CANADIAN INFRASTRUCTURE REPORT CARD

Asset Management Primer

THE CANADIAN INFRASTRUCTURE REPORT CARD

For more information on this Report Card, or the project, please contact info@canadainfrastructure.ca.

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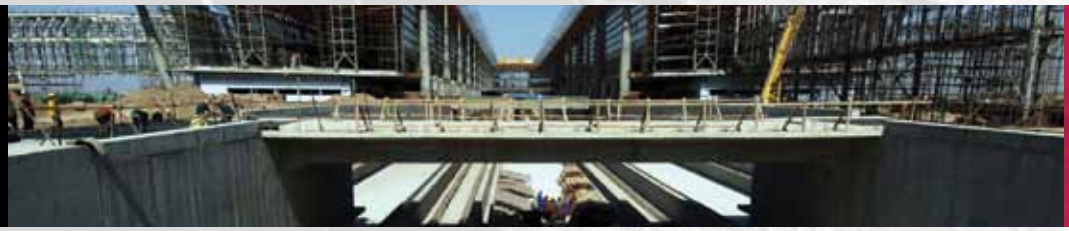


ASSET MANAGEMENT PRIMER

In 2012, the inaugural Canadian Infrastructure Report Card (CIRC) was released. This report was the first objective assessment of our country's municipally owned water, wastewater, stormwater, and road infrastructure. It also examined the state of infrastructure asset management across Canada.

The 2012 CIRC attracted much needed attention to the deteriorating state of Canada's core public infrastructure. While the condition ratings garnered much of the attention reinforcing the need for sustained funding efforts, what is less prominent but equally important is the need for development of the state of asset management in Canadian municipalities.

What is Municipal Asset Management?

Asset management is the coordinated activities of an organization to realize value from its assets in the achievement of its organizational objectives. From a practical perspective, asset management is based on a set of 4 key fundamentals:

- Value: Assets exist to provide value to the organization and its stakeholders.
- Alignment: Asset management aligns the organizational objectives with technical and financial decisions, plans, and activities.
- Leadership: Leadership and workplace culture are crucial to realize value.
- Assurance: Asset management gives assurance that assets will fulfill their required purpose.

Is Data Provided Through the Opinion of Municipal Representatives Relevant?

The 2012 Canadian Infrastructure Report Card was focused on providing a summary of the facts that were reported by municipalities across Canada. This data was obtained by soliciting information through a survey that was distributed to all municipalities. 123 municipalities, representing a population of approximately 20 million, provided information that could be used for reporting purposes.

Municipalities were asked to identify the source of the information being reported – either the opinion of a municipal representative or derived from established asset management processes (such as physical condition assessments of the infrastructure).

The majority of the 123 responses to the survey that were used to generate the 2012 CIRC were based on the opinion of a municipal representative. In fact, less than 15% of municipalities who responded were able to provide asset condition information that was derived from an established asset management process. Why is this relevant? Figures 1 and 2 below show the comparison between the reported condition information based on data derived from asset management processes and the condition information based on all of the responses, which is primarily from the opinion of a municipal representative.

For visible above ground assets– like pumps and buildings (Figure 1) – the understanding of condition is virtually identical for data derived from asset management processes compared to the opinion of the municipal representatives. However, for assets that are not as visible – buried water mains – we see some discrepancy in the understanding of the condition of the assets (Figure 2).

What did the 2012 CIRC say about the state of asset management in Canada?

"...when assessing the state of municipal infrastructure management, the report card finds that many municipalities lack the internal capacity to assess the state of their infrastructure accurately on their own. This is not to say that the municipal sector lacks the wherewithal to undertake rigorous internal reviews of their assets; rather, that finite financial resources, staff and time preclude a much more thorough, real-time evaluation of the state and performance of their physical infrastructure."

