Canadian Infrastructure Report Card

Chris McNally, P.Eng.

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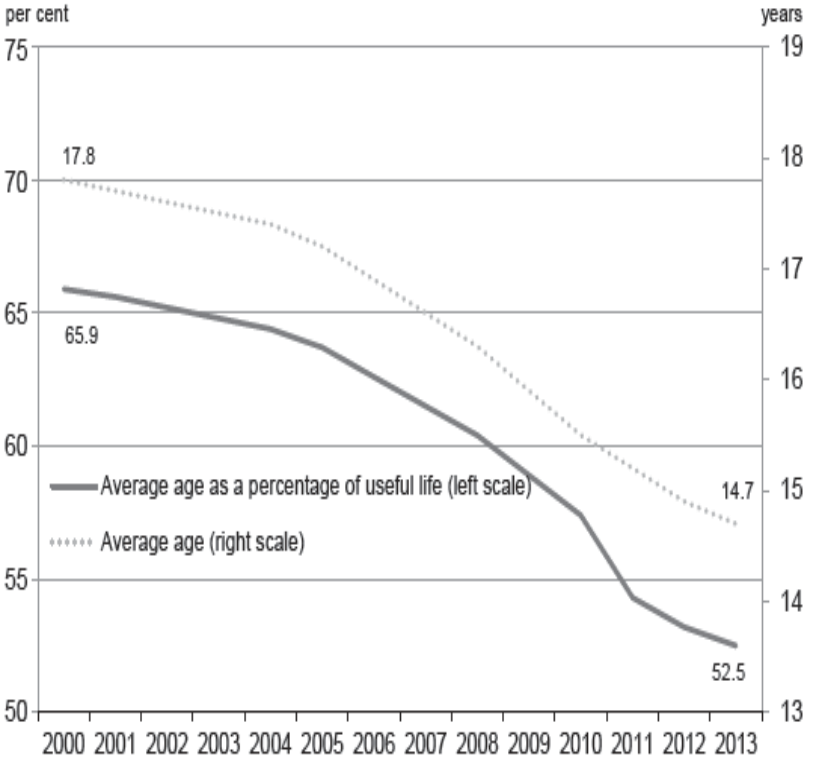
Project Sponsors:

Federation of Canadian Municipalities
Fédération canadienne des municipalités

The Infrastructure Problem

Average Age and Age as a Percentage of Useful Life of Core Public Infrastructure



Notes: Core public infrastructure (roads, bridges, transit, water, wastewater, culture, and sports and recreation infrastructure) owned by all levels of government including crown corporations and provincial agencies. Data for 2013 based on forecast.

Source: Statistics Canada, National Economic Accounts Division

According to Statistics Canada, the Gross stock of core public infrastructure was $286.2 billion in 2007.

Figures from Budget 2015

- Average age of core assets down from a high of 17.8 years in 2000 to 14.7 years in 2013.
- Average age percentage of useful life decreased from 65.9 years in 2000 to 52.5 years in 2013.

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Why Focus on Municipal Assets?

- Most core public infrastructure was built in the 1950s, but Canada's population has increased since then from 16 million to 35 million today.
- Canada is also now more urbanized:
  - In 1951, 62 per cent of Canadians lived in cities
  - In 2011, 81 per cent lived in cities
- These changes in demographics have shifted infrastructure ownership from higher orders of government to municipalities.

