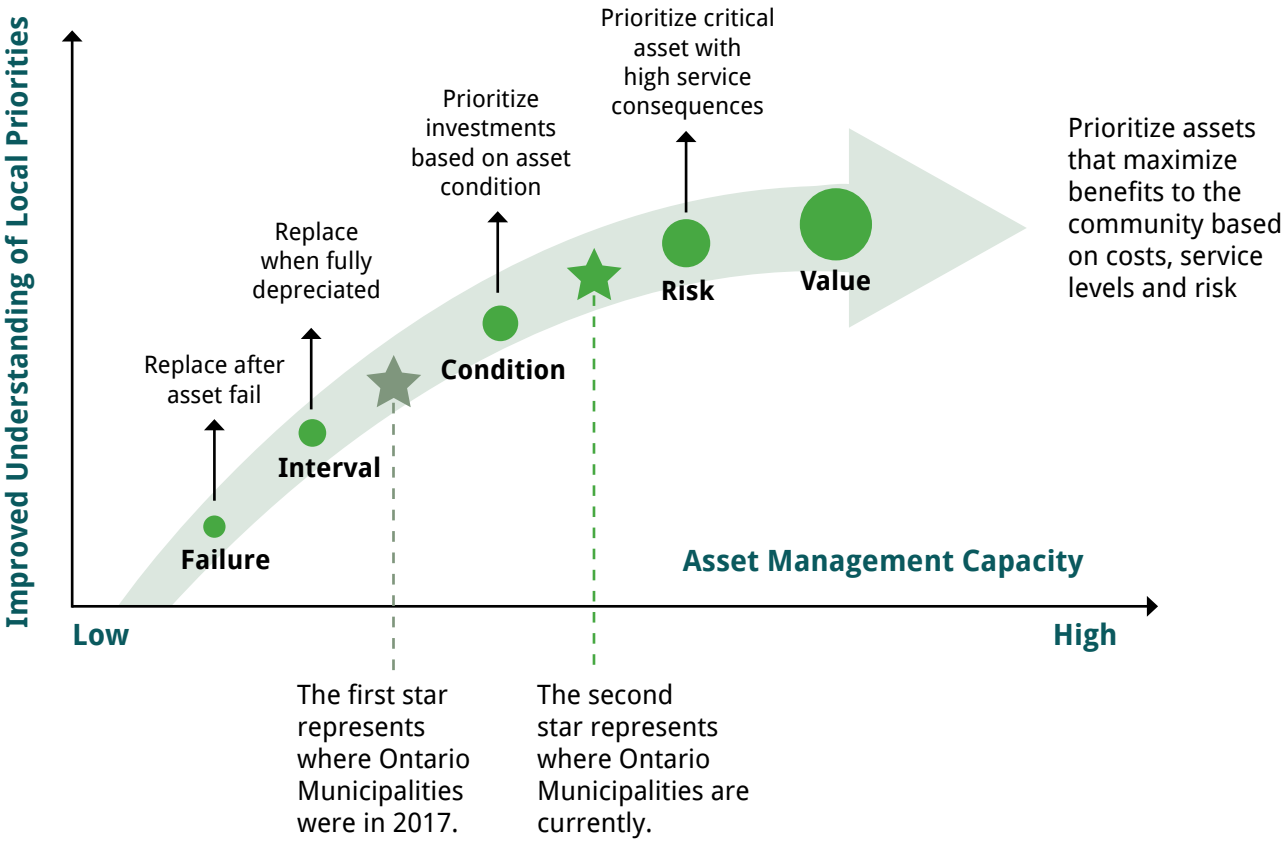
Understanding how well AM is being implemented across Ontario's municipalities entails recognizing differences in AM maturity. As municipalities progress from the beginner to more advanced stages, the way they measure success changes. For municipalities who began their AM journey 10 to 15 years ago, their communities are seeing tangible and measurable outcomes. This includes developing and implementing AM using financially sustainable investment strategies and the integration of climate action and equity, diversity and inclusion considerations into AM. For those that started the adoption of AM within the past 5 years, outcomes are centered on smaller steps such as improving data quality, establishing cross-functional teams, or getting council support to resource AM activities.

Differences in AM maturity can often be delineated by size of municipality. In mid-size to large municipalities with longer-term programs and greater maturity, data and information from AM processes are being integrated into decision-making at multiple levels. Capital planning is increasingly linked to the AM planning process, with future costs and risks well-documented and understood.

On the other hand, small municipalities early in their maturity are still getting a handle on the data and information that needs to be collected, further refined, or evaluated to better support decision-making. With increased awareness of future requirements, cost and risk from development of their AMPs, some municipalities have become overwhelmed and struggle with developing realistic financial strategies.

Conclusion

More municipalities have been adopting AM as a decision-making tool in the last 5 years. AM decision-making has evolved from traditionally replacing assets only after they fail - which is a reactive decision – to adopting best practices in AM. This process involves determining investment priorities by proactively monitoring asset condition inspection data that provides insight on the potential risk of asset failure, and the associated service consequences. The majority of Ontario municipalities are now identifying local priorities based on assessed condition inspection data of their assets along with the risks involved in deferring investments. The following graphic illustrates how Ontario municipalities have increased their AM capacity in the last five years to better identify investment priorities:



To address investment priorities, municipalities are working towards accurately determining infrastructure funding needs by not only using reliable replacement cost methodologies but also applying a whole lifecycle perspective. This involves considering the total cost of an asset over its lifecycle, which includes the costs associated with planning, design, construction, acquisition, operation, maintenance, rehabilitation and disposal. All of these cost elements should be considered for making informed decisions with respect to achieving financial sustainability. Previously, many municipalities would only consider the initial capital cost of an investment in their budgeting.

Opportunities

The scope of AM is changing in order to be more responsive to challenges like climate change and community inclusion. AM provides an effective framework within municipalities to address cross-cutting issues around climate change mitigation, adaptation, and broader issues of community resilience.

These issues are often high-profile among elected officials and residents and can require new ways of collaborating. For example, in addressing climate change issues through AM, it can be important to involve community planners and environmental specialists earlier in the AM process.

Green infrastructure is also an area of growing interest, particularly in achieving multiple benefits. Choosing a green infrastructure option to address drainage issues, for example, can be an opportunity to beautify community space, support biodiversity, and reduce impacts of potential floods. Some municipalities, such as the City of Sarnia and Northumberland County, are starting to include non-core green infrastructure in their AMPs. Other municipalities, such as the City of Markham or the City of Richmond Hill, are in an advantageous position to respond to climate change adaptation because they proactively developed robust AM practices to address climate considerations.

As more Ontario municipalities see results, the value and importance of AM becomes more evident. However, limited resources including staff time and quality of data are ongoing constraints to progress in AM. It is critical to recognize that the focus needs to be on continuous improvement in AM implementation rather than the creation of an AMP. The plan is only as good as the quality of its information and the AM culture that enables its adoption and implementation.

Municipal resources will need to be leveraged with continued provincial and federal support to sustain the growth in AM maturity. Permanent and predictable federal funding – aligned with municipal AMPs – through the CCBF has proven vital in allowing the sector to build on progress made, while addressing infrastructure backlog.

Get in Touch

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