Figure 1 – Comparison of Condition Data for Water Facilities

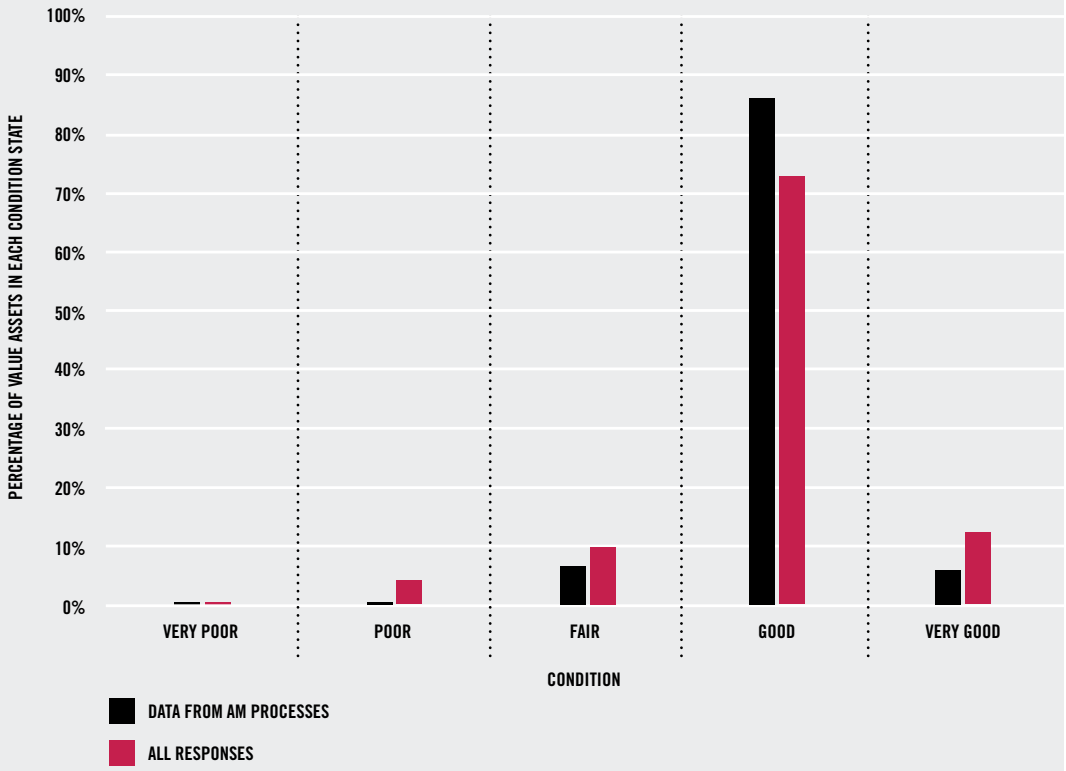
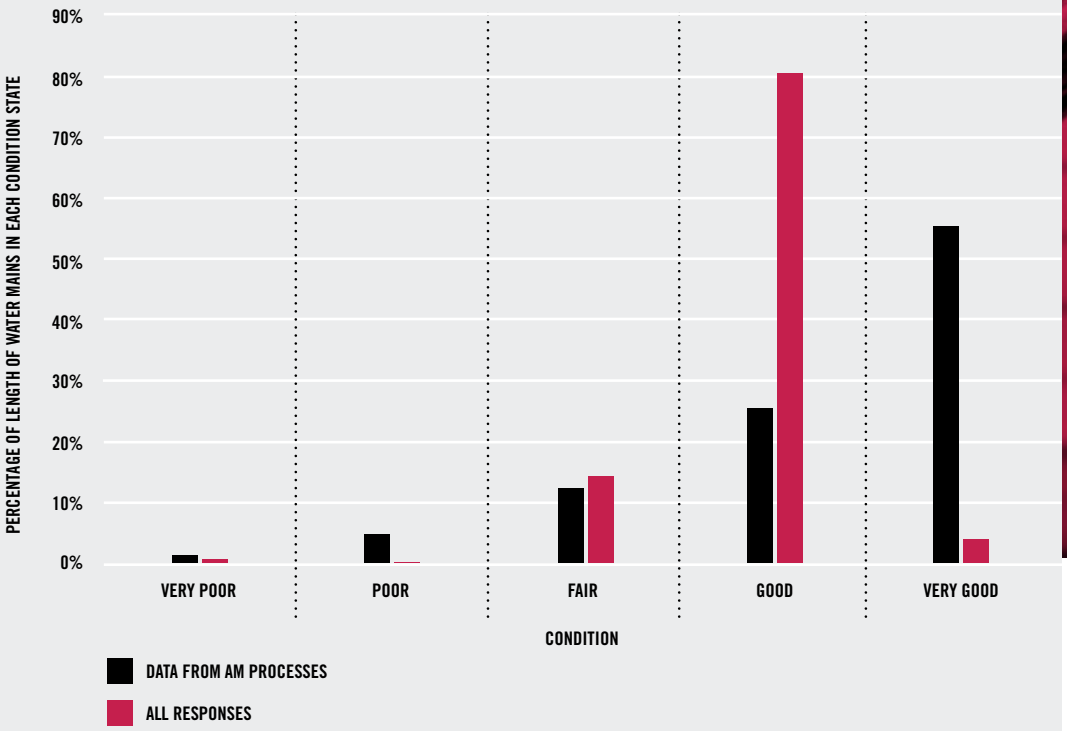


Figure 2 – Comparison of Condition Data for Water Mains



Knowledge management is a component of asset management

Those involved with municipal infrastructure feel that the opinion of individuals working closely with the assets is often the best way to evaluate the condition of the assets; however, there is a need to document this knowledge so it can be passed on to others. Otherwise, what happens when these knowledgeable individuals retire, or when new employees enter an organization?