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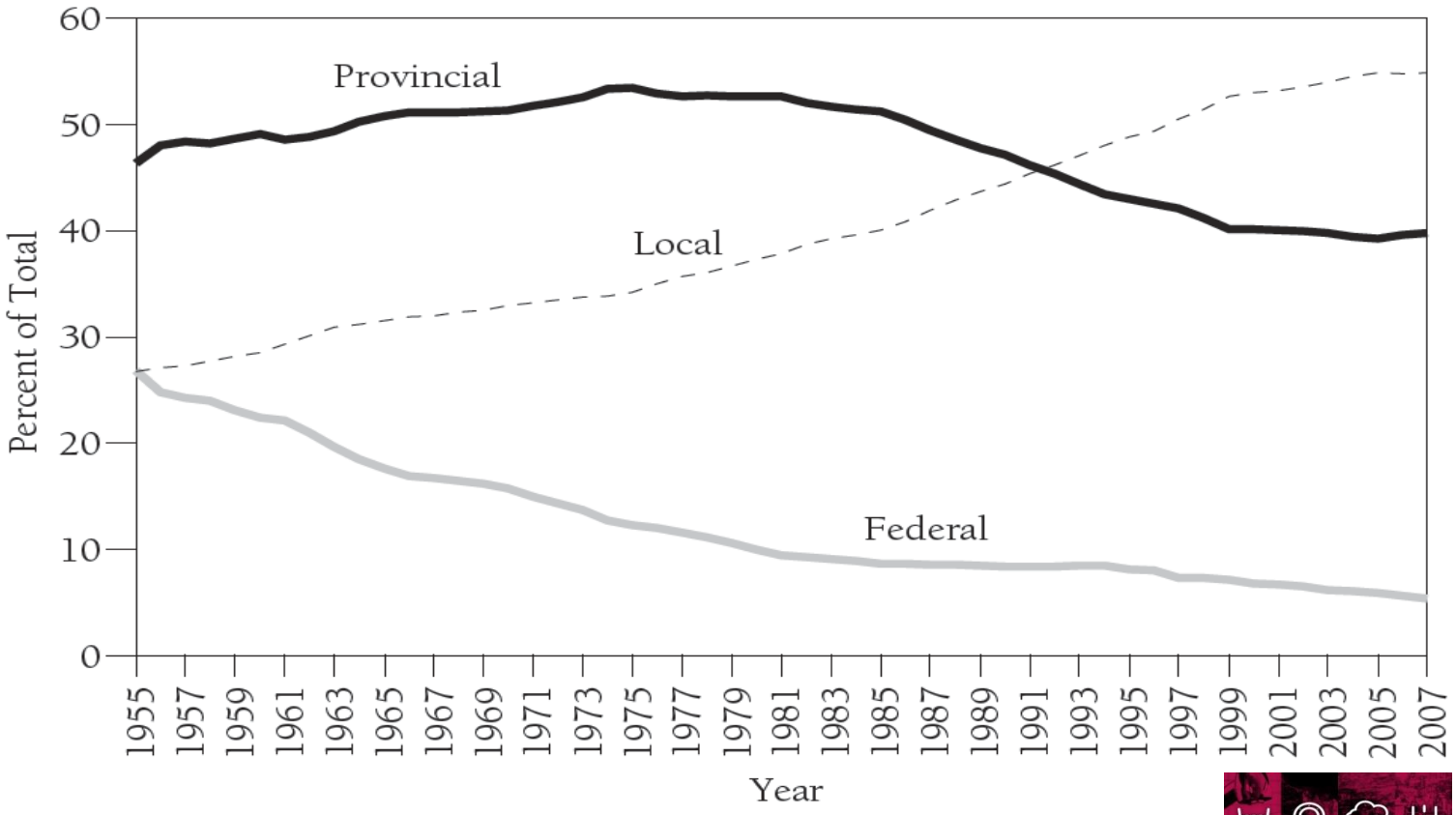
Changes in Ownership over Time

Infrastructure Capital by Jurisdiction, 1955-2007



Source: Statistics Canada, CANSIM matrix 031-0002.

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What is the Canadian Infrastructure Report Card (CIRC)?

- First attempt to document the condition of Canadian municipal infrastructure assets.
- Create reliable tools to objectively assess primary condition data of core public infrastructure and chart the progress of renewal efforts over time.
- Data drawn from response received from 123 municipalities across Canada.

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Purpose of the Report Card

- ✓Assess the health of Canada's municipal infrastructure
- ✓Inform stakeholders about issues and trends
- ✓Rigorous, repeatable process

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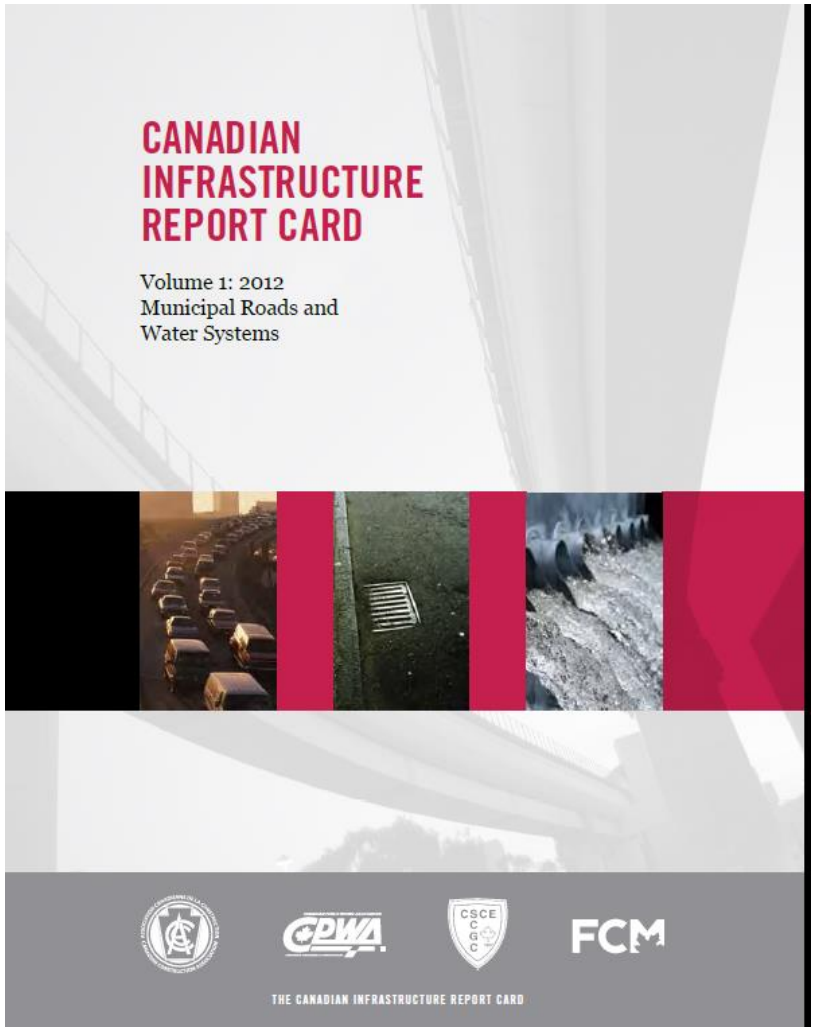
Project Objectives

- ✓ Repeatable
- ✓ Defendable
- ✓ Raise awareness
- ✓ Factual

- ⃠ NOT advocacy



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Project Steering Committee (PSC)

- Steering committee comprised of project funding partners:
  - Canadian Construction Association
  - Canadian Public Works Association
  - Canadian Society for Civil Engineering
  - Federation of Canadian Municipalities
- Steering Committee Role:
  - Develop the survey
  - Direct research efforts
  - Promote the project

Report Card Advisory Board (RCAB)

Chaired by the Canadian Network of Asset Managers

- Association of Canadian Engineering Companies - ACEC
- Canadian Association of Municipal Administrators - CAMA
- Canadian Automobile Association - CAA
- **Canadian Construction Association – CCA (PSC)**
- Canadian Council of Public-Private Partnerships - CCPPP
- Canadian Institute of Planners - CIP
- **Canadian Network of Asset Managers – CNAM (Chair)**

- **Canadian Public Works Association – CPWA (PSC)**
- **Canadian Society for Civil Engineering - CSCE (PSC)**
- Canadian Urban Transit Association – CUTA
- Canadian Water and Wastewater Association - CWWA
- **Federation of Canadian Municipalities – FCM (PSC)**
- Engineers Canada
- Transportation Association of Canada – TAC (Observer)