RECOMMENDATION 1:

When identifying opportunities to improve asset management processes and knowledge within municipalities, it is a necessary to document and store the information that is currently retained by experienced staff in some type of management system (spreadsheet, GIS/stand-alone database, or software application).

RECOMMENDATION 2:

Municipalities should develop governance structures as well as competencies and training strategies that support their asset management practices.

Speaking a Common Language

One of the biggest challenges many municipalities experienced in completing the survey for the 2012 CIRC was reporting asset condition in a consistent manner. Consistency is important to promote an accurate understanding of the state of Canada's municipal infrastructure. When all municipalities are on the same page about how to grade the condition of their infrastructure, comparisons become more realistic. In addition, a standardized condition grading system across Canadian municipalities is easily repeatable, enabling comparison of the status of infrastructure condition over time.

2014 marked the release of ISO 55000 – an international standard for asset management established to foster a consistent understanding and approach to asset management (www.iso.org). There are also excellent resources available through the work that has been done in Australia and New Zealand over the past two decades. Resources, such as the International Infrastructure Management Manual (IIMM), are available through the Institute of Public Works Engineering Australasia (http://www.ipwea.org/home).

Condition grading system terms

The condition grading system should align with the following definitions:

- **Very Good - Fit for the future.**
  Well maintained, good condition, new or recently rehabilitated.
- **Good - Adequate for now.**
  Acceptable, generally approaching mid stage of expected service life.
- **Fair - Requires attention.**
  Signs of deterioration, some elements exhibit deficiencies.
- **Poor - At risk of affecting service.**
  Approaching end of service life, condition below standard, large portion of system exhibits significant deterioration.
- **Very Poor/Critical - Unfit for sustained service.**
  Near or beyond expected service life, widespread signs of advanced deterioration, some assets may be unusable.

Don't have condition information? Using the amount of the estimated service life (ESL) remaining is a good starting point. Here is a guide that you can use:

CONDITION GRADE	% OF ESL REMAINING ON ASSET
Very Good	80-100%
Good	60-79%
Fair	40-59%
Poor	20-40%
Very Poor	<20%

Asset Report Cards - a Component of Asset Management

The past year has seen a notable increase in the pace at which asset management processes have been promoted in all three levels of government in Canada. For example:

- The Federal Government has highlighted the importance of capital asset management plans to improve infrastructure systems that are targeted in the New Building Canada Fund.
- The Province of Ontario has made the development of Asset Management Plans a requirement to be eligible for some specific provincial funding, and has committed funding to assist smaller municipalities to develop their asset management capacity and plans.
- Many municipalities across the country have developed their own asset management plans.

Asset Management Plans

To be effective, asset report cards need to be part of an asset management system and be referenced as part of an Asset Management Plan (AMP). An AMP documents how a group of assets is to be managed over a period of time. The AMP describes the characteristics and condition of infrastructure assets, the levels of service expected from them, planned actions to ensure the assets are providing the expected level of service, and financing strategies to implement the planned actions (see page 9 for an AMP outline). The initial focus should be on the development of a general AMP that discusses all of the assets owned by the municipality. Over time the focus may shift to developing more detailed AMPs for each service area, however this will depend on the size of the municipality and asset management maturity.

In addition to other business drivers, an AMP forms part of a municipality's long term planning requirements. An AMP should be updated periodically to coincide with other processes in the municipality. At the end of this document there is a brief outline of what an AMP could look like.

RECOMMENDATION 3:
Municipalities should develop an Asset Management Plan for the portfolio of assets required to support the delivery of services (see page 9 for an AMP outline).

Managing Services by Managing Assets

The predominant asset management strategy for municipalities across Canada is to manage the condition and capacity of the physical infrastructure. However, many across the country are rethinking their asset management practice by asking a very basic question: Why do municipalities exist?

At the most basic level, municipalities exist to provide services to their residents. The concept of service levels can be difficult for many asset managers to describe and define because we manage the physical assets, and not the services provided by the assets. This changing mindset will shift the focus of asset management to the level of service delivered by our infrastructure systems.