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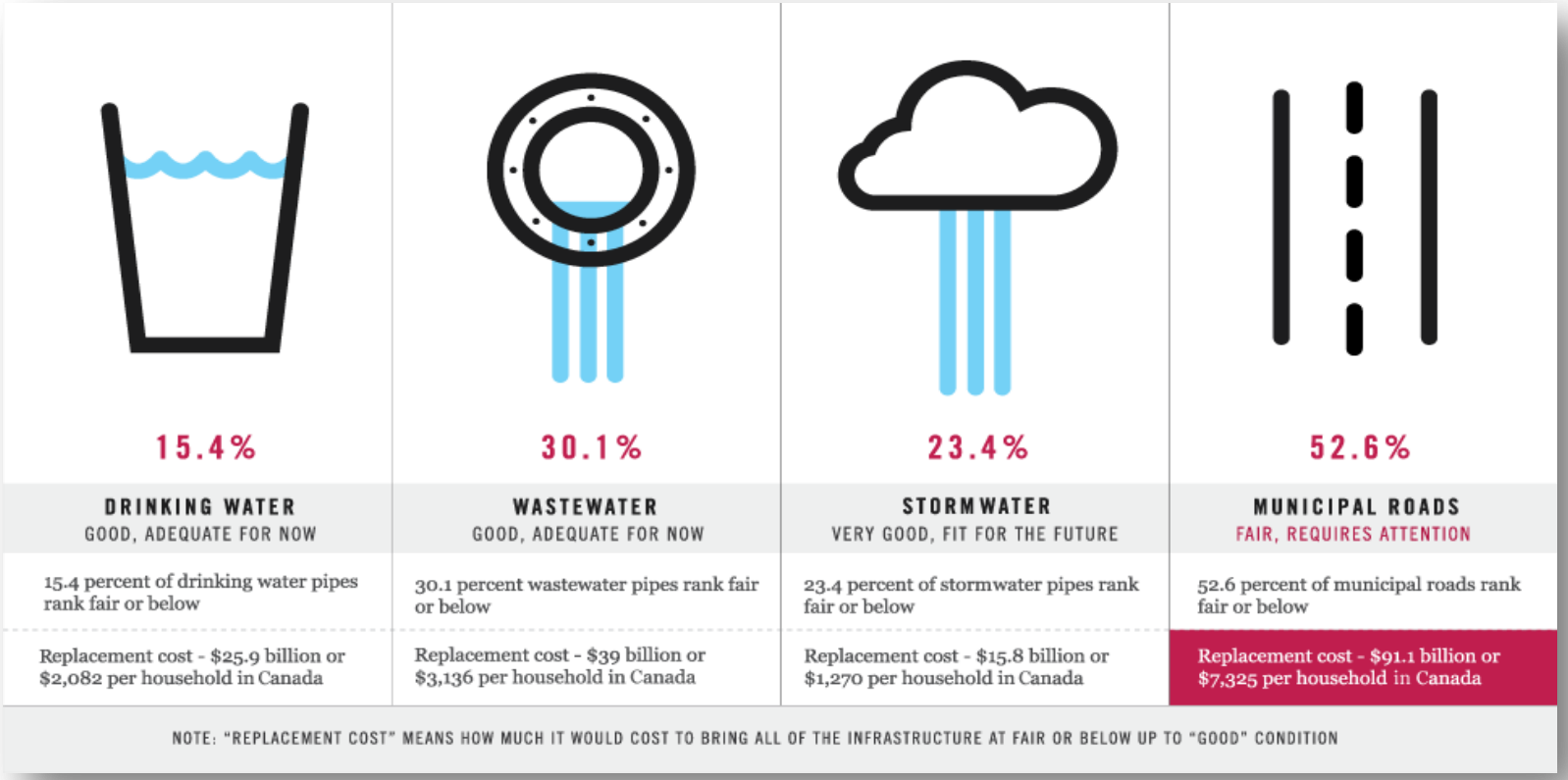
About the Ratings

- Very Good – Fit for the Future (80% or higher)
- Good – Adequate for Now (70% to 80%)
- Fair – Requires Attention (60% to 69%)
- Poor – At Risk (50% to 59%)
- Very Poor – Unfit for Sustained Service (50% or less)

What we Discovered



15.4%	30.1%	23.4%	52.6%
DRINKING WATER GOOD, ADEQUATE FOR NOW	**WASTEWATER** GOOD, ADEQUATE FOR NOW	**STORMWATER** VERY GOOD, FIT FOR THE FUTURE	**MUNICIPAL ROADS** FAIR, REQUIRES ATTENTION
15.4 percent of drinking water pipes rank fair or below	30.1 percent wastewater pipes rank fair or below	23.4 percent of stormwater pipes rank fair or below	52.6 percent of municipal roads rank fair or below
Replacement cost - $25.9 billion or $2,082 per household in Canada	Replacement cost - $39 billion or $3,136 per household in Canada	Replacement cost - $15.8 billion or $1,270 per household in Canada	Replacement cost - $91.1 billion or $7,325 per household in Canada

NOTE: "REPLACEMENT COST" MEANS HOW MUCH IT WOULD COST TO BRING ALL OF THE INFRASTRUCTURE AT FAIR OR BELOW UP TO "GOOD" CONDITION

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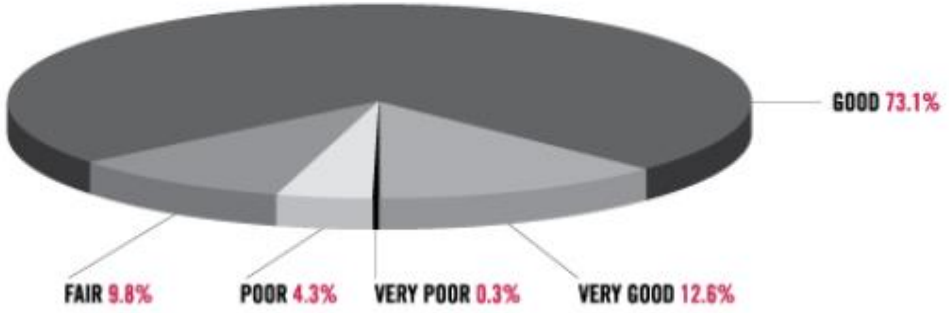
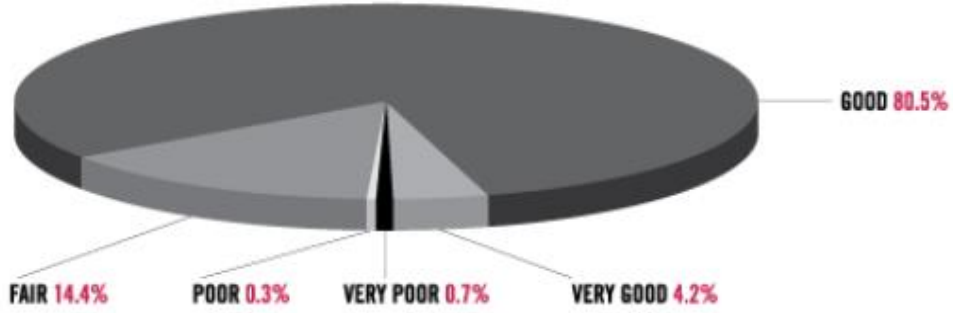
Drinking Water

Drinking water, physical condition: plants, reservoirs and pumping stations



Drinking water, physical condition: transmission and distribution pipes



Rating: Good; adequate for now

- 15.4% of pipes were rated fair to Very Poor.
- 14.4% of water treatment facilities, reservoirs and pumping stations rated Very Poor.
- Cost to replace estimated at $25.9 billion or $2,082 per household in Canada.

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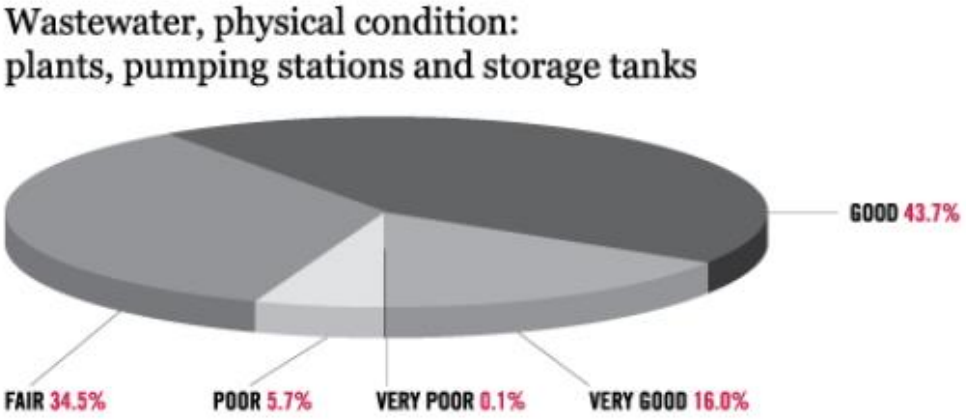
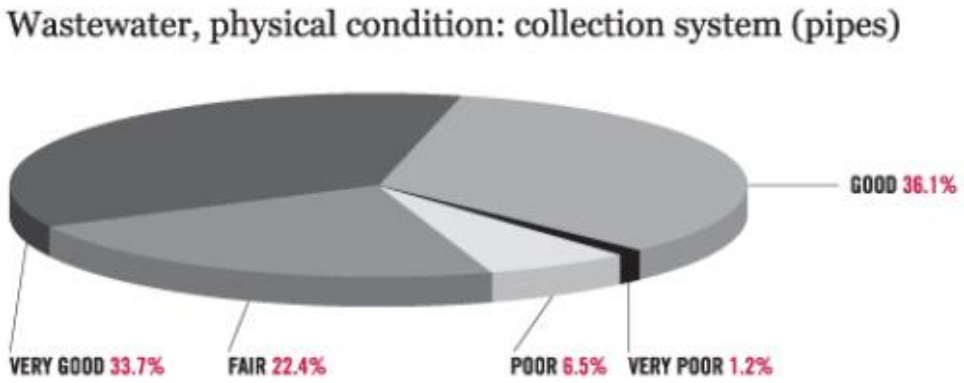
Wastewater Collection & Treatment