Risk Management

Understanding and managing the risks associated with the failure of an asset is a key element in many AMPs. The risks in municipal infrastructure are impacted by the physical condition of the asset and the social, economic and environmental consequences that would occur if the asset fails to provide the service for which it was designed.

As a municipality develops an understanding of the physical condition of their assets, they will inevitably begin to understand how this condition impacts the service that the assets provide. This will lead to asset management processes that focus on managing services and how investment decisions may be used to best support the delivery of these services.

RECOMMENDATION 4:
Municipalities should strive to understand the levels of service provided to their community and focus on managing assets, risks, and investment decisions to support service delivery.

The Future of Asset Management in Canada

Asset management is not something that is done once – it is an ongoing process to improve and refine the management of infrastructure and the services it supports. Municipalities across Canada are identifying infrastructure requirements and deficits that may greatly outweigh the available resources. This leads to some core questions:

- Do we always need to spend more money and what happens if we don't?
- Can we adjust our service levels?
- How do we maintain service levels while decreasing the cost to provide the services?
- How do we engage the community in these discussions?

These and other questions will help to define the future of managing our infrastructure systems and the related programs they support.

The Canadian Infrastructure Report Card intends to document asset management practices in Canadian municipalities and report on opportunities for creating a consistent national approach. This will ensure that it is relevant and adds context to the changing landscape of the state of our infrastructure and the state of asset management across Canada.

RECOMMENDATION 5:

It is essential for Municipalities to participate in various country wide initiatives and forums such as the Canadian Infrastructure Report Card in order to improve their asset management practices. Sharing leading practices and enabling comparisons across jurisdictions is essential to the success of asset management programs in Canadian municipalities to lower the total cost of development and to accelerate its adoption.

Has an Asset Management Plan already been prepared for your community? Your work is not finished...municipalities should have the following elements in place as part of their asset management program, as a minimum:

- An **Asset Management Plan** providing the current state of the infrastructure assets, the levels of service expected from them, planned actions to ensure the assets are providing the expected level of service, and financing strategies to implement the planned actions. Asset management plans should be updated on a periodic basis.
- An **Asset Management Policy** confirming the organization's commitments and expectations for decisions, activities and behaviour concerning asset management and the support for the municipality's objectives. Ideally the Policy should be approved by Council.
- An **Asset Management Strategy** defining the municipality's asset management objectives and strategies on achieving the Policy requirements. The Strategy is focused on improving the municipality's asset management practices.

For more information

If you have any questions related to the 2015 CIRC and the upcoming survey, please contact: info@canadainfrastructure.ca

For questions about Asset Management or for help in advancing this practice in your organization, please visit the CNAM Website (www.cnam.ca.)
www.cnam.ca

CNAM Canadian Network of Asset Managers

An Outline of an Asset Management Plan

Asset Management Plans (AMP) lay out how group of assets is to be managed over a period of time. The AMP describes the characteristics and condition of infrastructure assets, the levels of service expected from them, planned actions to ensure the assets are providing the expected level of service, and financing strategies to implement the planned actions. Below is an outline of what an AMP could look like, in part based on the Province of Ontario's recommended template:

1. **Introduction**
   - Documents the assets that are in the scope of the AMP.
   - Explains how the goals of the municipality are dependent on infrastructure.
   - Clarifies the relationship between the AMP and other corporate planning documents.

2. **State of Infrastructure**
   - Documents the inventory and replacement value of the assets owned by the municipality
   - Summarizes the physical condition of each asset type.
   - When ready, will also document the state of the services that are provided through the infrastructure systems.

3. **Levels of Service**
   - Documents the current level at which each service is being provided.
   - Describes what the municipality is measuring to determine how well the current service levels are meeting the target levels established by staff, council or the public.
   - Considers level of service from a customer and a technical perspective

4. **Plan Monitoring and Improvements**
   - Summarizes the key asset renewal projects undertaken over the preceding period and highlights specific benefits.
   - Outline any changes that will impact the next round of AMP goals and initiatives.

5. **Asset Strategies**
   - Establishes 10 year and longer term (50 to 100 year) renewal plans that are based on achieving the target service levels.
   - Includes the infrastructure needs to address future demands, meet new regulatory requirements, and fund the ongoing operation and maintenance activities of the infrastructure systems.
   - Provides a list of asset strategies that the municipality is considering to reduce the cost of renewing infrastructure, reduce the cost to operate & maintain the assets or reduce the risk exposure of the municipality.
   - Discusses procurement methods.

6. **Financing Strategy**
   - Compares the short term and long term renewal needs of the assets to the available revenues.
   - Provides a strategy to reach a point where the available revenues equal the renewal needs of the assets, such as a long term financial plan.