Rating: Good; adequate for now

- 40.3% of wastewater plants, pumping stations and storage tanks are in Fair to Very Poor condition.
- Cost to replace estimated at $39 billion or $3,136 per household in Canada.

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Lessons Learned From CIRC 2012

- Many municipalities do not have accurate information regarding the condition of their infrastructure assets.
- The situation is particularly acute within small and rural municipalities.
- Finite financial resources and limited staff time preclude a much more thorough, real-time evaluation of the state and performance of their physical infrastructure.

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Asset Management Primer

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Asset Management Primer

- Why an Asset Management Primer?
- Who is intended audience?
- How does it support CIRC?

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Knowledge Management

- **Recommendation 1**

  When identifying opportunities to improve asset management processes and knowledge within municipalities, it is 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).

Knowledge Management

- **Recommendation 2**

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

Speaking a Common Language

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%

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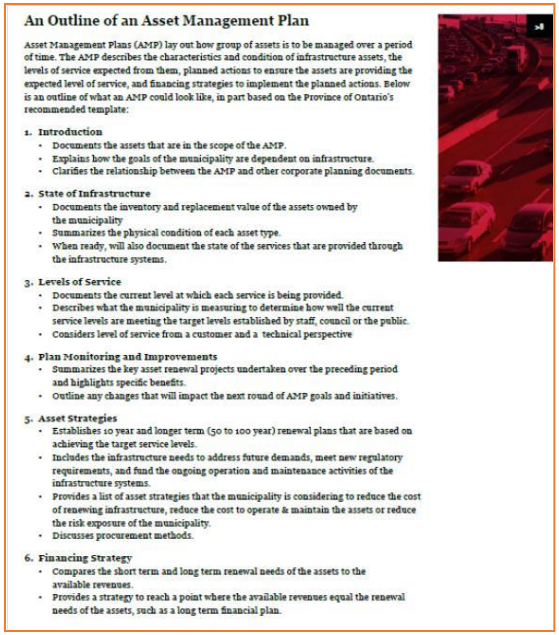
Asset Management Plans

- **Recommendation 3**

  Municipalities should develop an Asset Management Plan for the portfolio of assets required to support the delivery of services.



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.

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Managing Services by Managing Assets

- **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.

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The Future of Asset Management

- **Recommendation 5**

  It is essential for Municipalities to participate in CNAM, 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.

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2015 Report Card

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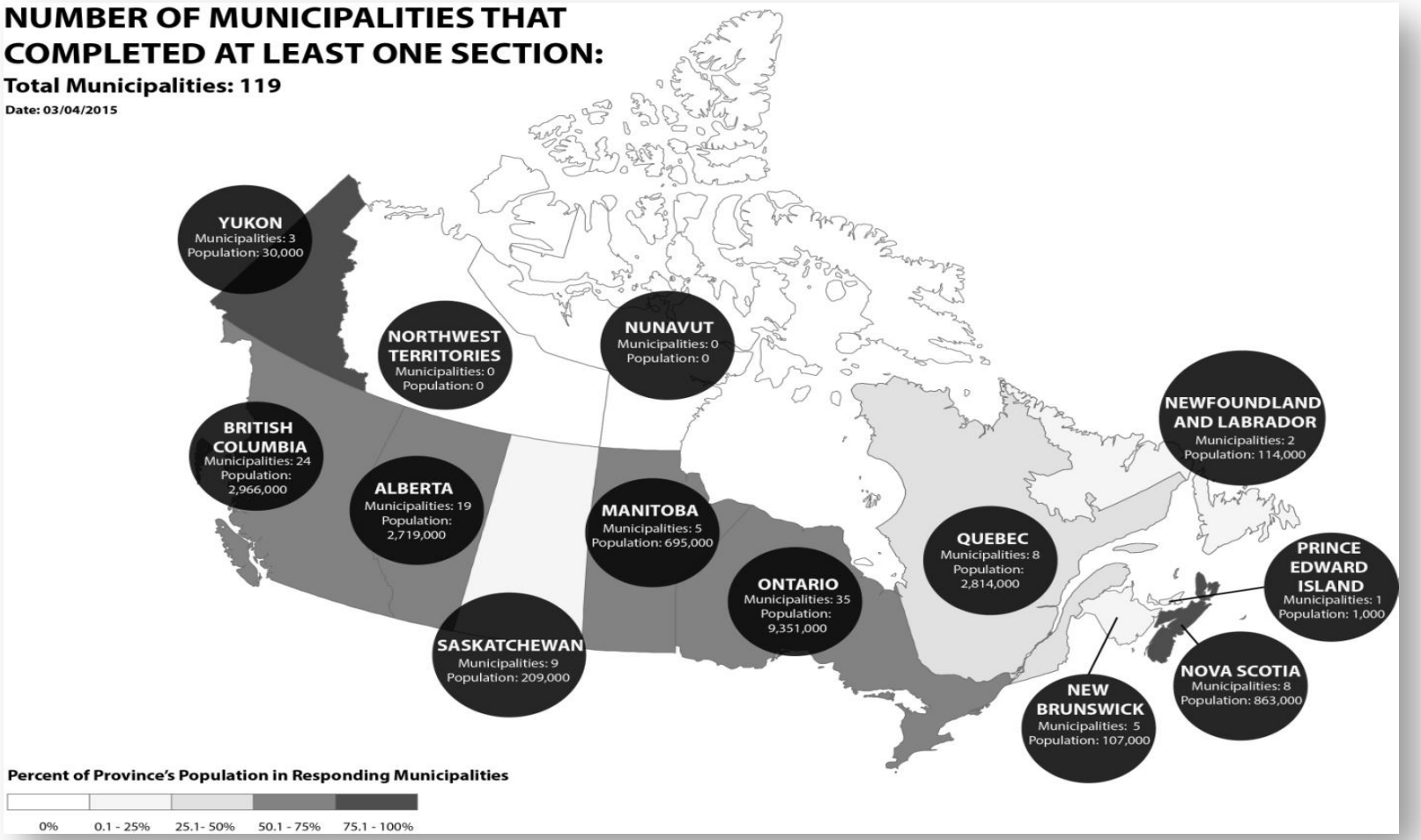
2015 Participation



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2012 – 2015 Comparison

	2012	2015
Drinking Water Systems	x	x
Wastewater Systems	x	x
Stormwater Systems	x	x
Municipal Roads	x	x
Municipal Bridges		x
Buildings		x
Sports & Recreation Facilities		x
Transit Infrastructure		x

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2012 – 2015 Comparison

		2012	2015
Municipal Roads	# of municipalities	118	111
	Population (M)	16.1	23.0
Potable Water	# of municipalities	86	102
	Population (M)	13.5	21.9
Stormwater	# of municipalities	68	107
	Population (M)	11.7	23.3
Wastewater	# of municipalities	84	104
	Population (M)	13.2	23.1
Municipal Buildings	# of municipalities	Not Applicable	105
	Population (M)		22.7
Sports & Recreation facilities	# of municipalities		102
	Population (M)		22.6

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Next Steps

- Survey is closed.
- Data is being analyzed…with the benefit of more detailed information.
- RCAB will be reviewing the results and developing key messages.
- Project Steering Committee to provide final approval by late July.
- CIRC to be released in September 2015

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